

Special edition on Biodiversity.
Supported by JRS Biodiversity
Foundation

SCIENCE

SAYANSI

Telling the African science story

Issue No. 27

www.meshascience.org

NOVEMBER 2022



Is Kenya losing the battle to conserve her wetlands?

In this issue

Polluters, encroachers killing wetlands, 'but lake will revenge'

Congress seeks to put people at the centre of effective conservation

Activists' unique journey to COP 'to amplify Africa's voice'

The Media for Environment, Science, Health and Agriculture (MESHA) was founded in November 2005 in Nairobi, Kenya and is an organisation that provides support to science journalists covering health, development, technology, agriculture and the environment. It does so by offering training workshops, consultancies and encouraging networking through meetings and conferences among journalists, scientists and other stakeholders in Kenya.

The association emphasises on rural journalism and communication.

The idea for the formation of this association sprang up from the fact that there were many organisations and communicators in the fields of agriculture, environment, health and development. However, few organisations in the region bring journalists covering these issues together, for better reporting in the media.

MESHA believes that in a democratic society where science must be answerable to the public, there is need to find new and innovative ways of effective mass communication about the benefits of science, and other areas of concern to the general public.

MESHA aims to ensure continuity, sustainability and consistent coverage of science and development issues as they arise.

SAYANSI

is a publication of MESHA,
P. O. Box 57458 - 00200, Nairobi, Kenya.
email: sayansimagazine@gmail.com
www.meshascience.org

Mesha Science
 Mesha Science

Editorial Director: Aghan Daniel
Editors: Godfrey Ombogo
Lynet Otieno

Cover photo:

The photo features Mr Shekton Were, an officer from Kenya Wildlife Service, Impala Sanctuary, Kisumu, western Kenya. He was fielding questions from MESHA journalists during a biodiversity science café held at the Dunga Beach board walk on July 12, 2022. During the café, the area county director of environment, Mr Tom Togo, decried the wanton neglect of wetlands in his area of jurisdiction. He called on the county government to identify and recognise wetlands in Kisumu County.

Photo Credit | Francis Mureithi

Forum stresses on how protected areas could boost livelihoods

4



Environmentalists call on State bodies to save the wetlands in Kenya

10



Experts worried about the future of Lake Nakuru National Park

22



APAC should be a wakeup call for all to protect wetlands against wanton destruction

That wetlands on the shores of Lake Victoria are shrinking at an alarming rate due to human activity should be a cause for concern not just to the Kenyan government and conservationists, but also individuals living around the lake and who depend on them for their livelihood.

Many greedy and selfish individuals have encroached on the lake's wetlands, building fish bandas and commercial and residential structures. Some of these structures are surrounded by permanent perimeter walls. This is a big problem in two ways.

First, the wetlands are the breeding grounds for specific fish species and other aquatic life. They are also home to other animals such as the rare semi-aquatic antelope, the spot-necked Otte, hippos as well as the renowned Sitatunga antelope. The existence of these animals is therefore at risk.

Secondly, these commercial and residential structures on the lake's riparian land are a disaster in waiting. Recent reports have indicated that the lake water has been swelling in volume and it is slowly but surely reclaiming its original size - a phenomenon that scientists say is natural.

The Kenya Marine and Fisheries Research Institute (KMFRI) reports that already some of the easily accessible fish bandas that were located inside the lake have been submerged, owing to the up swelling of the water.

Wetlands are known to act as natural safeguards against disasters, protecting communities most at risk and vulnerable to the devastating effects of floods, droughts and storm surges.

The Kenyan government and environmentalists must therefore move with speed to protect not just the wetlands of the world's second largest fresh water lake, but all the wetlands in the country to conserve the biodiversity and ecosystem around such water mass.

The first African Protected Areas Congress (APAC) held in Kigali, Rwanda, in July called for the "assessment of the effectiveness of protected areas and other conserved areas, including their governance and management benchmarked against universal standards such as the IUCN Green List Standard and to prioritise actions, capacity development and funding based on the findings."

This should be a wake-up call for the government to identify all wetlands, gazette them as protected areas and come up with workable strategies on how to protect them going forward.

APAC also recognised that protected areas are vital for African peoples' livelihoods and cultures and that people must be put at the centre of their "effective and equitable conservation".

This means to successfully manage wetlands in the country, we must actively involve the people living around them on their importance and the need for the protection and conservation. We can start by educating the people on how best to protect and manage the wetlands, even as they benefit from their existence.

This is also where the media comes in as a crucial educator of the masses.

Wetlands are known to act as natural safeguards against disasters, protecting communities most at risk and vulnerable to the devastating effects of floods, droughts and storm surges.



A presenter gives brief remarks at the opening session of APAC 2022 in Kigali last July.



APAC sought to position the continent's protected and conserved areas for economic development.

Let's leverage on protected areas to boost livelihoods, WWF tells Africa



The Congress brought together African leaders, citizens and interest groups to discuss their roles in conservation.

By Joyce Chimbi | j.chimbi@gmail.com

The place of biodiversity in human existence and survival has been reemphasised, with a view to encouraging more focused action that will ensure mutualism.

This came clear at Africa's first biodiversity focused, continent-wide gathering that was held in Kigali, Rwanda, between July 18 and 23, 2022.

The IUCN Africa Protected Areas Congress (APAC) came as a reminder that biodiversity is the greatest natural resource as it is a source of food, clean water, tourism, among many other benefits critical for human survival.

Research shows that currently 50,000 wild species meet the needs of billions of people worldwide, providing food, cosmetics, shelter, clothing, medicine and inspiration.

The APAC was hence a launching pad to position Africa's protected and conserved areas strategically to achieve broader goals, including economic development and community well-being.

The gathering that brought together African leaders, citizens and interest groups focused on the role of protected areas in conserving nature, safeguarding Africa's iconic wildlife, delivering vital life-supporting ecosystem services, promoting sustainable development while conserving Africa's cultural heritage and traditions.

"APAC presents us with a unique opportunity to bring everyone together to reconnect after what seems like far too long in isolation-to reflect on the challenges and opportunities of protected and conserved area conservation in Africa and make progress towards a collective vision and a clear way forward," said WWF International Director General Marco Lambertini.

At least 1,936 nationally protected areas have been identified in the region. Protected areas are the key tool for biodiversity conservation and ensuring that conserved areas are effectively managed.

Photo Credit | WWF



Marco Lambertini, WWF International Director General, speaks at APAC.

“WWF’s new Africa strategy provides a framework for strengthening how we work together in the region, both within WWF and in partnership with all relevant stakeholders, from governments to businesses and investors, organised civil society, youth, indigenous peoples and local communities,” said Lambertini.

The overarching objective of the APAC was to position Africa’s protected and conserved areas within the broader goals of economic development and community wellbeing and to increase the understanding of the vital role parks play in conserving biodiversity and delivering the ecosystem services that underpin human welfare and livelihoods.

WWF believes that protected areas must contribute to nature conservation, climate adaptation and mitigation and advance the well-being of Indigenous Peoples and local communities.

It joined in the calls for ambitious commitments to create effectively managed, governed, and well-funded conserved areas that safeguard the livelihoods of the people around them. Experts at WWF say ambitious commitments are critical because Africa is on the front line of the crises in climate and nature.

WWF Africa Region said the continent’s protected and conserved areas are of “great ecological, social, economic and cultural importance, providing resources that support communities and enable pathways for adaptation to climate change.”

At the Kigali event, the WWF called for “stronger recognition of the role of protected and conserved areas in climate change adaptation and mitigation and consolidation of scientific, traditional knowledge and best practices on the nexus between protected and conserved areas, biodiversity, people and climate change.”

The organization said conservation had never been at odds with Africa’s economic and social development aspirations, further emphasising that nature and conservation are an encompassing and inclusive endeavor of people of all walks of life.

Against knowledge that up to 50 per cent of the wealth in most African countries comes from natural capital and assets, with around 70 per cent of the

continent’s population dependent on nature for their livelihoods, conservation experts at the congress stressed the urgent need to align protected and conserved areas with economic development and people’s well-being.

“The urgency of meeting the needs of people and the planet sustainably has never been greater. Both are facing enormous pressures and hold significant promise too. But these pressures cannot be overcome, or these promises realised by one person or one organisation alone.

We must embrace these challenges and opportunities together - with diversity as our strength - a collection of voices across communities, countries, sectors and political perspectives coming together as one voice for people and planet,” said Alice Ruhweza, WWF Africa Region Director.

Building on its work at country, landscape, regional and global levels, WWF’s strategy leverages the power of people to transform lives and landscapes. “Through ensuring coexistence in shared spaces, transforming Africa’s balance sheet, and an integrated and inclusive whole-of-society approach, we are committed to working together to transform the conservation narrative in Africa,” Ruhweza said at the APAC.

To achieve this, WWF has vowed to create space for genuine discussion and learning, reach across boundaries to ensure voices are heard, strengthen partnerships with Indigenous Peoples and Local Communities, the private sector, governments, and civil society, and implement robust environmental and social safeguarding frameworks.

Ruhweza added: “There is hope. Today there is unprecedented interest in nature. Individuals, communities, and governments are coming together across Africa to achieve net zero and reverse biodiversity loss. To build a better future for Africa.

“The challenges and opportunities for conservation in Africa – at scale – have never been greater,” said Ruhweza.

Group 'watches' environment by using waste plastic bags to grow tree seedlings

Photo Credit | Daniel Wako



Some of the plants Brandon Kitele has planted in waste plastics. He collects waste plastic bags and containers from dumping sites.

By Daniel Wako | danielwako971@gmail.com

When I visited Bungoma town senior chief's office recently, I got attracted to the beautiful tree seedlings arranged against the perimeter wall surrounding the compound.

The trees are planted in big plastic bags and broken plastic containers. This is a project of Bungoma Environmental Watchers.

Brandon Kitele, a resident of Bungoma County and a member of the Bungoma Environmental Watchers, is the owner of this tree nursery. He uses plastic bags and containers from dumping sites to upgrade trees to different heights.

"I don't plant trees; I just upgrade them. I buy seedlings from other farmers and upgrade them to a second level or third level before selling them," says Kitele.

Speaking on his journey to getting to where he is, Kitele says, "Bungoma Environmental Watchers is an organisation that protects the environment from destruction. We keep records of how many trees have been cut and how many have been planted in Bungoma County. We ensure that whoever is cutting trees has a permit to do so."

He says the USAID programme was aimed at giving the youth purpose after the 2007 post-election violence.

"We started as a youth bunge called Namachanja Youth Group in 2011. The main aim of the youth bunge was for individual youths to benchmark with what other groups or organisations were doing according to each one's passion and identify what one was conversant with," says Kitele.

Due to his love for trees and the urge to conserve the environment, Kitele visited KEEP Bandas in Kakamega to know more about tree planting. It is during his three-day funded tour that he learnt about tree upgrading.

The only problem was that he needed bigger materials for holding soil since the normal tree planting tubes were too small for tree upgrading.

"I found a solution in plastic bags and cans. They are the best for tree upgrading since they are available in bigger sizes and can hold a large amount of soil," he says.

"I collect these plastic bags from trash cans, waste bins and dumping sites here in Bungoma.

I use sugar bags, rice bags, big plastic cans and any other plastic material that is large and strong enough to hold a large amount of soil."

Photo Credit | Aghan Daniel

The benefits of using these plastic waste in upgrading trees include availability. They are also free, all he has to do is visit a dumpsite and choose what he wants. He is also happy to use the plastic bags and cans as this offers a recycling programme that gets rid of excess plastic waste in the environment.

"I deal with indigenous trees, which take long to grow. It takes even longer when they are grown in a narrow place. That is where plastic bags and cans come in. They provide a wider growing space," says Kitele.

The price of the trees varies according to the type and size. He grows several types, including high value (fruit trees), medicinal, ornamental, woodlog and exotic trees. They all have different prices depending on height and species.

"The highest amount I can charge for a single tree is Ksh7,000 (\$59)," he says.

At his tree nursery, Kitele has more than 10,000 seedlings of different species.

Kitele says April to August are his peak selling periods.

"Like last year my sales during the period totalled to Ksh400,000 (\$3,374)".

He also partners with various organisations and individuals to improve the community's tree cover.

"I have been partnering with Kibabii University, KCB, Bungoma County government, Kenya Forestry Service (KFS) and other partners to plant trees in schools and hospitals," says Kitele, Adding that Bungoma Pediatric Hospital as one of the places they planted trees last year.

A research by the National Environment Management Authority (NEMA) in 2018 on prevalence of plastic bags in rumens of slaughtered livestock in Nairobi's abattoirs found out that more than 50 per cent of livestock have ingested plastic bags.



John Kinyanjui sells seedlings along Kangundo Road in Nairobi. Like other sellers, price of the trees varies according to the type and size.

These animals suffer from various conditions such as depression, being weak and bloating, and this affects their milk and beef production. The researchers concluded that the ban on plastic bags should be upheld to safeguard the livestock industry and the environment.

According to the United Nations Environment Programme (UNEP), people have become addicted to single-use or disposable plastic, which have severe environmental consequences. In the world, one million plastic drinking bottles are purchased every minute while five trillion single-use plastic bags are used worldwide every year. In total, half of all plastic produced is designed to be used only once and then thrown away.

The major impact of plastic bags on the environment is that they take many years to decompose.

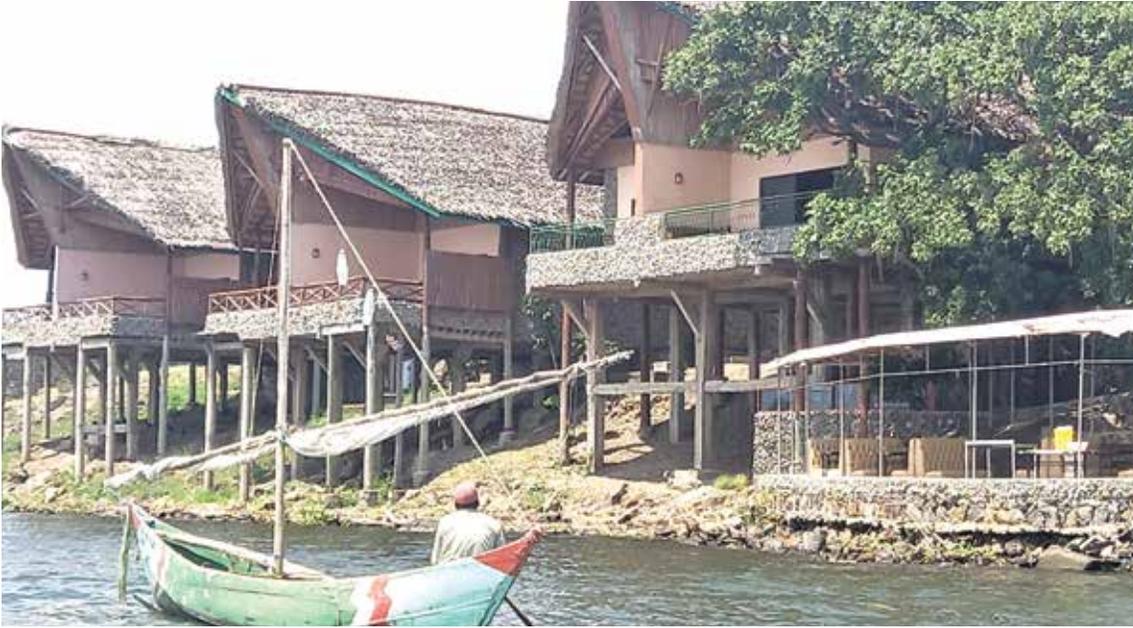
In addition, toxic substances are released into the soil when plastic bags perish under sunlight and, if plastic bags are burned, they release a toxic substance into the air, causing ambient air pollution.

Waste from plastic bags poses serious environmental danger to human and animal health.

However, efforts such as the one by Kitele help to reduce the effects of plastic bags on the environment. It also champions Kenya's Vision 2030 goal of increasing the forest cover to 10 per cent by 2030 and sustainably manage natural forest resources for environmental protection and enhanced economic growth.

In the words of Nobel Laureate, the late Wangari Maathai, Kitele says, "I'm doing the little I can."

Photo Credit | Joseph Ouma



A beach resort that has encroached into Lake Victoria, blocking the paths used by animals such as crocodiles and hippos seeking water for drinking or grazing grassland.

Polluters, encroachers killing wetlands, 'but lake will revenge'

By Joseph Ouma | joothoth@gmail.com

Lake Victoria's wetlands, home to many rare animals, insects and bird species, are shrinking at an alarming rate, courtesy of plastic pollution.

If not checked, plastics are projected to replace the fish stocks in the shared water mass by 2050, threatening the existence of the likes of a rare semi-aquatic antelope, the spotted-necked Otte, hippos as well as the renowned Sitatunga.

Researchers have recommended immediate action by multi-sectoral actors to avert imminent tragedy as a result of continued destruction of the wetlands, which are also the breeding sites for many fish species, more specifically omena (sardines), tilapia and Nile Perch, thus making it necessary for.

At the same time, residents of Lake Victoria Basin have been cautioned to either change behavior or risk having huge piles of plastics, which threaten to destroy the second largest freshwater lake in the world.

The upwelling of Lake Victoria, a phenomenon described as a natural occurrence unrelated in any way to poisoning, has also sent danger signals.

At the same time, continued use of illegal means to catch fish, has been blamed for mass deaths of fish, mainly Nile Perch.

Patrick Otuo, a Socio-Economist Research scientist at the Kenya Medical Research Institute (KEMRI) says unregulated fishing has immensely contributed to destruction of the environment and various fish species in the water mass shared by Kenya, Uganda and Tanzania.

Mr Otuo says plastics do not add value to Lake Victoria or any other water body, but during the upwelling and subsequent overflow, fish lose the oxygen levels necessary for breeding purposes.

"This has been compounded by the stress attributed to the ever increasing human population, which has exacerbated numerous challenges faced by the environment and all those whose livelihood depends wholly on Lake Victoria," the scientist told journalists affiliated to the Media for Environment Science Health and Agriculture (MESHA) in Kisumu.

The MESHA's Kisumu Chapter had teamed up with colleagues from other regions to assess the impact of destruction of riparian land on the Western Kenya Tourism Circuit.

Naftali Mwirigi, a researcher at the Kenya Marine and Fisheries Research Institute (KMFRI) further explained that water levels at the lake affected rainfall patterns in the region, ranging from 10 cubic metres to 20 cubic metres.



Visitors at the Dunga Beach Boardwalk. Monkeys traverse the expansive wetland on the shores of Lake Victoria.

Mr Mwirigi said some of the easily accessible fish bandas that were located inside the lake and adjacent to the many fish cages five years ago have since been submerged, owing to the up swelling of the Lake Victoria.

“Human beings have been encroaching on the shorelines (riparian) areas of the lake, which is expected to be 30m from the lake. But with the increased effects of climate change, it is projected that the lake will continue to expand to reclaim its rightful space,” he explained.

Yet many commercial and residential structures occupy the lake’s riparian land, some surrounded by permanent perimeter walls.

And now stakeholders are calling for demarcation of the wetlands and entire riparian areas to curb further encroachment of the lake’s resources in all the EAC partner states that surround Lake Victoria.

Mr Mwirigi says there is an ongoing mapping process to cover the entire 5,000 square kilometers to minimise extensive destruction of the riparian areas, mostly

attributed to hoteliers and individuals who have extended their perimeter walls to the lake.

“Mapping should have been done earlier. Failure to do so will dent the efforts to grow our Blue Economy by way of nurturing water sport activities, maritime transport and general fishing on Lake Victoria,” said Mr Mwirigi.

He outlined anthropogenic pollution (attributed to human activities), raw effluent (industries and human settlements) alongside harmful algae bloom attributed to eutrophication (colonies of algae grow out of control, producing toxic or harmful effects on people, fish, marine mammals and birds) as some of the biggest threats to the lake’s biodiversity.

The other areas of concern include heavy metals and sediments on the floor of the lake.

Tom Togo, the Kisumu County Director of Environment, said there is need to regulate development activities around the lake. This, he said, will greatly protect the wetland and the lake ecosystem.

Mr Togo also addressed the MESHA journalists, arguing that pollution from soil erosion and activities downstream getting enriched with phosphorus has facilitated the growth of algae.

He said the National Environment Management Authority had formed respective community committees involving users of fertilisers, herbicides and other chemicals with a view to punishing those who circumvented the law and the polluters through deterrent convictions in court.

The NEMA County Director said it was unfortunate that not a single wetland had been gazetted, calling for fast tracking of issuance of title deeds to protect the resources.

Subsequently, Mr Togo urged the media and the County Assembly to move swiftly to fast track the exercise.

He said there was need for those neighboring Lake Victoria to learn to coexist with the shared water mass. “As we clear the bedroom (wetlands), we will in essence be destroying the resource, thus killing the goose that lay the golden egg,” he said.

Expert: Government key in stopping loss of wetlands

By **Omboki Monayo** | omboki2725@gmail.com

Photo Credit | Francis Mureithi

After being battered sore by the COVID-19 pandemic, a thriving Kisumu metropolis is witnessing a resurgence in its hospitality industry. Beach establishments are at the cusp of the wave.

But beyond the sounds of melody and merriment wafting across the lake's moon streaked waters, a different song holds the area captive. It is the desperate song of both rare and plentiful species fighting for survival amid a rising tide of human invasions.

The wetland adjacent to the lake is dwindling as the beach continues to give way to waterfronts for visitors to enjoy a breathtaking view of the water that peels away into the distance.

This comes as the National Environment Management Authority (NEMA) now finds it difficult to restrict development on wetlands around Lake Victoria because of the legal issues surrounding specific parcels' ownership.

The authority's Kisumu County Director Tom Togo says those constructing houses and other establishments that are detrimental to the natural resources have legitimate but wrongly issued title deeds, which have permitted such activities.

NEMA's hands are tied. "We can enforce the law on riparian lands, but when the owners have title deeds, they can always argue that the documents grant them autonomy to decide what to do on the parcels of land," he says.

The solution? Mr Togo calls for gazettment of wetlands as protected areas. "If the wetlands are gazetted as protected areas, we will be able to enforce the regulations on riparian land.



Dunga Ecotourism Team (DECCTA) chairperson Victor Didi at Dunga Beach Boardwalk.

"All the recent shoreline developments are a sign that NEMA was not consulted, and have therefore been done illegally," he told journalists after a fact-finding boat trip along the shores of Lake Victoria in Kisumu last month.

The establishments encroaching on the wetlands are residential houses and businesses. Even as journalists moved along the shores of the lake in a boat, construction of panels for a club was ongoing.

Michael Nyaguti, the Magnam Environmental Network chairperson, says laxity in the management of the wetlands by the regulatory authorities is to blame for the risks the biodiversity in there now face.

At the Dunga Boardwalk, a solitary monkey hesitates for a few precious moments on the roof and looks into the surprised, pleased faces of the visitors before scampering into the green expanse of wetland foliage below.

Mr Nyaguti, who has fought the destruction of the lake's wetland region, is honest about the magnitude of the struggle to save the area's biodiversity.

"We have been fighting an uphill battle to contain the activities of the private developers that are encroaching on the wetland," he told Sayansi.

He accused some of the developers of bribing some greedy and unscrupulous members of the Coast Guard and Dunga Beach Management Unit (BMU).



Hadada Ibis birds perch on a restaurant that was submerged by water at Dunga Beach, Kisumu City, Kisumu County in western Kenya.

Mr Nyaguti has however vowed to soldier on, despite the challenges that include making powerful enemies, and filed several cases against prominent personalities, including former Kisumu governor Jack Ranguma. He has also obtained court orders stopping development of three properties that border the lake.

He considers his actions a legitimate cause that must be passionately pursued. "We are concerned about the wetland, as it is a breeding ground for the tilapia species and home to many other forms of aquatic life," the activist told Sayansi.

"If we destroy the wetland, there will be no other place nearby for the fish to breed. Construction projects on such sites are a threat to the region's biodiversity and fish industry sustainability," he says.

To protect Lake Victoria, also known as Nam Lolwe, Mr Nyaguti advocates for stringent application of NEMA construction regulations.

"We must all remember that the law applies equally to all. Magnam remains determined to ensure that the community protects the lake's biodiversity for the benefit of generations to come," he says.

Victor Didi of Dunga Ecotourism Team (DECTA) says they have worked with state departments and CBOs to ensure the lake and surrounding wetlands can break free of plastic pollution.

"We work in collaboration with partners such as Nema, KMFRI and the local BMU," says Mr Didi, crediting the collaboration for the establishment of a regular cleanup campaign that sees a taskforce collect plastic waste from the lake and surrounding areas.

"We currently clean up the lake once every month. It is part of our efforts to maintain a healthier, cleaner and more natural environment," says Mr Didi.

Mr Nyaguti has commended Mr Togo for drawing a red line against rogue constructors and polluters.

"NEMA is doing a great job in enforcing the laid down protocols before construction is allowed to take place. This commitment has proven a boon in our efforts to stop the lake from further pollution," Mr Nyaguti says.

According to the Nema county boss, the authority has rejected several applications for developments along the shoreline due to their closeness to the beach.

"The law regulating riparian lands stipulates that no construction is allowed 30 metres from the highest water point for the lake, and 6 metres for rivers. We have so far rejected three applications for development along the shore for that reason," Mr Togo told Sayansi.

He is emphatic that the wetland is an integral part of the lake's biodiversity, adding that both are dependent on each other for survival.

"If we destroy the wetland, we will be left with a dead lake," said Mr Togo.

Photo Credit | Omboki Monayo



The Dunga Melon waterfront which is built on the water contrary to National Environment Management Authority (NEMA) regulations that require buildings to be at least 30 metres from the water's edge.

Plastic waste threatens Lake Victoria's biodiversity

By Omboki Monayo | omboki275@gmail.com

Lake Victoria is drowning in a slowly rising tide of plastic waste, and in about 30 years, this kind of pollution may outnumber the population of fish in the water body.

According to Mr Patrick Otuo, a socio-economic scientist at the Kenya Marine Fisheries Research Institute (KMFRI), self-serving and egotistical actions have often resulted in the loss of biodiversity in the region.

"People have refused to think rationally in the way they use plastics. Unfortunately, this is a common characteristic of human beings, a robber species that exploits other forms of life for its survival," says Mr Otuo.

Left uncollected, plastic waste liberally dots the busy Kisumu shoreline at Dunga Beach.

Amidst the chatter and shouts of the fisher-folk jostling for business at the water's edge, it is easy to spot the distinct clear, green and blue bottles idly bobbing in rhythm with the waves gently rocking against the shore.

Even the Dunga Boardwalk, a tourist site with breathtaking views of the massive expanse of the lake's water, struggles with the discomfiting presence of empty plastic bottles floating like miniature submarines under the impressive but rapidly aging wooden walkway.

"We have cautioned visitors to the site not to throw plastic bottles, cans, straws and related waste into the wetland," says Mr Victor Didi, who serves at the Dunga Ecotourism and Conservation Team (DECTA).

The community based organisation that focuses on conservation of the lake and the surrounding wetlands has imposed fines for visitors caught littering.

Mr Didi says the fines have given the much needed impetus to the efforts so far made to conserve the pristine area that is home to several species of birds, fish and monkeys, as well as other forms of terrestrial and aquatic life.

"DECCTA has imposed a fine of Sh500 for offenders, but is also committed to creating awareness in the community on the importance of conserving the lake and the adjacent wetland," he told Sayansi in Kisumu on July 12.

The Dunga Boardwalk management team has also worked with other partners to launch a regular lake cleanup programme. Every first Monday of the month, members of the cleanup team that includes scientists from KMFRI and staffers from NEMA, scout and scour the lake's waters for plastic waste.

"During our last cleanup exercise, we collected around 140kg of plastic waste from the lake," says Mr Naftaly Mwirigi, a KMFRI scientist.

He says while organic waste can dissolve in the water, plastic does not, and its lifespan of at least 500 years means that existing plastic pollution will continue to be a headache for the community and marine regulatory authorities.

In March 2016, scientists in Osaka, Japan discovered *Ideonella sakaiensis*, a strain of bacteria that eats PET, the plastic from which bottles are made.

Findings from the resulting research are still in the initial stages and the organism could take years before being effectively deployed on a large scale to combat the plastic menace.

Mr Otuo tells Sayansi of the plastic dumped in the lake. "Plastic adds zero value to the lake. It is our responsibility to ensure that we eliminate it from the area as it contaminates the food chain with micro-plastics and endangers most other life forms."



An abandoned toilet at Dunga Beach, Kisumu City. Experts have warned that pollution is a serious threat to the fish industry that is a dietary and economic mainstay of Kisumu County's 379,000 residents.

So far, Mr Didi says, the community's response to the cleanup measures has been positive. "Our people have understood that more plastic waste means less hope for the future survival of the lake and we hope to see reduced levels of pollution going forward," says Mr Didi.

Benedict Adero, the chairperson of the Kisumu Environmental Champions (KEC), a climate justice advocacy and environmental conservation collective based in the county.

KEC has started a "Let Lake Victoria Breathe Again" campaign that has since gone viral on Facebook and Twitter.

"We are asking visitors, business people and the communities around the lake to do their best to spare the lake from plastic pollution," says Mr Adero.

KEC members have held sensitisation drives for the community in various parts of Kisumu County. "We want the people to be part of the conservation effort because they hold the key to the lake's survival," Mr Adero told Sayansi.

#meshacongress2023

mesha
Media for Environment, Science, Health and Agriculture

East African Conference of Science Journalists

23 - 26 May, 2023

Contact: info@meshascience.org, meshacongress@gmail.com

Illegal fishing threat to stock, livelihood in Lake Victoria



Photo Credit | Omboki Monayo

National Environment Management Authority County Director, Mr Tom Togo.

By Omboki Monayo | omboki2725@gmail.com

Environmental conservation activists have raised alarm over the rising cases of illegal fishing, as dwindling fish stocks continue to threaten the livelihoods of the fisherfolk.

Homa Bay County Fisheries Director George Okoth said fish production in Lake Victoria had shrunk from 100,000 tonnes in 2000 to 25,000 tonnes in 2020.

According to a report authored by Fisheries Principal Secretary Prof Micheni Ntiba, KMFRI Director Dr Enock Wakwabi and Uganda's National Fisheries Resources Research Institute (NaFIRRI) Research Director Dr John Balirwa, the Lake Victoria basin is estimated to have a population of 30 million people, which is growing at around three per cent annually.

"With annual fish yields estimated to be more than 500,000 tonnes annually, the lake is a prime source of income and food for 30 million people living in the basin covering Kenya, Uganda and Tanzania," reads the report dubbed 'Aquatic biodiversity of Lake Victoria basin'.

Among the factors blamed for the sharp drop are climate change, increased pollution around the lake and overfishing using illegal nets that catch smaller, immature fish along with the larger adults as the boats trawl the fishing grounds.

According to National Environment Management Authority (NEMA) Kisumu County Director Tom Togo, pollution in the lake can be attributed to several factors.

"The use of fertilisers in surrounding counties like Uasin Gishu, Kericho, Nandi, Nyamira, results in the entry of heavy metals into the water that flows downstream in the rivers that feed into the lake. Once it gets into the lake, it is pushed by the waves until it reaches the endpoint, and we cannot take it back to the source," says Mr Togo.

"This has the effect of increasing the levels of phosphorous, nitrogen and other compounds."

"When the water on the surface moves to the bottom, the water at the bottom moves to the top, and this leads to mixing that can kill some of the fish breeds such as tilapia that thrive in an oxygen-rich environment," he adds.

Magnam Environmental Network Chairman Michael Otieno Nyaguti decries the rise in illegal fishing in the lake's wetlands.

"We are worried about the rise of illegal fishing around the wetlands. Some unscrupulous fishermen have developed new techniques, including 'Abungu', which involves setting fish traps under the acacia thorn trees also known as 'Orindi' that grow in the wetlands. They then prune the tree branches to make the area more accessible to the fish that breed under the trees," he says.

"These fishermen also use the 'sekeseke' method that involves the insertion of hands into underwater caverns to pull the fish out. It is a risky method that exposes the fishermen to the danger of being injured by other aquatic animals," adds Mr Nyaguti.

He warns that such methods could lead to drastic reduction in the fish population around the wetlands.

"More needs to be done in terms of vigorous enforcement of environmental protection laws to stop the lake's slide into a worsening abyss of degradation, including pollution, reduced fish stocks and an ever increasing pile of plastic waste," he says.

Burgeoning but illegal construction of several beachfront properties is also a headache for the conservationists fighting to keep the lake shores teeming with natural vegetation, animals and birds.

Nairobi, October 27, 2022

Call for Applications: Biodiversity podcast

MESHA invites journalists and podcasters to submit in-depth podcast proposals on efforts in place to promote, study and save East African biodiversity. Podcasts should aim for a length of 3-10 minutes.

The call is under MESHA's Journalists Acting for Biodiversity Project (The JAB project) funded by the JRS Biodiversity Foundation.

The project seeks to underscore the important role biodiversity plays in our existence, society, economy and ecosystems. The mission is to create awareness of the status of biodiversity in our region and to profile initiatives by communities and organisations that seek to study, protect, value and preserve our rich heritage of East African biodiversity.

Topics under consideration

- The critical importance of biodiversity to sustaining tourism
- Community involvement in research and conservation efforts
- Emerging issues and new innovations relating to biodiversity

- Valuing ecosystem services (i.e. water regulation, medicine, food/fiber sources, soil fertility) of biodiversity to our society and economy Broadcast

The episodes will be broadcast on podcasters own platform, MESHA's podcast platform and YouTube in both English and Kiswahili.

Eligibility

- Primary beneficiaries of story grants should be local journalists focusing on environment biodiversity or those that have worked with MESHA before engaged in science-related reporting activities.
- We recommend collaborative reporting that will involve more than one journalist and at least one scientist or researcher willing to share resulting coverage; we are looking for proposals that seek to leverage their work for the greatest possible reach and impact.

Deadline

Pitches should be sent to sayansimagazine@gmail.com by December 30, 2022.

New forum puts people at the centre of conservation

Photo Credit | WWF



Marco Lambertini, Director General of WWF International.

By Joyce Chimbi I j.chimbi@gmail.com

Scientists and activists are pushing for more action-backed political will and people involvement in taming biodiversity loss globally.

As curtains fell on the IUCN Africa Protected Areas Congress (APAC) in Kigali, Rwanda, at the end of July, the World Wide Fund for Nature (WWF) welcomed the increased political will displayed by African governments towards the more than 8,600 Protected and Conserved Areas (PCAs) on the continent.

In the newly published 'Kigali Call to Action', WWF was heartened to see African government leaders recognise the importance of PCAs in protecting the health and wellbeing of their people who depend on nature for food, crop pollination, seed dispersal and clean water.

"Biodiversity loss is one of the critical challenges of our time. Conserving, restoring and sustainably managing the natural spaces left on the planet are all key elements of becoming a nature-positive society," said Marco Lambertini, the Director-General of WWF International.

APAC sought to position Africa's protected and conserved areas within the broader goals of economic development and community well-being, and to increase the understanding of the vital roles parks play in conserving biodiversity and delivering the ecosystem services that underpin human welfare and livelihoods.

This includes various issues and approaches, such as policy influencing, illegal wildlife trade, human-

wildlife conflict, research and monitoring, restoration, ecotourism, law enforcement, and alternative and sustainable livelihoods.

Lambertini said WWF is committed to refining and strengthening its support for area-based conservation, particularly protected area management even as governments discuss a global target of protecting at least 30 per cent of the world's land, ocean and freshwater systems.

During the congress, WWF launched its Strategic Plan for Africa: 2021-2025, with an aim of "making nature everyone's business".

Alice Ruhweza, the WWF Africa Regional Director, said the Strategic Plan for Africa debunks the myths that conservation is at odds with Africa's aspirations for economic and social development, and that conservation of nature is the business of the elite few.

"This strategy seeks to reframe the narrative by demonstrating that conservation of nature and economic development can co-exist in shared spaces, and protecting, sustainably managing and restoring nature is not just the business of conservation organisations. It is the shared business of everyone, everywhere, and we need all hands on deck," said Ruhweza.

The strategy takes on a continental approach because Africa is a biodiversity hotspot, a home to a quarter of the world's mammal species, a fifth of the world's bird species, and a vast network of protected areas.

This plan comes against the backdrop of the 2019 Global Assessment Report on Biodiversity and Ecosystem Services, which alerted the world that a million species of plants and animals now face extinction, many within decades.



Delegates at the First Africa Protected Areas Congress (APAC) during the launch of the new WWF strategy in Kigali, Rwanda.

The WWF's strategic plan is therefore a roadmap of opportunities to safeguard Africa's position as a biodiversity hotspot and options to overcome challenges that could derail conservation efforts.

The plan has two impact areas; "Shared Space" and "Making Nature Everyone's Business" that were also being echoed throughout the landmark Kigali congress.

As a continental vision, the strategy talks about "seizing this moment" because this is an important moment for Africa. A continent with a most vibrant youth, the fastest urbanising continent, the fastest growing population within the context of demographic dividends.

Lambertini said the strategic plan consolidates WWF's work across 14 countries in Africa, "seven priority landscapes and a portfolio of regional programmes into one strategy aligned to WWF's global goals.

"These global include zero loss of natural habitats, zero extinction of species and halving a footprint of consumption and production.

"To deliver such an ambitious conservation target, WWF is also committed to promoting an inclusive rights-based approach to conservation that balances the needs of people and the planet through local engagement, ownership and joint accountability," Lambertini said.

"We welcome and share the objectives of APAC, looking at protected and conserved areas as a key tool to address climate change and support the delivery of the Sustainable Development Goals."

The WWF believes that empowering people and putting them at the centre of conservation efforts contributes to sustainability of their livelihoods. This, it says, is ultimately crucial to addressing global climate change, biodiversity loss and advancing sustainable development.

The organisation says it has a target to protect 30 per cent of global habitats through enhanced connectivity and effective management of protected and conserved areas, including those managed by indigenous peoples and local communities.

Ruhweza said African governments, conservation organisations, private sector, civil society, and society at large must build on the enthusiasm, energy and momentum generated in Kigali to ensure the call to action is fully implemented.

"WWF lauds the Kigali Call to Action as a highly significant outcome of the APAC, which moves us in the right direction – towards a future where people and nature are at the heart of Africa's sustainable development journey," she said.

"In particular, recognising the rights of indigenous peoples and local communities to their land and resources is central to achieving this ambition," she added.



Benedict Adero of Kisumu Environmental Champions. He is among a group of activists who will march to Sharm El Sheikh, starting from Kenya, the Democratic Republic of Congo (DRC), Tanzania and Uganda.

Activists' unique journey to COP 'to amplify Africa's voice'

By **Omboki Monayo** | omboki2725@gmail.com

For the 12 days between November 7 and 18 that delegates will congregate and mingle at the picturesque metropolis of Sharm El-Sheikh in Egypt, climate change will be on everyone's lips.

The delegates will be attending the twenty-seventh Conference of Parties (COP27) to the United Nations Framework Convention on Climate Change (UNFCCC).

Issues set for deliberations at the global forum include climate funding, updated Nationally Determined Contributions (NDCs), existing and emerging priorities for developing countries, dimensions of coexistence, national, regional and global goals, as well as shared experiences.

While most of the delegates will jet into the scenic venue aboard a fast commercial flight, an equally captivating journey

is also in the offing. Plans for a 20,000-person strong march by African climate justice advocates to Sharm El-Sheikh are underway.

"We are planning to march to Sharm El Sheikh, starting from Kenya, the Democratic Republic of Congo (DRC), Tanzania and Uganda," Benedict Adero of Kisumu Environmental Champions (KEC) says.

The march aims to create awareness on the negative impact of climate change and biodiversity loss on various African communities.

Mr Adero says the continent has long been ignored or given a back seat in efforts to discuss and chart the way forward in mitigating the climate emergency.

"Africa has not been given the space and resources it deserves in the increasingly important process of climate change mitigation. Yet it continues to bear the brunt of the challenges posed by climate change," Mr Adero said.

As part of the grand environmental trek, the KEC will be collecting the views and wishes of the indigenous communities that live along the route to Sharm El-Sheikh.

"This is to ensure that COP27 is not just a collection of experts and elites that will discuss the best ways to mitigate climate change, but an inclusive gathering that will allow all the affected people's voices to be heard for better decision making," said Mr Adero.

Depending on their location and route, the activists will use various transport means, including boats and bicycles.

Community builds blue carbon sink through coastal engineering

Photo Credit | Joyce Chimbi



Ongoing soft engineering efforts to restore mangroves on the shorelines of Kwale's Vanga Bay area in Kenya.

By Joyce Chimbi | j.chimbi@gmail.com

The swish of calm waters followed by unexpected high tides and violent waves are now a too familiar occurrence for the fisherfolk along Kenya's extensive Indian Ocean coastline.

"When a very dark cloud hovers around the ocean, it is a signal that it is very angry, releasing very strong waves from its very depth. When this happens, the ocean will only calm down by taking a life. Fishermen are killed by sudden strong waves every year," says Aisha Mumina, a resident of Makongeni village in Kilifi County.

But even during such high tides, Mwanamvua Kassim Zara, a local fish trader says fish stock has significantly declined. Before, high tides meant more fish, as they would run to the safety of thick mangrove roots for shelter, feeding and breeding.

Today, she says, a fisherman can no longer cast their net beyond the coral reef and expect a harvest. Even the popular Dagaa,

a tiny silver fish and a most preferred delicacy in Kwale's Vanga Bay, with a population of over 8,700 households, has all but disappeared.

"I buy a bucket of fish from the fishermen at \$40 to \$45, up from \$20 to \$25. The high prices are then transferred to our customers, who buy a kilogramme of boiled, dried and salted fish at \$3 up from \$2," she says.

Kassim considered diversifying into rice farming, but even that presents new challenges. While the tides are not sweeping fish to the shores and within the reach of fishermen, the high tides flood adjacent rice farms, hampering accessibility and causing total destruction of rice farms.

In Jimbo Village, she says, parents avoid sending their children to Jimbo Early Childhood Education (ECD) in high tides, as water from the adjacent Indian Ocean floods the learning institution, putting the lives of children at risk.

But Kassim now says a promising community-led initiative is progressively addressing their most pressing climate change related concerns. This hope is in the restoration of mangroves, which store three to five times more carbon than terrestrial forests.

Once dismissed as dirty and swampy wetlands, the maze of lush green mangroves lining meandering water channels along Kenya's coastline, estimated to be 1,420km, as per government data, were extensively encroached, degraded and trees felled at the rate of 0.5 per cent per year from 1991 to 2016, according to the Kenya Forest Services (KFS).

Relying on indigenous knowledge, indigenous ethnic groups along Kenya's coastline, including the Digo, Duruma, Shirazi, Wapemba and Wagunga, people discovered that the more they cut down mangroves for firewood, building materials, fishing equipment and trade, the more fish disappeared and the higher and stronger the waves and floods became.

“Even as various species such as milkfish, mullet fish and octopus slowly disappeared and fishermen could no longer cast their nets past the coral reef and catch a prawn, crab or other shellfish, it took time to see the connection,” Harith Mohamed Suleiman, a member of Kwale’s Vanga Bay indigenous communities says.

Mangroves are the first line of defense against Indian Ocean related catastrophes. Mangrove roots provide fish with feeding and breeding grounds, and enables close to all of fishing activities to be carried out along shallow inshore areas within and adjacent to the mangroves, according to the Kenya Marine and Fisheries Research Institute (KMFRI).

“It took us many years to understand that mangroves are the breeding and nursery grounds for many of the fish species around here. By losing mangroves, we were losing our lifeline. We make money from fishing, tourism, bird watching, beekeeping and honey from mangrove forests,” Suleiman says.

Oscar Kiptoo, a conservationist and researcher at KFS, says mangroves are government reserve forests under KFS, either singly or in partnership with the Kenya Wildlife Service when mangroves grow in marine parks and reserves. The total mangrove cover in this East African nation, he says, is approximately 61,271ha.

Of these, Lamu County has 37,350ha, Kilifi 8,536ha, Kwale 8,354ha and Tana River 3,260ha. Mombasa has 3,771ha of mangroves distributed along Port Reitz and Tudor Creeks.

An estimated 1,850ha of Mombasa County’s mangrove cover are degraded, with more than 1,480ha destruction reported in Tudor Creek, mainly because mangrove wood is resistant to rot and insects and therefore highly valuable for building material.

Suleiman explains how three adjacent villages in Kwale County formed the Vanga Jimbo Kiwengu (Vajiki) Community Forest Association to restore, conserve and protect mangroves on voluntary basis.



Harith Mohamed Suleiman shows how mangrove seedlings are planted at the shorelines.

Suleiman, the chairperson of Vajiki, says the initiative was inspired by Gazi and Makongeni villages in Kilifi County, which pioneered carbon offset project, the first of its kind globally, to successfully trade mangrove carbon credit under the Mikoko Pamoja Community group, with support from the Kenya Marine and Fisheries Research Institute (KMFRI).

Kassim, also part of the Vajiki, says the community did not succeed on first attempt because of lack of knowledge on the mangrove species and zoning, as there are mangroves for the shoreline and those that do best in the mainland.

“Since 2016, people from government have been teaching us how to plant and protect mangroves. They tell us mangroves are the roots of the ocean. The same way a tree cannot grow without roots, so it is with the ocean. We cannot benefit from the ocean if we destroy mangroves. We learn how to use mangroves as a wall around the ocean to protect us from high tides and we are seeing the fruits of our work,” Kassim says.

Suleiman agrees, adding that the Vajiki project is a 460ha of mangrove initiative that was launched in 2019. He says 450ha will be conserved, protected and allowed to naturally rejuvenate. The remaining 10ha will be reforested over a period of two decades.

Out of the 450ha, he says 250ha are on the mainland and at great risk of continued over-exploitation. Another 200ha are on the uninhabited Sii Island.

Although unexploited, mangroves on the Sii Island are at significant risk from loggers.

Suleiman says the Vajiki community is committed to ensuring that the island remains free from human activity, including illegal fishing by use of dynamite. According to KFS, approximately 250 species of fish and 124 coral species are protected by the Sii Island mangroves.

“The Vajiki community is in talks with government representatives to pioneer a trans-boundary mangrove conservation and restoration initiative that will start from Mombasa, through Kwale County and into Tanzania. We are in close proximity with other indigenous communities on the Tanzania side of the border. We have no language or cultural barriers,” he says.

Suleiman says they have learnt that mangrove seedlings have a higher survival rate when prepared for planting in a nursery. Mangrove seedlings will have been collected in the expansive mangrove forest, packed in sacks, soaked in salty or marine water and stored for planting over a period of six months. On seed planting days, at least 100 community members volunteer for the exercise.

Photo Credit | Joyce Chimbi



Kassim Zara says fish population is on the rise in tandem with mangrove conservation and restoration efforts in Jimbo village, Kwale County.

Mangrove seeds are seasonal and their availability throughout the year varies from species to species. For instance, *Cerriops Tagal* seeds are available in February and March, *Rhizophora Mucronata* in March and June, while *Avicennia marina*'s are available in April and May.

The Vajiki community plants at least 3,000 seedlings of mangroves annually and targets to sell carbon credit worth \$48,713 per year by accumulating 5,023 tonnes of carbon above ground. Their records show the 2020/21 period brought in carbon credit worth \$44,433.

Suleiman says the Vajiki community sells above ground carbon calculated using direct measurements of mangrove biomass. Kiptoo says these measurements are taken using traditionally established forest inventory techniques.

He says the process entails collecting tree measurements such as height, crown area or wood density, diameter at breast height within the designated plots. This measurements, he says, are then used "as an input to the allometric equation, also known as biomass estimation equations to provide biomass estimates."

Suleiman says these calculations require technical know-how. The Vajiki community relies on the Association for Coastal Ecosystem Services (ACES), a charity registered in Scotland, to coordinate the entire process including the actual carbon trading because they have access to viable international markets.

"Women in Kiwengu village delivered at home or in other villages because Kiwengu Dispensary did not have a maternity. But we bought a bed using the money and women can now deliver at the dispensary.

Our children can go to nursery school because we built a barrier to prevent floods from entering the school. Rice farming is possible now because the floods have reduced in the last two years," Kassim says.

In Kilifi's Makongeni, Naima Juma says her nine-year-old daughter was accosted and nearly assaulted on her way to fetch water. "We used to walk 2km looking for fresh water because ours is too salty. But now everyone lives close to a communal tap, or has their own."

Providing clean water, improved healthcare, sanitation, education and infrastructure to the 4,500 community members was possible through the Mikoko Pamoja (mangroves together) initiative.

Records show the community group has a 117 acres' mangrove plantation. It has restored the degraded shorelines of Gazi Bay by planting approximately 2,000 seedlings annually and another 2,000 in the mainland.

The entire project captures an estimated 2,000 tonnes of carbon below and above ground. Records show the project currently earns at least \$25,000 annually from carbon trading.

"Our community leaders and chiefs discuss with us how the money should be spent. We choose projects that benefit all," Juma says.

Suleiman says community initiatives are so strong that a private developer who once destroyed acres of mangroves to build a beach hotel metres from the shoreline had to demolish it due to community resistance. Another developer cleared large chunks of mangroves to build salt pans, but the project has since been terminated.

Kiptoo says ongoing community-led initiatives are hitting all the right targets, as they are also a win for climate, biodiversity and communities, besides halting degradation and deforestation of mangroves.

Keeping with the United Nations Educational Scientific and Cultural Organisation (UNESCO) to adopt the proclamation of the International Day for the Conservation of the Mangrove Ecosystem on July 26, KFS says more than 16.7 million mangroves seedlings were planted between 2019 and 2022.

But community-led initiatives are not without challenges. "A lack of understanding of various mangrove species available and where they grow best is a problem. Lack of knowledge on planting methods, either through a nursery or simply picking a seedling and directly sticking it in the ground, issues of seedling spacing, all affect the survival rate. Vajiki started planting seedlings years ago, but up until recently when we started interacting with scientists, the survival rate was only 10 per cent," says Suleiman.

He encourages coastal communities to partner with scientists and the government because with increased understanding of mangroves, survival rate will improve, as will the amount of carbon dioxide trapped and money earned from carbon trading.

Kassim says her beloved Dagaa and a staple in Vanga Bay community is slowly coming back to the shores and within fishermen's reach. She says business is booming and that if it were not for the ongoing inflation, especially the cost of fuel, fish prices would have already gone down.

Reported with support from Internews' Earth Journalism Network.

Lake Nakuru remains a bird watcher's paradise despite loss of habitat

Photo Credit | James Wakibia/Wethank Media



Mr Edward Karanja, Senior Warden, Lake Nakuru National Park.

By Omboki Monayo | omboki2725@gmail.com

Having weathered the storm of climate change and a pandemic that resulted in shrunken visitor numbers, Lake Nakuru National Park continues to be a big draw for local and domestic tourists.

Fourteen years ago in 2008, the park suffered a huge forest fire that decimated a chunk of the forest that covers most of its gazetted area.

"We had one of the largest forest fires in 2008. Another fire in 2010 also cleared part of the forest," says Mr Edward Karanja of the Kenya Wildlife Service (KWS), who is the park's Senior Warden.

The park that currently measures 188 square kilometres has borne the burden of an expanding shoreline that saw the volume of the awe inspiring water body deepen from 4.5 to 9 metres at its centre.

As a result of habitat modification, the park has become less alkaline. This means that there has been a decrease in the algae which flamingos feed on, says researcher and scientist Mr Joseph Edebe.

Mr Edebe who is a senior scientists at the Wildlife Research and Training Institute (WRTI) says the rise in water levels has had a negative impact on pink flamingoes that have long been an icon of the park.

"When the water is diluted due to a rise in levels, the flamingos are affected by loss of habitat and are forced to migrate. The increase in alkalinity has resulted in a decrease in algae, and subsequently less foliage for flamingoes to feed on," Mr Edebe told Sayansi.

In 2018, the flamingo population in the lake had shrunk by 300,000. By January 2021 the bird numbers had been whittled down to just 6,000.

Meanwhile, Lake Simbi Nyaima, nearly 250km away, has become the scene of breathless wonder for locals and visitors alike as they converge at the shores of the salty waters that stretch for just 2km in circumference and are 27.5 metres deep.

Flamingos throng the water body, providing delightful scenes for tourists and locals alike.

Lake Nakuru and Bogoria in Rift Valley which used to be home to most of the flamingos in the region, have surrendered the bulk of their bird population to Lake Simbi, which is located in Karachuonyo, Homa Bay County.

The distinctive pink birds started visiting the area about six years ago.

Mr Karanja admitted that the biodiversity hotspot had been adversely affected by the forest fires.

"The forest fires also resulted in the loss of precious natural forest cover and a number of animals and other organisms," he told Sayansi during a Media for Environment, Science, Health and Environment (MESHHA) biodiversity cafe held at the park on October 5, 2022.

According to Mr Karanja, all is not lost. "We have one of the largest euphorbia forests in the world. Currently, there are intensive and deliberate efforts to regrow the forest and provide a natural habitat for birds, mammals, insects and many other natural forms of life," he added.

Dr Judith Nyunja, who is the head of Inland Water Research at Wildlife Research and Training Institute says the park's impressive bird population continues to be an important ecological asset to the country, the continent and the planet.

Photos Credit | Joseph Kipsang



Lake Nakuru, despite reeling from impacts of climate change is now home to 450 birds species up from 400 species that the lake had nearly ten years ago.

She said the park has a rich treasure trove of both terrestrial and aquatic "Lake Nakuru National Park is home to various bird species - endemic, near endemic species, critically endangered, endangered species and globally threatened species," says the researcher.

The wildlife website www.lakenakuru.com lists some of the endangered species as the Gray Crowned-Crane, White-backed Vulture and Rueppell's Griffon.

"Some of the vulnerable species living in the area include the Abyssinian Thrush, White-headed Vulture, Lappet-faced Vulture, Greater Spotted Eagle and Imperial Eagle," reads the site.

Near threatened species include Bateleur, Crowned Eagle, Black-tailed Godwit, Great Snipe, Gray-crested Helmetshrike, Maccoa Duck, European Roller, lesser Flamingo, Sooty Falcon and Pallid Harrier.

Bird species thriving in Lake Nakuru national park include the Common Ostrich.

Duck species have also found a home in the park in Lake Nakuru national park.

They include the Tufted Duck, Southern Pochard, Egyptian Goose, Maccoa Duck, Garganey, Red-billed Duck, White-faced Whistling-Duck, Yellow-billed Duck, Cape Teal, Hottentot Teal, Northern Shoveler and Northern Pintail.

WRTI researcher Ms Anita Kiplagat says the sight of birds fishing in the lake is a major draw for visitors.

"Fish eating birds always delight and excite visitors because of the way they work in unison to catch their food. It is truly an awesome spectacle to catch sight of the Great White Pelicans, the Yellow Billed Stork, the Cormorant and Pink-Backed Pelican in action over the lake's waters," she says.

The park receives around 200,000 visitors annually. It was also recently forced to confront a sharp drop in tourist numbers due to the COVID-19 pandemic.

Karanja says the pandemic was another low moment in the park's history.

"We saw a decrease of around 60,000 visitors, which is about a quarter of the pre-Covid figures. It had an impact on revenues, but right now we are on a steady path to full recovery," he told Sayansi.

With only a few days left to the COP27 climate change conference that will take place in Sharm El Sheikh between November 6-18, 2022, Egypt, Lake Nakuru National Park now stands at the crossroads between a possible increase in water levels that could expand its shoreline, further devastating the surrounding area, and a full recovery that promises even greater tourist numbers.

He explains that the forest fires that struck the forest resulted in the loss of habitat for some species, but remains confident that the current restoration efforts will see a return to its glory days.

"There is a deliberate effort to regrow the forest, and restore the natural habitat. Regeneration is however a slow and delicate process that takes time," says Mr Karanja noting that there are now 450 birds species despite the setbacks up from 400 species that the lake harboured prior to 2018.



Some of the key issues facing Lake Nakuru National Park include the fluctuating water levels, which have displaced hundreds of people and destroyed property worth millions of shillings.

COP27: Kenya should use destruction of Lake Nakuru to push its climate finance agenda

By Francis Mureithi | mureithifrancis1964@gmail.com

If Kenya was to argue on climate finance, loss and damage at the COP27 in Egypt, one of its cases would be about the massive destruction of Lake Nakuru.

Almost 200 nations will tackle climate change at COP27 in Egypt's resort town of Sharm el-Sheikh from November 6-18.

The conference is an opportunity for a renewed commitment to mitigation and finance. It will give an opportunity to decide the next steps for realising these commitments by heavy polluters.

The challenges facing the 188 square kilometre Lake Nakuru National Park and its catchment area of about 1800 square kilometres are largely due to climate change.

A tour by a team of Nakuru journalists who are members of the Media for Environment, Science, Health and Agriculture (MESHHA) revealed a dire need for a Kenya delegation heading to Egypt to push for climate finance to rescue the lake and make it breathe again.

"COP27 must be the place for action on loss and damage. The conference will be the ultimate test of how seriously governments articulate these issues," said MESHHA chief executive officer Daniel Aghan.

Some of the key issues facing Lake Nakuru National Park include the fluctuating water levels which have seen hundreds of people displaced and properties worth millions of shillings destroyed.

"If I could be able to stop Lake Nakuru from expanding I would do everything possible to make sure it stays within the park boundaries.

I have lost property worth more than Sh1 million after my piece of land was converted into a mini lake," said Ms Jecinta Kihara.

The swelling lake has come with its share of health challenges as the stagnant waters are now the breeding grounds for mosquitoes and other waterborne diseases in the poor neighbourhood.

"My two children aged six and nine have suffered diarrhoea after drinking contaminated water. This has drained me as I have been forced to spend money to treat them in a private clinic," said Mr Peter Kagwanja.

Photo Credit | Joseph Kipsang



**A herd of buffaloes at Lake Nakuru National Park:
The park has been ravaged by drought due to climate change.**

The lake is also suffering from poor waste management from Nakuru City and its catchment, causing pollution that has seen plastic and other industrial materials like used oil end up in the lake, putting the lives of wildlife and more than 400 bird species at high risk.

The lake inlets - rivers Makalia, Nderit, Njoro, Naishi, Larmudiac and Ngosur, which are supposed to flow with clean water have been converted into a pathway for plastic pollution.

"These rivers are the gateway to massive plastic pollution choking the lake and that is a major threat to the biodiversity around Lake Nakuru," said Mr James Wakibia, an environmental activist.

It also receives groundwater from springs such as Baharini and Lion Hill whose level declines during drought as the annual rainfall is 850mm.

The vegetation, lake wetland, bushland, scrubland and acacia forest have largely been affected by the rising water which calls for closer monitoring of its ecological processes.

"The water quality at the lake has been affected and the food for lesser flamingos has declined, forcing the birds to migrate," said Mr Joseph Edebe, a senior research scientist at Wildlife Research Training Institute (WRTI) based in Naivasha.

In 2018, the lake had 300,000 lesser flamingos and in January 2021 only 6,000 flamingos dotted the shoreline of the lake whose depth had risen from 4.5 meters to 9 meters at the lake centre.

The lake is also battling a high population of mammals especially buffalo which has continued to increase.

According to the 2021 National Wildlife Census report, Lake Nakuru National Park had 6,412 buffaloes which constitute approximately 15 per cent of the total population.

The census report further revealed that the park has 1,686 common zebra, 1,407 impalas, 593 warthogs, 263 grants gazelle, 116 elands, 109 giraffes, 98 waterbucks, 41 Thomson Gazelles among other species like the rhinos estimated at around 100 for both black and white rhinos.

"The increased buffalo population has continued to impact negatively on the habitat with increased invasive species spread and slow rate of recovery after drought," said Mr Edebe. The park is also battling other challenges including invasive plant species, and the introduction of alien species (fish) which were accidentally swept into the lake.

Land use changes in the catchment areas have resulted in the lake receiving erratic water supply as well as catchment destruction, leading to sedimentation in the lake bed.

The lake is an important biodiversity hotspot and has been internationally recognised as a wetland of international importance in the Ramsar Convention on Wetlands (Ramsar Site) and an Important Bird Area (IBA).

The lake alongside lakes Bogoria and Elmenteita is globally recognised as a United Nations Education and Scientific Organisation World Heritage Site.

The lake, which is home to the world-famous flamingo birds, is also designated Rhino and Giraffe sanctuary.

This story was first published by the Daily Nation on October 7, 2022. Its entire content including the photo captions belong to the Nation Media Group. The photos were however outsourced. The story was published after a science media café organised by MESH under JRS Foundation funding on October 5, 2022.

<https://nation.africa/kenya/news/cop27-kenya-should-use-destruction-of-lake-nakuru-to-push-its-climate-finance-agenda--3977402>

Working without salary for 19 years pays off for wildlife ranger

By Clifford Akumu | akumu.clifford@gmail.com

Photo Credit | Big Life Foundation

Undertaking nature conservation in a hostile environment and at times without a salary and supporting game ranger teams using own resources is no mean feat.

Indeed, it can be one way for little known wildlife rangers to play their way into the big league.

That is exactly what happened to Daniel Popote Sapulai, the Operations Commander at Big Life Foundation, Kimana Sanctuary, in Amboseli.

Mr Sapulai was announced among the 12 winners during the second International Ranger Awards 2022, earning him US\$10,000 (Ksh1 million).

Sapulai, 39, was recognised for his dedication to protecting and conserving nature at Kimana Sanctuary, Amboseli, and fostering strong community relations.

A member of the local community – living a few kilometres from Amboseli National Park – Sapulai has been a ranger for 19 years, working at times without a salary and supporting his ranger team from his own resources.

His leadership and courage in tackling wildlife poaching in Kimana ecosystem has been exceptional.

The judges said he had demonstrated courage and diplomacy in peacefully resolving conflicts between communities and wildlife.

"I'm grateful for this award. This is a win for all of us. It's a clear indication that the work of rangers is recognised.

"My community has learnt that keeping wildlife safe is keeping their sons and daughters of the soil high globally,"



Popote Sapulai (centre), Operation Commander, Big Life Foundation at Kimana Sanctuary receives his award during IUCN-APAC Conference in Kigali, Rwanda.

a jubilant Sapulai said during the award ceremony at the International Union for Nature (IUCN) Africa Protected Areas Congress (APAC) in Kigali, Rwanda.

Rangers, just like other wildlife conservationists, face numerous difficulties and threats in their work.

Sapulai says rangers are fundamental to the security of the globe's protected and conserved areas.

Their work is vital yet goes unrecognised. Rangers risk their lives, live under difficult conditions, and spend long, arduous hours on the field to protect wildlife and secure protected areas.

For Sapulai and his team, it has not been an easy ride. He says patience and discipline has finally paid off.

Sapulai could not further his education due lack of school fees, but his passion for wildlife conservation continued to shine.

"Every time I came across the KWS rangers patrolling while herding our cattle, I gave them information of animal carcasses and they used to educate me on the importance of reporting.

When I saw people with torches at night inside the nearby Amboseli National Park, I used to report to the rangers," says the wildlife ranger.

He also reported about any unhealthy or sick animal cases in the park. He would later become their informer.

"I eventually gained interested on issues of conservation," he says.

Working without salary

In 2003, he immersed fully into the world of conservation after getting attached to Africa Safari Club Company – then the managers of Kimana Sanctuary.

The closure of Africa Safari Club in 2009 spelt doom for Sapulai and his team.

They would remain jobless for seven years with little to write home about.

Sapulai and his team, undeterred, continued to conserve Kimana Sanctuary ecosystem, busting illegal poaching activities, charcoal burning and illegal grazing inside the sanctuary.

Photo Credit | Big Life Foundation



Daniel Popote Sapulai with the elephants.

Working without pay, he used his resources to lead a team in conserving the sanctuary.

“As the team leader I used to encourage my team not to give up on keeping Kimana Sanctuary safe because it’s a nice place with a lot of wildlife. I encouraged them that one day we will have a donor to come lease the area and we will be compensated as well as being the first to be employed,” he says.

For four years between 2010 and 2014, Big Life Foundation took over the management of the sanctuary. The following year Olive Branch Company took over and leased the sanctuary for 25 years, but they could only survive for four years.

Luckily, Big Life Foundation would bounce back in 2018 to continue with the sanctuary’s management.

Today, Sapulai’s determination to conserve wildlife in Kimana ecosystem has seen him command 36 rangers in six ranger outposts within the sanctuary.

Illegal wildlife trade and poaching activities are a major threat to species’ survival.

In Kimana, for example, Sapulai has employed the use of informers in tackling poaching activities.

His team has also adopted community-based approaches to promote conservation. The approaches, he notes, are aimed at raising awareness of the importance of conservation among people living in areas neighbouring the sanctuary.

Poaching activities have reduced tremendously within the 5,700-acre sanctuary in the heart of the Amboseli ecosystem.

Conservation is clearly working, adds Sapulai.

“I went to each Maasai boma (homestead) to educate them on the impacts of conserving wildlife. I also used those who used to poach as my informers and that has helped stop the activities completely.

We are now reporting no incidents of poaching in Kimana sanctuary for many years,” he says.

On human-wildlife conflicts, he says timely response is key.

“We are quick to respond to any report of wildlife raiding farms as well as staying with the farmers at night to keep vigil. When wild cats kill a domestic animal we must be there on time to stop the local community from revenging by killing the wild cat, and educate them that compensation will be done,” says Sapulai.

Numbers rebound

Kenya’s recent and first wildlife census in 2021 showed that the number of elephants has increased from 16,000 in 1989 to 36,288 – the highest proportion of which are in Tsavo ecosystem.

Amboseli has 1,900, close to Maasai Mara’s 2,500.

This rebound in numbers, says Sapulai, is as a result of community conservation efforts and support from non-governmental organisations to deal with poaching through monitoring and enforcement.

He adds that the ongoing drought and, perhaps most urgent, the ravaging effects of climate change are accelerating habitat loss and might spur poaching in the region.

Sapulai’s passion for conserving wildlife led him to near-death battles with poachers.

“I remember vividly how I came across poachers who killed an elephant, they were armed to the teeth and we were with bare hands. Using the tactics we gain from local training, we managed to recover the tusks together with my team,” he says.

The ranger plans to use the prize money to further support conservation work at the sanctuary.

Sapulai says that although progress has been made on nature conservation, “the fight must be sustain.”

“We must conserve for today and the future. When I finally retire, I want to see the wildlife population grow and poaching reduced to zero,” he says.

Report calls for sustainable use of wild species central to human survival

By Joyce Chimbi | j.chimbi@gmail.com

Photo Credit | Joyce Chimbi

At least 50,000 wild species are responsible for the food, cosmetics, shelter, clothing, medicine and inspiration billions of humans enjoy worldwide.

But now a million species of plants and animals face extinction, with far-reaching consequences, including endangering economies, food security and livelihoods.

Against a backdrop of an ongoing global biodiversity crisis, a new report by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) has offered insights, analysis and tools to establish more sustainable use of wild species of plants, animals, fungi and algae around the world.

The IPBES Assessment Report on the Sustainable Use of Wild Species builds directly on the Global Assessment Report on Biodiversity and Ecosystem Services, which alerted the world that a million species of plants and animals now face extinction, many within decades.

Approved recently by representatives of the 139 member States of IPBES in Bonn, Germany, the report is a result of four years of work by 85 leading experts from around the world to help decision makers to address unsustainable use of wild species.

On the key findings, Prof John Donaldson from South Africa, who co-chaired the Assessment with Dr Jean-Marc Fromentin from France and Dr Marla R Emery (USA/Norway), noted that at least 50,000 wild species are used through different practices.



Community-led restoration of mangroves along Kenya's coastal shorelines ongoing.

This includes more than 10,000 wild species harvested directly for human food. An estimated 70 per cent of the world's poor are directly dependent on wild species.

"One in five people rely on wild plants, algae and fungi for their food and income; 2.4 billion rely on fuel wood for cooking; and about 90 per cent of the 120 million people working in capture fisheries are supported by small-scale fishing."

Another finding was that rural people in developing countries are most at risk from unsustainable use, with lack of complementary alternatives, often forcing them to further exploit wild species already at risk.

Overall, wild tree species account for two thirds of global industrial roundwood. Trade in wild plants, algae and fungi is a billion-dollar industry. Even non-extractive uses of wild species is big business.

Before Covid, tourism based on observing wild species is one of the main reasons that protected areas globally received 8 billion visitors and generated up to \$600 billion every year.

Ana Maria Hernandez Salgar, the IPBES Chair, said the report is a harnessing of different knowledge systems to dialogue on sustainable use of wild species.

"We cannot talk of the intrinsic relationship between people and nature if we do not incorporate sustainable use of wild species as one of the greatest challenges we face. We have to reduce the overexploitation of wild species and their unsustainability," she says.

In providing the evidence and science needed to ensure sustainability, Fromentin said, the report identifies five broad categories of practices in the use of wild species that include fishing, gathering, logging, terrestrial animal harvesting, including hunting and non-extractive practices.

Alongside each practice, report authors then examined specific uses such as for food and feed, materials, medicine, energy and recreation, providing a detailed analysis of the trends in each, over the past 20 years.

The examination reveals that by and large, use of wild species has increased, but sustainability of use varies. For instance, global estimates confirm that about 34 per cent of marine wild fish stocks are overfished and that 66 per cent are fished within biologically sustainable levels.

Survival of an estimated 12 per cent of wild tree species is threatened by unsustainable logging. Several plant groups, notably cacti, cycads and orchids are threatened by mostly unsustainable gathering.

Unsustainable hunting is a threat for 1,341 wild mammal species.

Further, Emery said, sustainable use of wild species has and can have even more significant contribution to the realisation of UN's SDGs. She singled out 12 SDGs, including Zero Hunger, Life on Earth, and Life Under Water.

Emery highlighted what is currently recognised as the potential role of wild species in meeting SDGs, and how it pales in comparison to the substantial contribution that remains untapped.

She spoke of "environmental and social drivers that can either enhance or undermine sustainable use of wild species," saying it was a primary objective of conducting the assessment.

"Among environmental drivers, climate change, pollution and invasive alien species, in particular, impact the abundance and distribution of wild species, and this in turn impacts their sustainability, and in turn their ability to contribute to human well-being."

As global trade in wild species increases substantially, the report finds that without effective regulation across supply chains – from local to global – global trade of wild species, such as the shark fin trade, generally increases pressure on wild species, leading to unsustainable use and sometimes to wild population collapses.



Extensive deforestation threatens biodiversity. A new report offers solutions for the sustainable use of wild species which accounts for two-thirds of the world's industrial round wood.

In all, illegal trade in wild species represents the third largest class of all illegal trade, with estimated annual values of up to \$199 billion. Timber and fish make up the largest volumes and value of illegal trade in wild species.

To address a global biodiversity crisis that is growing urgent with every passing day, Fromentin said the report fronts seven key elements with potential to significantly promote sustainable use of wild species, including policy options that are inclusive and participatory, policy options that recognise and support multiple forms of knowledge, as well as policy instruments and tools that ensure fair and equitable distribution of costs and benefits.

This further stresses the need for context-specific policies, monitoring of wild species and practices, as well as policy instruments that are aligned at international, national, regional and local levels, and that also maintain coherence and consistency with international obligations and take into account customary rules and norms and, robust institutions including customary ones.

In conclusion, the report's authors examined a range of possible future scenarios for the use of wild species, confirming that climate change, increasing demand and technological advances, making many extractive practices more efficient, are likely to present significant challenges to sustainable use in the future.

To address identified challenges, the report proposes actions aligned to the five broad practices in the use of wild species. With fishing, for instance, recommended actions include reducing illegal, unreported and unregulated fishing, suppressing harmful financial subsidies and supporting small-scale fisheries.

The timing of the report is crucial, as world leaders move closer to agreeing on a new global biodiversity framework at the UN Biodiversity Conference later in December, fronted as the road to a bold new agreement for nature.

Swelling of Lake Nakuru increases the number of fresh water bird species

By Clifford Akumu | akumu.clifford@gmail.com

Photos Credit | Joseph Kipsang

They have a large body sitting on short legs and long wingspans, webbed feet, long necks, and, most notably, unique beak and accompanying large pouch.

Perching on tall, dry acacia trees on the shores of Lake Nakuru, a pod of pelicans scan the rising water levels for prey such as fish, frogs, insects, and crustaceans. The birds spot and dart at their prey whenever they feel they have a chance at catching it.

Several kilometres away at the mouth of Enderit River – one of the rivers that empties into the southern part of the lake – cormorant birds fight for space with the lesser flamingos for fish.

Lake Nakuru National Park ecosystem has long been known as the home of the lesser flamingos, but the rising water levels in the last 10 years have led to their decline.

Now the increasing water levels have sparked interest among scientists after recording an increase in fresh water bird species like pelicans, cormorants, great egrets, African fish eagles and herons, among others.

Fish populations are also thriving, including fresh water species such as tilapia niloticus and tilapia mossambicus.

Joseph Edebe, a senior research scientist at Wildlife Research and Training Institute (WRTI) based in Naivasha, says fresh water bird species have increased due to the changing water quality and availability of fish.

Edebe says the lake area within the park has almost doubled, from around 40 square kilometres to 80 square kilometres.

He says due to its closed system, Lake Nakuru is an alkaline water body with high salt levels, the reason it attracted a lot of flamingos.



Flamingos at Lake Nakuru. The rising water levels have led to increase offresh water birds. Inset, Joseph Edebe, senior scientist at Wildlife Research and Training Institute.

The spirulina – an aquatic algae that the lesser flamingos feed on – thrives in high alkaline conditions of 10.5 pH.

The increase of water level in the lake has, however, affected its quality and the water pH declined to between 8 and 9.5 (which is less alkaline), hampering the growth in flamingos' food.

"The lake level has gone up from 4.5 metres (lake depth) to around 9 metres from the lake centre. We also noticed that there has been a lot of accidental introduction of fish into the lake system," says Edebe.

"And because there has been more fish, we are witnessing an increase in the number of fresh water bird species; on the other hand, the number of flamingos has declined."

In 2018, scientists had recorded 300,000 lesser flamingos in the ecosystem, while in January 2021, only 6,000 flamingos dotted the shoreline of the lake.

Lake Nakuru is a wetland of international importance because of its diverse biodiversity, with flamingos as a flagship for species conservation. It is also an important bird area because of the diverse bird community.

However, human-driven factors such as climate change and pollution are impacting negatively on the lake's ecosystem, putting more than 400 bird species at high risk.

The lake's inlets – rivers Njoro, Makalia, Nderit, Naishi, Larmudiac and Ngosur – which are supposed to empty clean water into the lake, have been converted into a pathway for plastic pollution.

Photo Credit | James Wakibia/Wethank Media

"It is very critical for us to continuously monitor the bird population and water quality in this lake to ensure that our flagship species is protected," said Dr Judith Nyunja, principal research scientist at WRTI.

"Domestic and industrial waste management is a critical issue that we need to focus on to protect the lake. We also need to continue looking at the issue of plastic pollution in our rivers."

After years of pandemic restrictions and battered economy due to COVID-19, tourists are coming back to Lake Nakuru National Park, eager to climb the baboon cliff and see the remarkable fresh water birds, flamingos and a herd of buffaloes.

"Because Lake Nakuru ecosystem is a migratory route for birds and now that we have the ecosystem for the water birds expanding, it means that potentially we are expecting to have a diverse species of birds coming and this will be a plus to our tourism," Dr Nyunja told journalists during a recent media cafe inside the park organised by the Media for Environment, Science, Health and Agriculture (MESHA).

Edward Karanja, park warden at Lake Nakuru National Park, says the lake is battling a high population of mammals, especially buffaloes, which has continued to increase.

According to the 2021 National Wildlife Census report, the park had 6,412 buffaloes, which constitute approximately 15 per cent of the total population.

"Wildlife conservation is very key in supporting national development agenda like the tourism sector that relies majorly on wildlife in the protected areas and outside protected areas," said Karanja.

Despite the encouraging signs of increase in water birds, scientists warn that the species face a host of threats that could lead to steady declines in their population.

According to Birdlife International's latest report, State of World's Birds, which comes out every four years, about half of bird species have declined and a sizeable portion of those are at risk of extinction.



Dr Judith Nyunja of Wildlife Research and Training Institute, Naivasha, Kenya.

The report paints a grim reality of biodiversity loss, specifically for avian species. In Kenya, the report indicates that 70 per cent of birds of prey (scientifically known as raptors) have declined between 1970 and 2020. This is about 19 of the 22 raptor species available in the country.

Dr Nyunja says that the diminishing population of birds is as a result of human interference with their habitat.

"We are experiencing a lot of habitat segregation. People are dividing their lands and forest ecosystems to create small plots for human settlements, hence spoiling the habitats for these birds. Therefore, we expect their population to decline because they lack habitat and adequate food," she says.

She further notes that there are instances where people practise mass killing of birds using poison, mostly in the rice irrigation paddies.

The park has also lost about 10 per cent of the acacia forest that acts as a roosting and habitat area for fresh water birds due to water-logging. But with the fluctuating water levels, some of the acacia trees are regenerating.

"The acacia is an important roosting area for some birds such as the African fish eagles. If the acacia goes, they lose their habitat. Some insects lay eggs in the acacia trees, then when they hatch into larvae or pupa, the birds eat them," said Edebe.

The wildlife research institute has now embarked on a spirulina research programme to enhance the fresh water birds' food production.

"In the programme, we will propagate spirulina in a laboratory setting and find out how we can inoculate it back into the environment. And if we do that, will the flamingos continue coming to this lake, answering the question can we use science to enhance food production?" said Dr Nyunja.

"It's also an opportunity for us to use spirulina as a wildlife resource to enhance food security in this country and plug into the country's blue economy discourse, because spirulina is also a super-food that human beings can consume, she added."



Juma Mnyika checks his beehive at Tudor Creek in Mombasa County.

Where farmers use bees to earn a living and keep mangrove loggers at bay

By Ruth Keah | rkeahkadide@gmail.com

Growing up, Juma Mnyika loved watching monkeys jump up and down mangrove trees in his Ganahola village at the coastal Kenya's Mombasa County. However, these beautiful sceneries are only memories now for the 42-year-old, since most of the mangrove forest has been destroyed. "The monkeys ran away due to the mangrove forest destruction. Now we only see one monkey in a month, who comes even into our homestead to look for food," says Mnyika.

Mangroves are among the most productive marine ecosystems on earth, providing a unique habitat for many animal species.

They provide habitats for birds, breeding grounds for many fish species as well as protection against storms, floods and erosion. Mangrove forests also act as important carbon sinks because they have higher amount of biomass compared to terrestrial tropical forest.

But mangroves have been in danger of human destruction and their global distributions have been on the decline. Tudor creek in Mombasa has lost 80 per cent of its mangroves over the past 20 years.

However, Mnyika and his fellow bee farmers are now doing their best to restore and protect the endangered trees. In the project dubbed 'Asali Mkoko', the over 100 farmers along the Tudor creek

not only earn a living by harvesting honey from the beehives, but also use the bees as security for the mangrove forest.

"We started planting the mangroves, but noticed that people were still destroying them, so we decided to install beehives along the Tudor creek to act as 24-hour security," says Mnyika.

"The beehives have been very effective because when one decides to cut down a mangrove tree, the bees attack him/her." He says since they started the project in 2010, and have so far seen a big difference. He says almost 90 per cent of mangrove destruction has stopped, and some of the birds, crabs, prawns and fish that had disappeared are now coming back.

Mnyika owns 12 beehives. He says they normally check on the hives at least once or twice in one and a half months and harvest the honey every four months. He says one hive can produce up to 20kg of honey in a good season and eight kilos in a bad season.

"Since I left formal employment, I have found a livelihood in the mangrove forest. We sell one kilo of honey at Sh1,200," he says.

Mnyika says they have a ready market for the honey. A non-governmental organisation called Big Ship, which they have been working with, buys from them immediately they harvest the honey.

However, such community projects are not without challenges. Mnyika says during dry seasons it is hard for the bees to find the right flowers to produce honey, and this reduces their harvest.

"Due to the prolonged dry season, this year I have only harvested honey once, and I only got 10kg," he says.

Monitored wildlife populations – mammals, birds, amphibians, reptiles and fish – have seen a devastating 69 per cent drop on average since 1970, according to World Wide Fund for Nature (WWF) Living Planet Report (LPR) 2022. The report warns governments, businesses and the public to take transformative action to reverse the destruction of biodiversity.

Around the world, the report indicates that the main drivers of wildlife population decline are habitat degradation and loss, exploitation, introduction of invasive species, pollution, climate change and diseases.

World leaders are due to meet at the UN Biodiversity Conference (CBD COP15) this December for a once-in-a-decade opportunity to course-correct for the sake of people and the planet. WWF is advocating for leaders to commit to a 'Paris-style' agreement capable of reversing biodiversity loss to secure a nature-positive world by 2030.

"The LPR report makes it clear that delivering a nature-positive future will

Big Ship Organisation Project Officer Evelyn Omondi. She says there is a symbiotic relationship between the bees, beekeepers and the mangrove forest.



not be possible without recognising and respecting the rights, governance, and conservation leadership of Indigenous Peoples and local communities around the world," says Alice Ruhweza, Africa Regional Director, WWF-International.

Evelyn Omondi from Big Ship Organisation, a community empowerment organisation that focuses on implementation of local solutions on restoring and protecting the environment, says they decided to partner with the community and some former loggers to set up a mangrove bee farming project to protect the diminishing Tudor Creek mangrove forest.

"We train them on seedling establishment, bee keeping and monitoring of the beehives, and establish a market for the honey," she says.

Ms Omondi says they decided to bring together the former loggers because to change their mindset against logging and teach them the importance of conserving mangroves.

She says so far, they have engaged more than 200 former loggers in the beekeeping project. The over 500 beehives are set up at various strategic points along the forest. She says they normally sell seedlings at Ksh100 each. From the sales they buy beehives and give to farmers they have recruited. The farmers then plant the seedlings along the creek.

Their long-term plan is to make sure that each community member in the areas they cover can get at least 10 beehives. According to Ms Omondi, the mangrove has so many benefits in the ecosystem. She said there is a symbiotic relationship between the bees, the beekeepers, and the mangrove forest. The bees feed on the mangrove flowers, making highly desirable honey free from commercial additives. One of the challenges Ms Omondi says they encounter is that most farmers have no enough knowledge in bee keeping, hence they spend more time and resources on training them.

She says despite the challenges, they have now restored 67 hectares of mangroves along the Tudor Creek.

As almost 200 nations are expected to gather in Egypt's resort town of Sharm el-Sheikh from November 6-18 for COP27, Ms Omondi called on leaders to look into strategies to improve such community initiatives to mitigate climate change. "The COP27 meeting is very important because people will get to know how community initiatives have improved matters of climate change and the need to support them," she says.

She estimates that mangroves in Kenya store between 600 and 1,500 tonnes of carbon per hectare. This means the 3,371 hectares of mangroves in Mombasa County store an average of 3.94 million tonnes of carbon.

Carmine bee eaters at Mida Creek in Watamu, Kilifi County.



Why Kenya's Mida Creek is a haven for migratory birds

By Evelyn Makena | evelynmakena@gmail.com

Between September and April every year, thousands of birds fly through the skies, traversing countries and continents before landing in Mida Creek, a tidal inlet stretching from the Indian Ocean along the Kenyan Coast.

Over 70 aquatic bird species make long journeys from their summer breeding sites in Europe and Eurasia in search of wintering grounds in Mida.

The creek surrounded by thickets of mangrove forest and lined with palms is a paradise for migratory birds that come in search of food and to escape unbearable cold of Northern countries. Migratory birds depend on the creek that offers ideal temporary habitat to roost, and feed for their survival.

The 32 square kilometre creek in Watamu, Kilifi County, has important mangrove forests with a high diversity of crustaceans and fish species, which provide nourishment

to the birds. Diverse habitats of mud and sand flats and open shallow waters within the saline expanse of the creek are rich in biodiversity to sustain birds and marine life.

"The mud is like chocolate for birds. There are other places around Africa that birds can use as wintering grounds, but Mida is an exception because of the readily available food," says Kibwana Ali Bakari, a local bird conservationist.

Some of the migratory bird species that can easily be seen at Mida Creek include mangrove kingfisher, spotted ground thrush, osprey, terek sandpiper, saunder's tern, robin chats, swallows, bee eaters and shrikes. Mida is also a significant feeding area for greater flamingo, dimorphic egrets, and lesser crested tern.

The presence of migratory birds is an indicator of the condition of migratory sites. Birds stay in places where there is abundant food and minimum distraction.

According to Kibwana, migratory birds also benefit the ecosystem through pest control, pollination of plants, are food sources for other wildlife and source of pride for local communities.

The birds also have a recreational value. They add aesthetic beauty to the environment, bringing in more tourists. Every year, many tourists are drawn to Watamu to visit the pristine beaches and the coastal forest of Arabuko Sokoke.

The tranquility of mangrove forests that surround Mida Creek and the thriving bird life is also an attraction to tourists. Kibwana notes that one bird, the crab plover, is a major attraction to many tourists.

"The striking shorebird, with white and black plumage and a unique straight beak, draws many tourists here," he says. The bird that migrates from Oman and nests in Somalia feeds on crabs that are readily available at the creek.

Photo Credit | Evelyn Makena



Kahindi Charo, a bird guide at Mida Creek.

Apart from aquatic migrants, there are terrestrial birds that migrate through the adjacent Arabuko Sokoke Forest. Other bird species like secretary ibises, yellow bee storks and three banded plovers, live and breed at the creek.

Mida Creek is recognised as an Important Bird Area and together with Arabuko Sokoke Forest form UNESCO Biosphere Reserve.

But as we marked World Migratory Bird Day on October 8, experts warned that migratory bird species are in sharp decline.

According to the International Union for Conservation on Nature Red List, one in every eight bird species is threatened, including some migratory bird species such as European Turtle Dove and Atlantic Puffin.

Among the threats facing migratory birds and contributing to their decline is human destruction of habitats. Kahindi Charo Katana, a local bird guide, notes that the threats include human encroachment of wildlife habitats, deforestation, effects of climate change and invasive species.

Along the Indian Ocean, for instance, the growing numbers of Indian house crow, which is an invasive species, has led to a decrease in some smaller indigenous bird species.

“The bird is a scavenger and feeds literally on anything, including the eggs of other bird species, thus threatening their survival,” says Kahindi. The crows are not indigenous to East Africa but were introduced by scientists a century ago to control rubbish. Now, their numbers have exploded, threatening the survival of other bird species.

Destruction of key habitats also threatens the population of migratory birds. Due to years of human encroachment, Arabuko Sokoke Forest is currently the only largest remaining fragment of the East African Coastal Forest that stretches from Mozambique to Somalia. Several migratory terrestrial birds still rely on the forest stretch as a migratory route while heading to Mida in search of food.

Deforestation around the creek had in the past also threatened the bird populations but in recent years the community has put efforts to restore critical mangrove forests, attracting more birds.

MESHA to support 17 African journalists to attend COP27

Liapeng Raliengoane | raliengoaneliapeng@yahoo.com

As part of its partnership with IDRC Eastern and Southern Africa office in Nairobi, Media for Environment, Science, Health and Agriculture (MESHA) has awarded COP27 reporting fellowships to 17 journalists from Eastern and Southern Africa.

COP27 will be hosted by Egypt from 6th to 18th November 2022 in Sharm El-Sheikh. Of the 17 journalists, 7 will travel to Egypt, while 10 will cover it virtually.

MESHA Secretary, Aghan Daniel, revealed that the fellows, 50% of whom are females, will receive support and guidance from seasoned journalists affiliated with the association.

The 2022 MESHA COP27 Fellows are Caroline Chebet, Francis Mureithi and Agatha Ngotho from Kenya. Busani Bafana will represent Zimbabwe with Aimable Twahirwa standing in for Rwanda. Violet Nakamba will represent Zambia and Jenifer Gilla will be Tanzania's flag bearer.

Geogia Mbaghugho Chirombo of Malawi, Mekonnen Teshome Tollera of Ethiopia, Prosper Tatenda of will cover for Zimbabwe with South African Engela Duvenage and Liapeng Raliengoane of Lesotho making the cut too. Others are Karina Zarafazy of Madagascar, Sandra Laporte from Seychelles, Iradukunda Espoir of Burundi and Irene Shone of Botswana.

Study: Social media crucial in climate change communication

By **Tebby Otieno** | tebbyotieno62@gmail.com

Photo Credit | **Francis Mureithi**

Wachira's passion for the environment started two years ago after he attended workshops on climate change. The final year actuarial science student at Kenyatta University has since become an environmentalist who sensitises communities on climate.

"I believe that the economy and social pillar is on the environment. We cannot have a well-doing economy and society without taking care of the environment first," says the environmental advocate.

After attending the workshops, Wachira registered as a member of the Mount Kenya Network Forum, a non-governmental organisation (NGO) based in Laikipia County. He says the network operates in Isiolo, Marsabit, Nyeri, Nyandarua and Laikipia counties.

Here he joined the communications department and built his skills in disseminating information. The young digital activist now uses his Twitter, Instagram and Facebook accounts to share content on climate change to educate his followers.

"I am now in charge of a renewable energy transition project. We want to educate the community and give trademarks of actual people using renewable energy," he says in an exclusive interview.

Wachira says that he has since learned that communicating climate change goes hand in hand with involving the community more.

"I started by showing my followers the mitigation part and the impact of climate change. People have been asking what they can do to address these issues, and seeing media coming on board means we are making an impact. It is a happy feeling," he says.



MESHA members during a recent media tour of wetlands around Lake Victoria. Communicating climate change goes hand in hand with involving the community and social media can effectively support this cause.

While the impacts of climate change can be traumatising, he loves success stories emanating from initiatives taken by different stakeholders in the country.

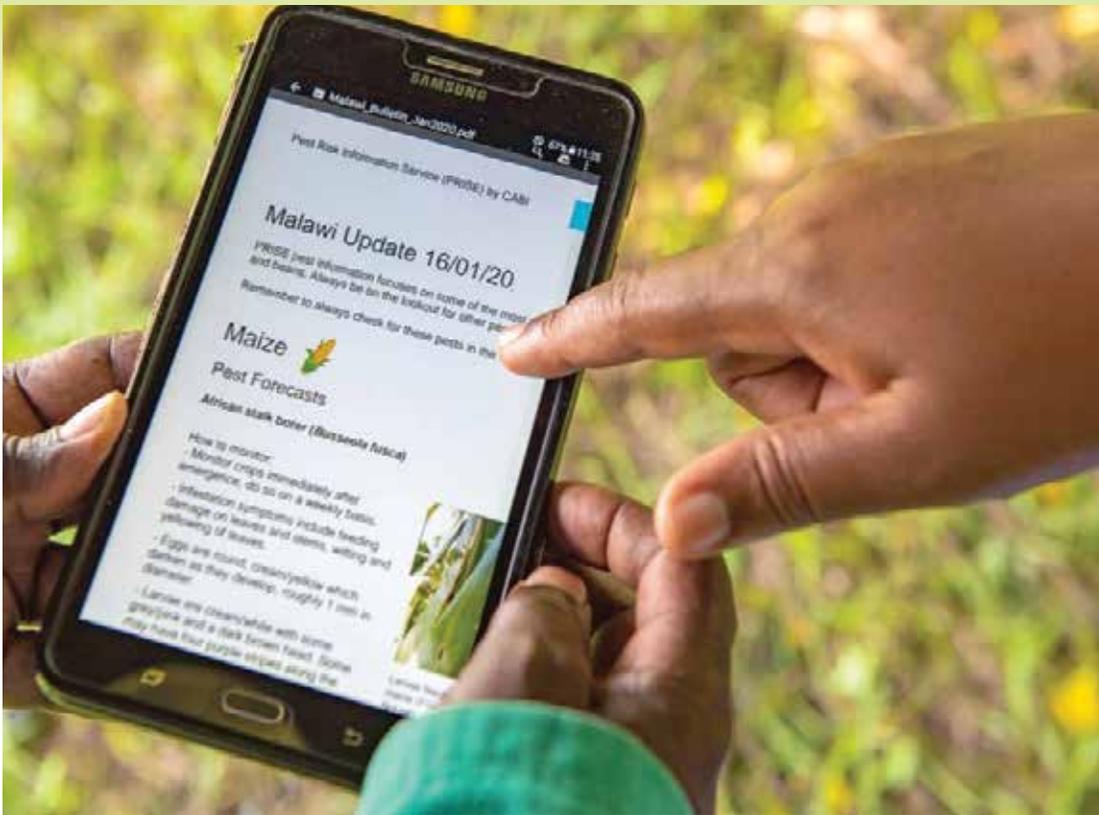
Wachira is part of the cohort of social media users who communicate climate change information to create awareness.

A report by Africa Uncensored and Youth for Sustainable Development Kenya, supported by Hivos and released at the end of July, highlighted Twitter, Facebook, WhatsApp and TikTok as the social media channels used to communicate information about climate change.

"We found that social media is a widely used channel for climate change communication. The respondents we interviewed mentioned its pivotal role in spreading knowledge about the dangers of climate change," says Boaz Odawa, Data Quality Manager at International Centre for Policy and Research Solutions (ICPRS).

Despite social media being widely used to disseminate information about climate change, the report showed that authoritative institution reports were the most trusted sources of information.

Radio, television, daily newspapers, songs, artworks, and poems were other channels the report mentioned as climate change communication channels.



This was the second in a series of four blogs by Jonathan Casey, Climate Change Manager at CABI, in support of CABI's involvement at the event.

The report showed that climate change is currently a prominent topic and discussions around it are ongoing in the media.

It recommended that climate change information be delivered timely. Boaz said respondents believed the information given by the government was more trustworthy.

"The study sought to appreciate the fact that there is a need to ensure that communication around climate change is packaged, organised and is delivered to communities in a way that they can use the information to change their lives or to mitigate the different impacts that they face, especially when climate issues happen in their lives," says Edwin Ochieng, the Design, Monitoring and Evaluation Advisor at ICPRS.

The research also reported lack of policy guidelines by governments as barriers to climate change communication. It is due to this that climate change activists and other people whose interests are in the climate change sector now call on leaders to implement policy on communication strategy brought about in 2014.

Sheline Oyoo from Environmental Capacities and Sustainability (ECAS) Institute says there are still gaps in disseminating information about the implementation of policies around climate change.

"We should fight for our rights, we should communicate, we should protest about it, we should be wild about it. What the policy says is actually what should be implemented and done," says Oyoo.

Pauline Makutsa, Programmes Officer at the Adaptation Consortium says counties should allocate funds to handle climate change adaptation and mitigation. She says this can be achieved when there are a good legal framework and institutional structures to reach community levels.

"Everybody, whether they know it or not, is impacted by climate change. Whether they talk about it in the same language as everyone else, everyone without exception is living under different kinds of impacts of climate change," says Makutsa.

She says there is no escape from climate change, thus it cannot be avoided.

"There are those people who are vulnerable or marginalised, so they have no access to resilience measures that can help them cope with the change in climate. That is where the government and the civil society come in to help build the resilience of the marginalised and vulnerable," she says.

The first ever African Protected Areas Congress held in Kigali, Rwanda, in July saw African leaders pledge their political goodwill towards more than 8,600 protected and reserved areas in the continent. The move was welcomed by World Wildlife Fund (WWF).

"African governments, conservation organisations, private sector, civil society and society at large must build on the enthusiasm, energy and momentum we have generated here in Kigali to ensure the call to action is fully implemented," reads a statement by WWF Africa Regional Director, Alice Ruhweza.

"In particular, recognising the rights of Indigenous Peoples and local communities to their land and resources is central to achieving this ambition."

Families hit as severe drought bites

By **Tebby Otieno** | tebbyotieno62@gmail.com

Photo Credit | **Tebby Otieno**

Eunice Simantoi has seen several droughts in the many years she has lived in Impiro Village, Kajiado County. However, she says, the last one year has been the worst.

Simantoi says for the women and children, the situation is even direr. Their husbands have been away from home with the livestock longer than usual in search of pasture and water.

As a result, they cannot get milk and meat, which have been their main food products.

To survive, the women ventured into farming maize and beans while their husbands are away. But this year's crops failed because of the biting drought.

Simantoi says she had to stop breastfeeding her fourth-born child who celebrated her first birthday a few weeks ago because she has to leave her behind as she tries her hand at running a business.

"Beans have never backfired as long as there is rainfall. Whenever I harvest, I must divide it into two portions, half for sales and the other half to feed the children. But now I do not have any beans left because we harvested nothing last season," says the mother of four.

Now she has to worry about where the next meal will come from. Simantoi is diabetic and has to eat specific meals, which she can no longer afford because of the increase in food prices.

"The medicines are also very expensive. I only try to control my condition through diet but this used to work when we used to have food in plenty. Currently, I don't have a special diet, at the same time I am not taking my drugs," she says.



Rachael Lenku checks the condition of her sheep at her home in Impiro village, Kajiado County.

Before the current prolonged drought, Simantoi used to get milk from their cows. However, she can no longer feed her family on any animal product, unless she buys it. She hopes to plough her land in the next rainy season.

Like Simantoi, Everline Igisa, a mother of six, has ventured into selling charcoal to support her family. Her two children are in secondary school, and the other four in primary school. She uses her three donkeys to transport charcoal from the forest to Kajiado town, where she sells a 70kg sack at Ksh2,000 (USD 16.6).

"I get my charcoal from Mile 46. It is very far from my home. Sometimes when I don't get it, I come home empty handed and try my luck the following day. I have to continue searching because I cannot sit at home when my children need food," she says.

Igisa got into the charcoal business without capital but trusted that she would make some profits. So, she gets charcoal from suppliers under an agreement that she only pays after selling her stock.

"Children do not know when their parents don't have food. That is why we keep searching for how to feed them. We get so tired, our bodies are in pain because of walking long distances," she says.

Igisa makes a Ksh400 (USD 3.3) profit per sack that she sells. She says this is barely enough to feed her family and meet other expenses such as the children's school fees.

"I sell my charcoal then, buy ugali flour. Sometimes I buy rice because it is cheaper during this dry period. I have only paid Ksh5,000 (USD 41.6) for each of my children in secondary school," she says.

Among the Maasai, the culture is that women raise the children at home while men are family breadwinners. But with the increased cost of living and prolonged droughts, this norm has had to change.

Sineyia Ene Lankesha, aged 66, says women no longer stay at home because there is no food available in those homes. Unlike during rainy seasons when there is plenty of milk, the situation is challenging at the moment. No animal is left behind since doing so will mean that women cook ugali enough for the families and the livestock.

Like for many families here in Kajiado, Sineyia's husband and one of the sons have taken their livestock to a greener pastures in Narok, about 220km away. As a result, most milk shops in Kajiado County have closed down.

"Back then, I used to milk my cows and sell the excess. Now we buy milk as a team then resell at a profit of Ksh5 per 300ml bottle," says Sineyia.

Kajiado County Agriculture, Fisheries and Irrigation Chief Officer Moses Murunya says the area has lacked adequate rainfall for the last two seasons. As a result, farmers rely on purchasing foodstuff from outside, which is expensive.

"There are farmers who do irrigated farming of commercial horticultural crops such as tomatoes and onions. But the main crops locals rely on are foods that they put on the table daily, which are drought-tolerant crops like maize, beans and green grams and they are the crops that failed due to the failure of the rains," says Murunya.

He says the county government has put in place intervention plans that will see farmers provided with seeds for the short season once rains resume.

"Even as the rains are expected sometime in mid-October or November, these farmers will not have planting seeds, which continues to worsen the situation. If they plant, the first harvest will come in February next year," Murunya says.

Livestock Chief Officer Leakey Ritei says some pastoralists who had taken their livestock outside the county have started coming back because pastures in those areas have been depleted.

Sineyia Ene Lankesha (left) and her friends sell milk at Impiro Village, Kajiado County. Most milk shops have closed down because the pastoralists have moved with the livestock in search of pasture.



"People have resorted to feeding their animals with commercial feeds," says Ritei. "The purchasing power of the farmers has gone down because they now have to take their livestock to the market then buy food. The animals now fetch very low prices, so the worst affected in terms of the cost of living are the livestock keepers."

Even though hay is commercially available, only a few livestock keepers can afford it. Frank Kimani, who sells hay, says a bale goes for Ksh400 (USD 3.3).

"At this point anyone who has animals in their homesteads feed them on hay that they buy from the vendors. During rainy seasons only dairy farmers who do zero grazing buy hay from us," says Kimani, who gets hay from Nakuru and Narok.

National Drought Management Authority (NDMA) released a report this month, showing the drought situation in Kajiado County and other Arid and Semi-Arid Land (ASAL) counties has continued to worsen.

The report says the situation is due to the poor performance of long rains last year coupled with the previous three failed consecutive seasons.

The report further states that the current milk production in areas like Kajiado is below average as compared to normal years due to poor rainfall. As a result, children in those areas are at risk of malnutrition.

"This is mostly attributed to the continued reduced milk consumption at the household level due to a decrease in milk production as well as poor dietary diversity, poor child feeding practices, and reduced food intake at the household level," reads the report.

While residents hope for the rains in the coming months, the Kajiado county government says they should change their lifestyle.

Moses Meeli Ngusa, the sub-county administrator for Kajiado Central, says such measures will help in the future since severe droughts never give early warnings.

"You have to maintain your land and cut grass for future use. When the drought started, people did not think it would take this long. We have to be extra careful by budgeting for our cattle, people, and school fees and make sure that we sell animals before the drought gets severe," Ngusa advises.

Until then, "we live by the grace," says Simantoi.

History as Kenya flags off first batch of fresh avocados to China



Industrialisation, Trade and Enterprise Development CAS David Osiany flags off a lorry carrying avocados ready for export to China, at Sunripe in Limuru, Kenya, on August 2, 2022.

By **Tebby Otieno** | tebbyotieno62@gmail.com

Grace Karanja could not hide her excitement as she witnessed the departure of a lorry transporting the first batch of fresh avocados to the Mombasa port for export to China. Crates of avocados from her medium-size Karakuta Fresh Produce Farm were in this lorry.

She had worked towards this day so much that when it finally came, not even the early morning light showers could stop her from travelling almost 60 kilometres from her farm in Kiambu, Central Kenya, to Sunripe, a fresh produce exporter in Limuru.

So, when Industrialisation, Trade and Enterprise Development Chief Administrative Secretary (CAS) David Osiany flagged off this lorry on August 2, Ms Karanja and many other farmers present could do nothing but celebrate.

Karanja said the journey had not been easy, as they had to put in extra effort to meet the quality standards for the export market.

“During harvesting, the quality controller, who had trained my team on minimising post-harvest losses, was there to ensure that whatever came from the trees meet the standard required by the buyers,” said Ms Karanja.

She said even the mode of transporting fresh avocados for export from the farm is different.

“We no longer send avocados in Toyota Probox vans or pick-up trucks because that increases your damages. We send them in crates, in vehicles packed in minimum quantities per crate so that they do not rub against each other and on the surface,” she explains.

The journey for Karanja’s farm started in 2017 after she resigned from a corporate job to venture into agriculture. Her team’s first harvest missed the mark but they learnt from the experience and improved the following season.

“When we had our first harvest, we had a lot of horrible fruits. We could not even get them to the market. We are now getting better because we now understand that to get these markets, you need really good sizes and qualities,” she said.

Karanja is optimistic that the global market for fresh avocados is just the beginning of better opportunities for local farmers. She admits that despite most people in the country producing avocados, not all of them are producing the right quality for export.

Photo Credit | Tebby Otieno



Some of the avocados packed for the export market in China.

However, she says the China market will be a motivation towards meeting export standards by many smallholder farmers, who initially did not understand what is required of them.

Late last year, Kenya Plant Health Inspectorate Service (KEPHIS) negotiated a Memorandum of Understanding (MoU) with the General Administration of Customs of China (GACC), which resulted in a Phytosanitary protocol for exporting fresh avocados to China signed in January this year by both countries' ministers.

KEPHIS has since approved 15 orchards, 10 pack houses, and one fumigation facility and communicated to GACC who have also published them on their website. This followed satisfaction of the GACC remote auditors that they are good at quarantine pest management and meet the requirements for the export of fresh avocados to China.

"This is the first group of exporters allowed to export fresh avocados to China. However, we are continuing with audits so that we can add other growers of avocados who meet the requirements," said Prof Theophilus Mutui, the KEPHIS Managing Director.

"Agriculture is the foundation of Kenya's economic and social development. It has a direct significant bearing on food security, economic growth, and social stability.

Therefore, such opportunities have to be treated with the highest attention and care so that our trade is enhanced and the foreign exchange is increased."

The management at Sunripe company in Limuru hopes that the Standard Gauge Railway will in the future be used to transport fresh avocados to the Port of Mombasa for onward export to China. This will significantly the time taken on the road.

For example, the first batch of fresh avocados is expected to arrive in China in 24 days. This means that the Chinese will eat Kenyan avocados in the first week of September.

With Sunripe and Kakuzi companies being the only two fresh produce export companies cleared so far, officials said that access to the market and capital with a high-quality product is important.

They called on avocado farmers to invest more money in orchard management and produce very high-quality fruit, even as they consider value addition that will see them produce avocado oils and lotions.

Mr Osiany described the exportation as a bold move and a step towards forging deeper cooperation and collaboration between the public and private sectors. He said the futuristic event seeks to harness the enormous economic prospects between

Kenya and her international markets to strengthen the ties among business communities.

"Fresh horticulture exports from Kenya have played a big role in the last 50 years and placed Kenya on the global map. Avocados have become a very big product for Kenya and Kenya is now the 6th largest exporter in the world and Africa's largest exporter for two years running," he said.

According to Osiany, the global market for fresh avocado indicates the existence of opportunities for both countries to increase their trade volumes as well as narrow the trade balance gap.

"As the global market continues to grow, the production in Kenya increases annually, thus the need to open new markets. As per the projection, Kenya looks forward to exporting over a hundred thousand tonnes of avocado in the next couple of years, and this figure may double in a decade's time," he said.

Kenya's export to China last year amounted to about US\$199.6 million against an import from China of about \$4 billion. Osiany urged the China's Minister for Council to reduce the seven per cent import duty China is charging.

The journey to sell fresh avocado in China started in 2018 when the Asian country hosted the China International Import Expo in Shanghai. The high-level visit saw the signing of MoU on the Sanitary and Phytosanitary (SPS) protocol.

The first attempt after the agreement saw Kenya become the first country in Africa to export frozen avocados to China after it failed to meet the set standards for fresh avocados.

The business deal between the two countries is geared towards granting market access to 13 prioritised agricultural products. They include fresh avocados, green beans, legumes, flowers, herbs, vegetables, fruits, pickers, peanuts, and macadamia nuts.

Avocados in Kenya grow from the sea level to 3,000 metres, and with the two rainy seasons a year, experts say they are more organic.

Mating disruption: New technology poised to tackle fall armyworm infestation

By Clifford Akumu | akumu.clifford@gmail.com

Photo Credit | Clifford Akumu

Florencia Ngao scouts inside a maize demonstration plot in Kinanie village in Mavoko, Machakos County, occasionally taking time on plants with pin-holed leaves.

Soon, she scoops a tiny larva from the tassels of a young maize plant. The larva on her hand is a caterpillar stage of the fall armyworm (*Spodoptera frugiperda*) locally known as Kiunyoo; the most voracious.

The mother of three has grown maize, tomatoes and traditional vegetables for the last 20 years. She used to harvest up to 30 bags of maize per acre. She grows maize for commercial purposes in her two acres situated kilometres away from the demonstration site.

Her maize yields have dwindled due to infestation by the ravenous pest. Today, she harvests as low as two bags of maize from an acre.

"Of late, growing maize has not been fruitful. If you plant maize, the fall armyworm starts eating the young plants at only two weeks. I spray insecticides but the pests still come back," says Ngao.

However, a new sustainable technology that disrupts mating in fall armyworms to suppress populations promises to get maize farmers like Ngao back on their feet.

The technology named Pherogen is pheromone-based, with the chemical used mimicking the scent that female armyworms release to attract males for mating.

Samuel Muchemi, field development director at Provivi, a US-based company that developed the dispenser, says that fall armyworm is also affecting the country's export commodities such as roses and tomatoes.



Samuel Muchemi, Field Development Director at Provivi, demonstrates to journalists how to place the pheromone dispenser.

How it works

The pheromone sachets are put in the maize field using a stick at a spacing of 20 by 20 metres. It causes the males not to find the females, denying them an opportunity to mate and fertilise the eggs.

This suppresses their population, says Mr Muchemi.

"We are partnering with Kenya Agricultural and Livestock Research Organisation (KALRO) to demonstrate how the technology works. It means the eggs that are carried by the females will not be fertilized, hence will not hatch into young ones," he says.

"The sachet releases chemical used to mimic the scent that female armyworms release to attract males for mating. The males thus loiter, not knowing where the scents are coming from."

Since its discovery in Western Kenya in March 2017, the pest has become a major challenge to maize farmers, causing losses of about a third of the annual maize production – a bout a million tonnes.

By 2019, Kenya had reported the presence of FAW in 43 out of the 47 counties, indicating that about 80 per cent of Kenya's crop-producing landmass was under invasion.

Dr Muo Kasina, the principal investigator for the management of fall armyworm at KALRO, says integrating various methods to manage the pest is key.

"FAW management is not very easy. It's a pest that proliferates very fast and we don't have a clear solution as of now. And farmers are highly dependent on insecticides," Dr Kasina says.

"But this isn't sustainable. In the process, we are poisoning our soil so much," said Kasina during a farm visit at KALRO's site where the trial on the technology is being done.

He explains that researchers are seeking a scenario where all farmers will be able to use biological control method as their primary intervention and only integrate chemical pesticides as a secondary measure if the infestation is getting out of control.

Farmers are spraying their maize plants six or nine times in order to control the armyworm. But the insecticides are not effective, Dr Kasina adds.

"I buy 50ml of the insecticide at Ksh350 (USD 2.9) (this is able to prepare about 20 pumps). For one acre you have to buy four of the 50mls, totalling Ksh1,400 (USD 11.6) for one round of spraying. Before harvesting the maize, I spray up to five times," says Ngao.

According to the United Nations Food and Agriculture Organisation (FAO), fall armyworm – which has appetite for maize – flies nearly 1,600km in just 30 hours and has already migrated across Africa, reaching 50 of 54 nations since 2016.

Mr Muchemi says the new technology will confer protection for the entire crop cycle once installed in the farm.

"Farmers will reduce the frequency of spraying. Secondly, we are preventing the farmer from exposing themselves to insecticides. In a way, we are not substituting the use of insecticides but we want them to reduce the amount of insecticides they put on the crops," he says.

"The pheromone is active for 90 days and should be installed before the emergence of the first shoots of the maize plant and left there until harvesting."

According to Muchemi at least eight sachets are adequate for an acre.

Cost

A farmer can lose up to 80 per cent of their crop if the pest is not controlled. Farmer Cosmas Nzioka from Kaulo village in Mavoko, Machakos County, knows this too well.

Nzioka started growing maize in 2015, but high costs of farming inputs, including insecticides and fertiliser, have made the venture unbearable.

Like other farmers, he had to spray his farm nine times from establishment to harvest to curb the fall armyworm attack.

"I no longer see the need to plant maize. I am tired of spraying the crop every week," says Nzioka, adding that he switched to growing tomatoes and vegetables.



Florence Ngao scouts inside a maize demonstration plot in Kanie village, Mavoko, Machakos County.

Kasina explains that maize is not very good at metabolising insecticides, thus requires a big pre-harvest interval, which many farmers do not observe.

"We do not know what different molecules can cause, whether terminal or liver challenges. It poses a danger to our food systems, more so our staple food – maize. Increased use of green maize and infestation of fall armyworm is an issue that needs public discussion," Dr Kasina explains.

Ngao sells green maize. She says, "When I take maize to the market that is partly eaten by the pest, I hardly get customers to buy. I'm forced to dry and store them for future use."

A study conducted by Provivi in Kenya and other countries in 2019 showed up to 50 per cent reduction in the pests damage in fields where Pherogen was applied.

The company plans to introduce a biodegradable dispenser by next year.

"Currently we dispose of the materials because we don't want to litter the environment," says Muchemi, adding that the innovation will be availed soon at a competitive price.

"We have registered the product in Kenya, and are now awaiting commercialisation. We want to work with a price that is friendly to the farmer of \$20 to \$30 per hectare."

Wasps to the rescue

Dr Kasina notes that researchers are also working round the clock to introduce parasitoids like wasps or natural enemies to reduce infestation even before farmers grow their crops.

Most farmers discover their crops are attacked by armyworms when the pests are at the caterpillar stage, which is the most dangerous. "Often farmers know they have fall armyworm when it's in stage six of growth," he says.

Farmer capacity building is another game-changer in fighting fall armyworm. Infestation is still very high in maize growing areas.

"When farmers start with mating disruption and move to the other cocktail of integrated pest management practices in places where we are running this pilot, we are recording more benefits. But still, area wide pest management concept is key to manage FAW re-infestation."

"Our entomologists are collaborating well with the source countries. And the experience managing other pests is also coming in handy. But farmers have to change their perception and start scouting to notice incidences of pest infestation early enough," adds Dr Kasina.



ST. BRIDGET HOSPITAL KIAMBU TOWN



WHO WE ARE

We are a 72 bed modern hospital located at the heart of Kiambu County serving both outpatient and inpatient customers. We provide comprehensive, high quality, affordable and accessible care to customers of all genders and ages. Our hospital operates 24-hours with highly qualified, experienced and dedicated staff members.

OUR SERVICES

- Outpatient & inpatient
- Pharmacy
- Laboratory
- ICU, HDU, NICU
- Maternity: Normal delivery @15,000/=
CS @55,000/=
- Specialists clinics
- CT Scan
- X-ray
- Ultra sound-doppler, Tvs
- Dialysis - @ 6,000/=

📍 KIAMBU - NDUMBERI ROAD, (CHEETAH) 100 METERS FROM KIAMBU MALL

☎ +254 729 111 103 / +254 785 155 550

✉ info@stbridgethospital.co.ke

🌐 www.stbridgethospital.co.ke

