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SCIENCE

SAYANSI

Telling the African science story

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How Kenyan women gain from conserving mangroves

In this issue

**Where food crisis, climate
change and biodiversity
conservation meet**

**Plastic waste
could ruin marine
ecosystem**

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insects for food
security in Africa**

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.

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Mesha Science

Mesha Science

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Cover photo

The photo depicts Ms Cece Siago, a journalist based in Kwale County, Mombasa. She is standing on a board walk made of plastic waste in Gazi area. In the background are mangrove trees.

Photo Credit | Aghan Daniel

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Why we must be concerned about biodiversity now more than ever

The Convention on Biological Diversity defines biodiversity as “the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems”.

Simply put, biodiversity supports every aspect of human life, from food production in terms of a variety of food plants, pollination, pest control, nutrient provision, genetic diversity, and disease prevention and control; tourism and recreational pursuits such as birdwatching, hiking, camping and fishing; support of many livelihoods such as those of farmers, fishers and timber workers; scientific research that helps us to understand the natural world and its origins; and cultural practices such as the use of traditional and orthodox medicine from plants. The World Health Organisation lists over 21,000 plants that are used in traditional systems of health care, many of which are now threatened by over-collection and loss of natural habitats.

Therefore, when we conserve biodiversity, we are protecting and preserving human life by ensuring there is enough food for everyone; ensuring economic growth and poverty reduction; addressing the effects of climate change; and preventing conflicts, whose root is always the fight for scarce natural resources.

That biodiversity currently faces a lot of threats from everyday human activities cannot be overemphasised. For instance, in Kenya, almost every arable land is being converted into 50 by 100 plots without giving much thought to the future of food security.

Due to climate change, the weather has become so unpredictable that rain-fed agriculture is no longer a viable venture, resulting in famine year in, year out.

For the pastoralist communities who mostly live in arid and semi-arid land and depend on animal husbandry as their main source of livelihood, yearly droughts are a constant reminder that they now have to be more creative to survive. Downstream, constant floods keep displacing people from their homes.

Human-wildlife conflict has increased tremendously as human activities keep encroaching on the wildlife space, and several animal species are now threatened with extinction.

All these are a reminder that we must come out at all levels to fight for our biodiversity; from government, to stakeholder, to community, to individual levels. The government, its policymakers and other stakeholders must quickly develop strategies aimed at providing practical solutions to this threat. For instance, when the COVID-19 pandemic hit the world, scientific literature largely ignored the ecological impact of the pandemic and the resultant lockdown, with most reports focusing only on social, economic, political, and health-related consequences.

At the community level, we should encourage practices that protect the environment. It is laudable that some communities such as the Mijikenda conserve the Kaya forests and shrines. Such practices should be replicated throughout all other communities.

As an individual, do you still throw used plastic water bottles out of your car window as your children watch and learn? How do you dispose of your used face masks, do you just throw them on the roadside? Are you among those who still use plastic carrier bags despite the government ban? Then you are the greatest threat to biodiversity and you need to stop these habits now.

Let us all join hands to protect and preserve our biodiversity.

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As of 2012, Africa produced more than 125 million tonnes per year of municipal solid waste and this is expected to double by 2025.

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Experts call for biodiversity conservation in fight against climate change

By Joyce Chimbi | j.chimbi@gmail.com

The ecosystem plays a critical role in halting the pace of climate change and its effects, experts have said.

In a webinar for science and health journalists held on February 22, the experts unpacked concepts around biodiversity, different types of biodiversity and how they interact, providing clear examples of their interconnectivity and why conservation efforts must be escalated because life on earth depends on their sustainable use.

Dr David Kimiti, Deputy Director, Research and Impact at Grevy's Zebra Trust, said there is a need to re-evaluate the variety and variability of life on earth at all its levels, "from genes to ecosystems and the evolutionary, ecological and cultural processes that sustain life."

He gave three main types of biodiversity; genetic biodiversity, species biodiversity and ecosystems biodiversity.

Dr Kimiti said overexploitation of species and ecosystem biodiversity is making life on earth difficult, having contributed to extreme weather patterns, which have, in turn, led to severe food insecurity such as the ongoing hunger in northern Kenya.

Dr Julius Ecuru, Manager, BioInnovate Africa at International Centre of Insect Physiology and Ecology (*icipe*), told journalists that while Africa is rich in biodiversity, which is the basis for biomass that is essential to the bio economy, "threats to the biodiversity are imminent".



Dr Julius Ecuru, Manager, BioInnovate Africa at *icipe*

He said genetic biodiversity preserves life on earth, while species biodiversity defines unique attributes of life and co-existence within and across life forms.

Ecosystem biodiversity, on the other hand, ensures ecological balance in habitats to support life, providing essential services such as air and water purification, carbon sinks and wildlife.

Dr Ecuru spoke of unsustainable food production and consumption, land use changes, including urbanisation, mining and infrastructure development, pollution by toxic effluents from factories as well as global warning from carbon emissions.

He called for conservation of biodiversity at all levels, using science and technology to optimise production and use of biomass, including reclaiming degraded environments.

Dr Ecuru also called for provision of alternative livelihoods for communities that are custodians of biomass, especially fuel sources, farm inputs, market value chains and job opportunities.

Saliou Niassy from *icipe* laid bare the looming catastrophe if Africa does not adopt a protective, restorative, conservative and sustainable approach when interacting with the ecosystem biodiversity.



Fisherfolk: Experts say that the lives and livelihoods of people across the continent are heavily dependent on the quality of biodiversity.

“Ecosystem services are the benefits provided by ecosystems that contribute to making human life possible and worth living. Categories of ecosystem services based on their functions include provision of food and medical resources, regulatory services such as bio control, support services such as nutrient cycling and cultural services such as ecotourism,” he explained.

Niassy stressed on the importance of circular economy and sustainable access to ecosystem services in Africa. If the continent does not halt ongoing overexploitation of the ecosystem benefits, UNEP research, for instance, predicts that Africa’s forest cover will shrink to “less than 600 million hectares by 2050 due to conversion of forests for agriculture and growing demand for firewood.”

According to the Africa Development Bank (AfDB) Africa’s annual food import bill of \$35 billion is estimated to rise to \$110 billion by 2025.

Niassy decried soil degradation across the continent due to a combination of factors, which has further compromised land production potential.

“As of 2012, Africa produced more than 125 million tonnes per year of municipal solid waste and this is expected to double by 2025. All these are effects of lack of sustainable and circular approach on access to ecosystem services for better livelihoods, food and nutritional security,” he said.

Research shows that constraints to biodiversity conservation and sustainable access to ecosystem services can be seen in the lack of capacity to adopt sustainable measures to combat climate change, ongoing landscape degradation, invasive and other biotic threats as well as intensive agriculture.

Niassy says low awareness on benefits of biodiversity, lack of technology and capacity among stakeholders for monitoring, conservation and sustainable access to biodiversity and ecosystem services are the most pressing issues.

It emerged that human activity have extensively utilised biodiversity in its various forms without due regard for future generations. Niassy called for community engagement in conservation efforts to ensure interventions are practical and sustainable.

Overall, experts called for urgent interventions to ensure that human activities do not erode Africa’s position as a biodiversity hotspot, risking the lives and livelihoods of people across the continent.

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As of 2012, Africa produced more than 125 million tonnes per year of municipal solid waste and this is expected to double by 2025.

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Habitat loss and land degradation threats to biodiversity, experts warn

Photo Credit | MESHA



Science journalists during a training on biodiversity.

By Clifford Akumu | akumu.clifford@gmail.com

Kenya is home to a large diversity of ecological zones and habitats, including mountain forests, wooden grasslands, coastal and marine ecosystems playing an important role to livelihoods and wellbeing.

But the greatest threat to the country's biodiversity, says Dr David Kimiti, Deputy Director Research and Impact at Grevy's Zebra Trust, is habitat loss and fragmentation that continues to pile pressure on plants and animals existence.

And it is fuelled through land degradation or urbanisation that is alarmingly shrinking wildlife conservation spaces. Agricultural activities and human settlements too are other major culprits, adds Dr Kimiti.

Interestingly, the hardest hit of all habitats, he says, are rivers and lakes, with freshwater animal population collapsing by 81 per cent since 1970, thanks to huge water extraction for farms and people plus pollution and dams.

Dr Kimiti, a rangeland ecologist, further explains that saving habitat and ecosystems loss is key towards biodiversity conservation.

"Most threats to biodiversity are driven by humans," he said during an online biodiversity training for science journalists organised by the Media for Environment, Science, Health and Agriculture (MESHA).

"It only goes to highlight the biggest threat to biodiversity and wildlife conservation gains in the country."

Across the country, migratory animals and birds, for example, which rely on movement to find food, water or breeding grounds, are under threat.

Wildlife migratory routes in Kenya include Serengeti-Mara, Greater Amboseli, Mara-Loita, Athi-Kaputiei and the phenomenal lions route of Laikipia-Arabal-Kipngochoch-Lake Bogoria.

Ultimately, these migration routes are being cut off by settlements, farms, fences, roads and areas where wild animals used to roam are getting smaller.

Spaces for wildlife conservation and migration routes, notes Dr Kimiti, are shrinking, further impacting on their genetic diversity.

Migratory corridors, he says, connect core habitats and are critical for species' survival and long-term viability of ecosystems.

"Routes that wildlife used for their natural dispersal and migration are no longer viable, with most of them being replaced with roads and other infrastructure. And this is having a beating in their genetic levels. Urgent action is needed to save this iconic biodiversity," he said.

Dr Kimiti adds that saving Kenya's fragile ecosystem calls for promotion of mixed use conservation in areas where indigenous communities coexist with wildlife. Integrating local and scientific knowledge in ecosystem management is also key.

"The best way to conserve biodiversity is to save habitats and ecosystems rather than trying to save a single species," he said.

Dr Julius Ecuru, Manager, BioInnovate Africa at *icipe*, urged other stakeholders to put a strong case for sustainable use of biodiversity to spur bioeconomy.

Dr Ecuru stressed the need to promote innovation in the sustainable use of biomass through value addition, bioprocessing and links to local and international markets.

"We need to conserve biodiversity at all levels; genetics, species and ecosystems (including soil and watershed management)," he told the meeting, adding that his organisation is already working on innovations such as using indigenous knowledge to fight invasive species such as fall armyworm.

Mangrove conservation improves Gazi women's livelihoods

By **Bozo Jenje Bozo** | bozojenje@yahoo.com

Photo credit | Aghan Daniel

Hermit crabs are seen hovering beneath the mangrove plantations as one walks on the 450-metre plastic recycled eco-post boardwalk at the shoreline of Gazi Bay in Kwale County.

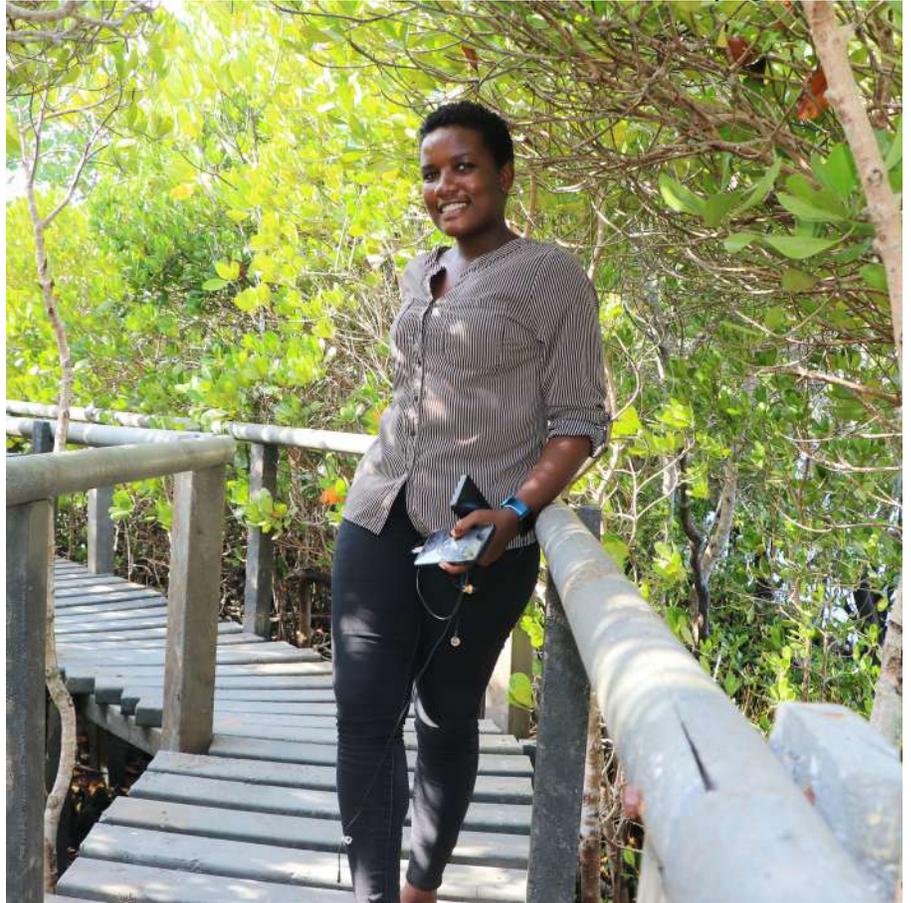
Carrying empty snail shells on their backs, the crabs transverse the sandy ground, feeding on leaf litter and green leaves.

The crabs' survival is of immense value to the mangrove ecosystem and biodiversity, and to the local artisanal fishermen who harvest them as baits as they fend for their livelihood.

On the coastal shoreline, the evergreen mangrove trees are dominant and one cannot easily figure out that the area was once degraded from human activities.

Addressing journalists at Gazi Village during the Media for Environment, Science, Health and Agriculture (MESHHA) with support from JRS Biodiversity Foundation, Dr Kipkorir Langat said before an intervention to stop mangrove destruction, lorries used to ferry tonnes of mangrove logs for lime and charcoal production.

"It is through the efforts of Kemfri and the community to plant propagules, transplant mangrove saplings and nursery-raised seedlings that the 27 women in Gazi village are now benefiting from the green economic activities of mangrove conservation," added Dr Langat who works as a chief scientist at the Kenya Marine and Fisheries Research Institute.



A 450-metre boardwalk built using plastic recycled eco-post at the shoreline of Gazi Bay in Kwale County.

He said the 1994 restoration initiative that started at Gazi led the women to sustainably utilise the mangrove resources and improve the mangrove ecosystem for their livelihood. Other than caring for the mangroves, the Gazi Women's Group also runs a makuti-thatched restaurant.

Mwatime Hamad, a member of the group and a tour guide, says the project located 50km from Mombasa has boosted their income from eco-tourism, recreation, education and research.

"We charge visitors a fee to walk on the on one-metre, raised boardwalk and also provide Swahili dishes for their lunches and dinner while on tour," says Hamad.

"Local tourists pay Ksh100 (USD 1), international visitors Ksh300 (USD3) and students Ksh50 (USD 0.5) per person. The money collected supports women in the village and their children in school," she says.

Photo Credit | Nduta Waweru



Dr Kipkorir Langat of Kenya Marine and Fisheries Research Institute, who spends a lot of time studying mangroves says that the forests deserve much more attention than they currently receive.

While touring the mangrove area, tourists also participate in bird watching. Among the diverse bird species are the fish eagles and white egret birds.

Hamad says during peak seasons, they earn about Ksh30,000 (USD 300) per month, while during low seasons the income goes down to Ksh10,000 (USD 100).

In future, the group targets about 350 customers every month to increase its revenue.

At the moment the women have diversified their revenue streams to include hiring of the Banda at Ksh3,500 (USD 35) for birthday parties and meetings.

Further, Hamad says the project plans to expand to incorporate campsites and floating cottages.

Dr Langat said the mangrove ecosystem supports fisheries and prevents soil erosion.

“The benefits of mangrove include shoreline protection from soil erosion, storage and preservation of substantial quantities of carbon and biodiversity,” he explained.

Dr Langat said the mangrove ecosystem also contributes to the productivity of the ocean value chain for artisanal fishing.

According to the Kenya Policy Brief, a hectare per year of mangrove provides essential service valued at Ksh269,448 (USD 2694).

On the women’s connection to the mangrove conservation, Kemfri marine scientist Josphat Nguu said the women can now attest to managing a business without employing and paying external workers.

“From their experience, they have learned that marketing the conservation project is a key component for growth and success,” he said.

Nguu added that for the prosperity of the group, diversification of their products will increase more income for sustainability and the maintenance of their infrastructure.

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Women can now attest to managing a business without employing and paying external workers.

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Institute vouches for protection of sandalwood, a rare hard wood

Photo Credit | Uganisha Cultures



A felled sandalwood tree in Baringo County.

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

Nick Lenyakopiro grew up knowing East African sandalwood as a medicinal tree used by his parents and grandparents.

He says that once the leaves of this indigenous tree have been boiled, children with cough-related diseases are then covered using a blanket and allowed to inhale the steam for some minutes. This is how the healing process using East African sandalwood takes place.

"The culture of Samburu does not allow trees to be cut down. You either pluck the leaves or remove the tree plank," says Lenyakopiro.

Samburu is a hot and dry region whose residents are mainly pastoralists. During drought, they also cut the leaves of the sandalwood to feed livestock.

"Sandalwood still exists and locals here do not know any economic value attached to it like selling them to other people or exporting them," says Lenyakopiro.

What he did not know was that some people away from his community had known other benefits of this rare tree species. As he would later find out, officers in Maralal Police Station had arrested those who involved in trading in it.

"All of a sudden cases of sandalwood started coming up. Maybe someone somewhere just stole the idea that sandalwood is making money somewhere," he says.

Lenyakopiro is a station manager at a local radio station in Samburu. He says he uses the station to educate their audiences on the need to protect sandalwood.

"We have actually come out to champion the protection of the sandalwood. We tell our audiences not to allow foreigners who come to the forest asking for it," he says.

Apart from treating children and feeding animals, Samburu community also uses East African sandalwood as a preservative and cleaning ingredient.

Douglas Leboiyare, living in Ngari village, says locals use it to clean traditional gourd used to preserve milk. This ensures milk remains fresh as if it were refrigerated.

"Women also use it when they have given birth and experience swollen, painful breasts. Again, after using it to clean the gourd, milk can stay there for three days without fermenting," says the 51-year-old.

Despite the importance of this species of tree to Samburu residents, they are now worried of its availability in future. This follows the rate at which it is being cut and sold to outsiders. Leboiyare says stories about availability of its market in the neighbouring countries started in 2010/2011.

"Those people started coming to Samburu telling people that the tree pays money. It seems there are business people from outside Samburu who come here with brokers so the tree is cut. Only God knows if it will survive," he says.

According to Leboiyare, one big sandalwood tree can produce one tonne while a small one produces about 200kg. The brokers pay locals Ksh60 per kilogramme and they cut many trees at ago to fill up a lorry.

It is because of this that residents here formed Naramat Community Forest Association (CFA) in Kirisia Forest so that they protect this species. Leboiyare is the chairperson.

“We are trying to stop cutting of this tree here in Kirisia Forest by creating awareness among the locals. We also arrest those we find cutting it but there are still crooks who continue to cut it,” says Leboiyare.

Naramat CFA consists of 140 scouts members who do patrols to make sure there are no intruders accessing Kirisia Forest.

“They normally cut this tree into small pieces. When we find them we arrest and hand them over to officers for legal action. However, if they manage to escape we destroy the small pieces of trees they leave behind,” he said.

Leboiyare says he has never seen seedlings of East African sandalwood. What they are doing is protecting the naturally growing species. He, however, appeals that if there are seedlings, then they be given so that they can plant more of it in the deforested areas.

“This tree grows where there is high temperature and since the government has not been able to preserve it, we decided to leave our livestock and protect our forest,” says Leboiyare.

In 2007, President Mwai Kibaki issued a ban on sandalwood tree harvest. The president, vide Gazette Notice Number 3176 dated the April 4, 2007, declared *Osyris lanceolata* (East African sandalwood-Msandali) as a protected tree species for a period of five years. The Gazette notice was to be executed by the Kenya Forest Service (KFS).

Dr Willis Okumu, a senior researcher from the Institute of Security Studies, says prosecution of cases of trading in sandalwood is still supported by the Gazette Notice Number 3176.

“Sandalwood in Eastern Africa has also been listed in appendix two of the cities of the increased over exploitation.



Sandalwood tree in Baringo County.

Despite all the legal framework that we have, it seems that we have not really succeeded in preventing the exploitation of sandalwood,” said Dr Okumu during a phone interview.

There have been subsequent legal provisions, like the Wildlife Conservation Management Act of 2013, which have listed East African sandalwood as endangered species that people cannot trade in.

Dr Okumu reveals how their recent research in Samburu County, tracing networks enabling East African sandalwood smuggling and trafficking, found people behind this illegal trade.

“We realised that sandalwood trafficking in Kenya is facilitated by some State actors, hence the lucrative nature of the product,” said Dr Okumu.

The investigation further found out that there is a lot of bureaucracy and criminal organisations involved in trafficking of East African sandalwood.

East African sandalwood is found in areas where most locals are pastoralists like in Samburu County.

Peter Gachie, a scientist from Kenya Forestry Research Institute (KEFRI), says most people who are interested in trading in this tree take advantage of the vulnerability of the locals who are looking for an alternative source of livelihood.

“East African sandalwood is a precious plant that has been overexploited. Its scientific name is *Osyris lanceolata*. It is in the family of sandalwood and has its relatives in India and Australia, which we usually term as the true sandalwoods,” Gachie said.

Gachie says that East African sandalwood is used in cosmetics industry to make oil and also some medicine. Oil being very valuable has led to this species of tree to be overexploited in other countries.

“In those other countries it has been domesticated so people are cultivating sandalwood, but due to limitation of the species they have now come to poach our own,” he says.

The lucrative value of East African sandalwood products continues to put the tree in a danger of exploitation and destruction. KEFRI says communities where the tree is harvested have little knowledge about the value of its products, the reason they are robbed of their precious resource.

Plastic waste could ruin marine ecosystem

Photo Credit | Maxwell Joshua



Plastic pollution at the Port of Mombasa. Lots of used plastic bottles find their way into the Indian Ocean daily, affecting biodiversity and the marine ecosystem.

By Bozo Jenje Bozo | bozojenje@yahoo.com

Beneath the mangrove trees on the coastline of Kenya lies plastic debris that litter the ground and are an eyesore.

While the world is focusing on the circular economy of reducing, reusing, and recycling plastics, lots of used plastic bottles find their way into the Indian Ocean daily, affecting biodiversity and the marine ecosystem.

“Plastic bottles do not emanate from the coastline of Kenya only but are swept from as far as Madagascar, Somalia and Zanzibar, and this is a challenge to control,” said Kwale County Director of Environment Joseph Indo.

Despite the challenge to curb the menace at the beaches, occasionally community-led groups and individuals carry out clean-up activities to remove the mountains of plastics for income and cleanliness.

Charles Kosore Mitto, a Kenya Marine Fisheries Research Institute scientist, said there is a high concentration of microplastics in the coastal marine environment.

Mr Mitto said microplastics are often mistaken as food and may enter the food chain through ingestion, posing a threat to human health.

“The World Health Organisation (WHO) declared that there are no risks due to ingestion, but more studies are ongoing,” he said.

Mr Mitto spoke during the Health and Environment Research Institute-Kenya stakeholders’ plastic conference on March 18, 2022, coinciding with the World Recycling Day, at Jacaranda Hotel in Kenya’s South Coast.

Prof Dr Angelle Desiree LaBeaud of the Department of Paediatrics, Stanford University School of Medicine, said the poor management of plastics has an adverse effect on community health.



Trash collection and recycling provide opportunities for jobs, livelihoods, and economic growth.

She said, “Poorly disposed plastics in the environment contribute to the spread of chikungunya, dengue fever, Zika virus and yellow fever since they create a breeding ground for rodents and mosquitoes.”

“More than 60 per cent of the solid waste remains uncollected in the environment and it is only 5 to 17 per cent of plastics that is recycled.”

Dr Francis Mutuku, a senior lecturer on Environment and Health Sciences at the Technical University of Mombasa, said trash collection and recycling provide opportunities for jobs, livelihoods, and economic growth.

Dr Mutuku called for environmental awareness on the impact of plastics on the community to ensure sustainable use and prevent plastic pollution.

Buttressing Dr Mutuku’s sentiments, Susan Scull-Carvalho of Kwale Recycling Centre said empowering people on the circular economy can improve the livelihoods of women and the youth.

She said the centre requires about 400 tonnes of plastics monthly to provide roofing material solutions.

Diani Municipal Manager Khamis Mwandaro said to manage illegal dumping of plastics, the Kwale County administration plans to segregate the waste at source and recycle plastics in the coming months.

“The plans are at an advanced stage and the policy framework for solid waste is in the pipeline to actualise the dream of recycling,” he said.

Alex Kubasu of World Wide Fund for Nature – the Kenya Circular Economy Initiative Lead – said only 14 per cent of the collected plastic is for recycling globally.

Further, Mr Kubasu said there are inadequate policies to curb the problem of plastic globally since there are no global rules and standards or recommended practices.

“There are significant gaps in national and regional legislation, and commitments to deal with plastic pollution,” he said.

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More than 60 per cent of the solid waste remains uncollected in the environment and it is only 5 to 17 per cent of plastics that is recycled.

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Plastic waste recycling saves mangroves, earns women a living

Photo Credit | Aghan Daniel



A mangrove forest in Gazi, Kwale County

By Ruth Keah | rkeahkadide@gmail.com

The coastal mangrove forests provide natural protection against erosion, nesting and breeding habitat for fish and shellfish, migratory birds and sea turtles. It is estimated that 80 per cent of the global fish catch relies on mangrove forests either directly or indirectly.

But the incredible species of tree is being suffocated by plastic waste, hence, the loss of fisheries, increased flooding, increased coastal damage from cyclones, and increased salinity of coastal soils and water supplies. The people who feel the costs of wetland destruction are the fishermen and other people who make their living out of the coast.

This led some communities to take initiatives in rehabilitating the ecosystem in a bid to bring it back to life. One such community is Gazi Women's Group, a community-based organisation based in the South Coast of Kenya at Gazi Bay.

One of the group's projects is Mikoko Pamoja, a community-led mangrove conservation and restoration programme also supported by the Kenya Marine Fisheries Research Institute (KMFRI). It is the world's first blue carbon project, which aims to provide long-term incentives for mangrove protection and restoration through community involvement and benefit.

At the shade where Gazi Women's Group conduct their activities, we were welcomed by the tantalising smell of coastal dishes, which the women had prepared for us. This is also part of the activities the women are engaged in to earn a living.

The group has 27 members brought together by a common goal; to safeguard the mangroves and its ecosystem.

Up to 90 per cent of the villagers in Gazi depend on sea activities to get their daily bread; hence, the need for them to make sure the mangrove forests are safe.

Some of the group's activities to protect the mangroves are repairing and extending the existing mangrove boardwalk facility at Gazi in order to enhance ecotourism in the area, and aggressive marketing of the boardwalk through visits to schools and major hotels in Coast Province among others.

The group also keeps bees in the mangrove forest of Gazi Bay and currently has 10 beehives.

The boardwalk is made of plastic waste, which they normally collect from the area, as explained by Mwatime Hamadi, a member of the group and a tour guide.

"The mangrove boardwalk is a project funded by the City Council of Overijse (Belgium) and International Ocean Institute (IOI). It is a 300m long and enables a relaxing walk through the animal-rich mangrove forest. It is punctuated with cool resting points, and provides a good view of the bathing mangroves," says Hamadi.

The boardwalk was constructed to be a source of income to community. She says at first, they made it using wood, but due to the salty water, they had to repair it monthly, which was quite expensive.

However, the bridge now has a new look, thanks to poles and planks recycled from plastic waste. Eco-post Limited reprocessed over three tonnes of plastic waste from its rebranding project that consisted mainly of brand signage.

The bridge was renovated under a recycling project by Absa Bank in collaboration with Lorna Rutto of Eco-post Limited and executed in partnership with Base Titanium.

According to Hamadi, the eco-post is strong; in fact, since the bridge was rehabilitated using the eco-posts and officially opened in 2020, they have never done any repair.

"If we knew that plastic can be recycled since the time we started this project, we would have saved a lot of money, which we used to repair the wooden bridge," she says.

Najat Mohammed, a member of the group, said the money they get from the project has helped them meet their daily needs, including, paying their children's school fees and building a madrasa.

Every day, an average of 2,000 tonnes of plastic objects are imported or produced in Kenya, with 100 tonnes of related wastes ending up in rivers and the Indian Ocean.

An analysis published in December 2020 by the International Union for Conservation of Nature (IUCN), through the support of the Swedish International Development Cooperation Agency (Sida), found low average plastic waste collection, at 27 per cent countrywide, based on 2018 data. That is, 125,000 of 506,000 tonnes of total plastic waste was collected towards recycling and disposal.

Josphat Kashoki, a researcher at KMFRI, says the rate of plastic consumption by marine fish has doubled in the last decade.

Kashoki says this is why they partnered with the Gazi women to look into a solution that will reduce the amount of plastics found in the ocean.

Thus, they came up with the eco-post project. He said they collect 20-30 tonnes of plastic monthly from the coastal line beaches in Kwale County, including Gazi.

"The eco-posts are very strong and durable even in salty water. We collect the plastic waste in Gazi, Msambweni, Diani and Vanga, and take them to the processing factory in Nairobi, where we produce the eco-posts. We believe the posts can last up to 50 years without being destroyed," says Kashoki.

He says the eco-posts bridge can be implemented in other countries of the world.

Burkinabe journalist scoops top biotech reporting award

By Sharon Atieno | sharonphoebeatieno@gmail.com

Jeremy Quedrago, a television journalist from Burkina Faso, is the overall winner of this year's Open Forum on Agricultural Biotechnology (OFAB) Awards. In an event held in Maputo, Mozambique, last week, Kenya's Denis Otieno was declared the second runner up in the television category.

Otieno is a senior reporter at Nairobi-based Citizen TV where he produces Smart Farm, a weekly segment, and is currently a trainee of the Bloomberg Media Initiative Programme.

The business and agricultural affairs reporter was recognised for his story on genetically modified cassava as an alternative food crop in Kenya. OFAB facilitates conversations among key stakeholders and decision-makers on agricultural biotechnology.

Photo Credit | Denis Otieno



Jeremy Quedrago from Burkina Faso shows off his trophy in Maputo where he won the OFAB Journalist of the Year Award 2021.

For both policymakers and the larger public, OFAB facilitates quality engagements and conversations on the safety and benefits of modern biotechnology. Nearly 300 journalists have

benefited from the initiative, in which they have been trained to report accurately on agricultural biotechnology. It is run by the African Agricultural Technology Foundation (AATF).

Photo Credit | Aghan Daniel



Casual use of single plastics: Anti-plastic campaigners warn that they are harmful to the natural environment.

Illegal trade in plastic bags rampant in East Africa, study shows

By Joyce Chimbi | j.chimbi@gmail.com

The use of banned single-use plastic bags in the East African Community is far from over.

According to an investigative study titled, *Illegal Trade and Smuggling of Plastic Bags in the East African Community Bloc*, the ban Kenya introduced in 2017 has created spaces for cross-border smuggling of plastic bags.

"Smuggling of single-use plastic bags is rampant at entry points largely from Uganda and Tanzanian ports bordering Kenya. Often majority of single-use plastic bags remain unbranded to avoid being traced back to the manufacturers," says the study.

The law banning the import, export, manufacturing, sale, storage, supply, and use of all plastic carrier bags came into effect in Kenya on August 28, 2017.

In June 2020, Presidential Uhuru Kenyatta gave a directive to ban the use of all single-use plastics in protected areas. At that time, plastic industry distributed an estimated 100 million plastic shopping bags every month in supermarkets.

Experts warned at the time that this distribution was a catastrophe for environmental health and a great barrier in efforts to halt the pace of climate change, land degradation and biodiversity loss.

The latest report prepared by the Centre for Environment, Justice and Development, Nipe Fagio, Global Initiative for Environment and Reconciliation as well as Bio Vision Africa warns the situation is now dire.

In a joint press release on the report, the organizations insist plastic must go. They say plastic pollution is a global problem that requires immediate action on a global scale.

"Currently, we are producing about 381 million tonnes annually, with 75 per cent of them ending up in either the natural environment or in landfills. The rest is incinerated, and a small portion is recycled or up cycled," the press release reads.

Photo Credit | Maxwell Joshua



A heap of plastic waste collected for resale and possible recycling.

Kenya followed in 2017 and later by Tanzania in 2019.

According to the report, even though Uganda had announced bans on single-use plastic bags on several occasions in 2007, 2009, 2015, 2018 and 2021, implementation is still lagging behind that of the three EAC countries.

Report findings reveal that “illicit trade (of banned plastic bags) aims to serve the consumer market that does not have access to alternative packaging.

Against this backdrop, the report recommends “dis-incentivising the smugglers, handling corruption problem, reducing consumption through awareness and education, sourcing sustainable packaging alternatives, finance research and locally-sourced alternative packaging.”

“Better waste management practices, better stakeholder engagements and collaboration in decision making at all levels, a move towards a total ban, regional and international cooperation, strengthening surveillance of lawbreakers and empowering implementing bodies, harmonising regulations across the EAC and enhancing regional cooperation,” the report recommends.

“Single-use plastic items, including plastic bags, have been contributing to several environmental challenges, including blocking of water channels and the prevention of water from seeping into the soils, thus causing soil and land degradation which ultimately affects the agricultural sector in Kenya.”

Studies indicate that more than 33 per cent of plastic consumed is that of plastic bags and plastic waste takes up to 1,000 years to break down. Importantly, environment experts say plastic waste does not biodegrade.

The report says plastic bags may be convenient for human use, but are infamous for damaging marine and land life; from killing sea turtles – who mistake plastic bags for jellyfish – to clogging of drainage and sewer systems.

In recent years, these environmental damages are sobering the world to the consequences of overreliance on single-use plastic bags. These effects include contributing to greenhouse emissions as plastic waste degrades, a threat to mangrove life and the entire biodiversity, threatening public health by clogging drainage systems and sewers as well as threatening the lives of domestic and wildlife.

To combat the indiscriminate use of single-use plastic items in the form of carrier bags, countries in the East African Community (EAC) took individual efforts to introduce regulations banning the manufacture, importation or exportation, and consumption of plastic carrier bags.

The report recounts how Rwanda began its efforts in 2008 and has had the most successful outcome within the EAC.

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Drone technology to ramp up reforestation efforts

By Sharon Atieno | sharonphoebeatieno@gmail.com

Photo Credit | David Odhiambo

One of the interventions outlined in Kenya's Strategy for reaching 10 per cent tree cover is the use of technology in forest regeneration, protection and planting.

It is for this reason that drone technology is among the options being flaunted as potentially capable of achieving this target.

According to Dr Jane Njuguna, Senior Deputy Director Research and Development at the Kenya Forestry Research Institute (KEFRI), one of the ways of accelerating restoration of 5.1 million hectares of deforested and degraded forests and other landscapes is through aerial seeding and drone technology.

She was speaking in Nairobi during a Kenya Flying Labs and WeRobotics demonstration of how drone technology can be used in tree planting.

Dr Njuguna said unlike planting trees manually, which is labour intensive, time consuming and limited in the amount of area that can be covered, drone technology can cover a bigger area in a shorter period.

Besides, she said, some forest landscapes are difficult to work on and access due to the rough terrain and surrounding vegetation.

The drones at the demonstration are specialised one that are fully fitted with seed dispensers and can carry up to 7kg of seeds. In one flight, which is about 15 minutes, the drone can cover 0.8 hectares, according to Mohammed Akasha, a technician at Kenya Flying Labs.



Mr Mohammed Akhasi gets the seeder drone ready to fly.

"We are testing this technology to have it as an alternative that can be used to reach places that are hard to reach because the drone is cheaper to operate than an aeroplane," said Cleopa Otieno, Chief Executive Officer, Kenya Flying Labs. He added that drones can fly lower without causing any risk because they are unmanned.

Apart from these technologies, in 2021, KEFRI launched the use of a mobile application that helps in matching trees to sites instead of just growing trees for the sake of it. The site, which is web-based, can also help in identifying the best time for planting trees as well as tree diseases.

Despite Kenya's global commitment to the Africa Forest Landscape Initiative (AFR100), 50 per cent reduction of greenhouse gases from the forest sector by 2030 as part of its Nationally

Determined Contribution (NDC) to climate change, and to achieve land degradation neutrality by 2030 as a commitment to United Nations Convention to Combat Desertification (UNCCD), the forest cover remains low at about 7.2 per cent, as per 2015 estimates.

An analysis of land-use change over the period 1990-2015 has established that Kenya lost 311,000 hectares of forestland mainly due to conversion to settlements, crop farming and infrastructure developments.

With the President Uhuru Kenyatta's directive to increase the country tree cover to 10 per cent by 2022 lapsing this year, more needs to be done to meet this target.

Food and climate crisis must be addressed jointly, say experts

By Joyce Chimbi | j.chimbi@gmail.com

Photo Credit | Maxwell Joshua

Food security and sustainability experts are concerned that the country's food consumption patterns are imbalanced, unsustainable and places the country off track towards ending hunger.

Nairobi-based food safety and security expert Evans Kori says across all 47 counties, food consumption is not in line with respective food production activities.

This, he says, is an imbalance that has led to negligible progress towards eradicating hunger, food insecurity and all forms of malnutrition.

As per the 'State of Food Security and Nutrition in the World Report 2021', worldwide, countries have not progressively made inroads towards ensuring "access to safe, nutritious and sufficient foods for all people all year or to eradicating all forms of malnutrition."

The report indicates that a most pressing challenge towards access to healthy and sustainable diet is climate variability.

Within this context, the Barilla Foundation has used the latest evidence on food, health and the environment to devise the Double Health and Climate Pyramid model.

The pyramid illustrates that global food goals cannot be achieved within current broken food systems and ecosystems.



Women work in a farm. Research shows that natural food production are in high demand.

Kori says this means that ongoing and escalating food as well as climate crisis "must be resolved jointly because they are interlinked and not in isolation."

"If countries continue to tackle food and climate issues independently of each other, progress will be slow, if at all, towards a sustainable, food secure and healthy planet," he says.

Current food production systems, he says, are not sustainable because they are catalysts of climate change, biodiversity loss and land degradation.

Consequent outcomes, he says, affect our health and essentially, human survival and "people the world over will not access the nutrients they need and sustainably, within existing food systems."

UN's Food and Agricultural Organisation (FAO) shows that in 2020, between 720 and 811 million people faced hunger and the situation is likely to escalate due to COVID-19 induced constraints.

Within this context, research shows that nature-positive food production systems are much needed because current systems are broken and unsustainable.

FAO estimates show "the agricultural sector accounts for one-third of greenhouse gas (GHG) emissions."

Additionally, the agricultural sector accounts for the largest share of freshwater withdrawals at 70 per cent on average and, 90 per cent of the water footprint of humanity, and 12 per cent of land use.

Photo Credit | Joyce Chimbi

This research is illustrated in Barilla's evidence-based Double Pyramid to promote health and longevity, and at the same time, reduce the impact of food choices on the ecosystem, and more specifically on climate change.

The health and climate pyramids are placed side by side. The health side shows features of a balanced, healthy, and sustainable diet. The climate side shows the associated impact on health and the climate.

Based on scientific evidence linking food choices in adult population to health outcomes, the health pyramid arranges food into 18 groups across seven layers according to the recommended frequency of consumption for people's health.

Foods such as fruits, vegetables and whole grain cereals that should be consumed most often are placed at the bottom of the pyramid.

The second layer includes foods such as nuts and seeds, non-tropical vegetable oils, refined low glycemic index cereals and fermented milk. The third layer includes pulses and fish as preferred sources of protein.

This is followed by the fourth layer of foods such as poultry, eggs, milk and cheese. The fifth layer includes high glycemic index foods like white bread, refined rice and potatoes. No more than two servings of this food should be eaten per week.

Animal fats, including butter, tropical oils like palm oil, red meat and sweets and baked goods made with refined flour and sugar are in the sixth layer of the pyramid because eating them is associated with a significantly higher risk of cardiovascular events. The advice is to eat these no more than once a week.

In the seventh layer there are foods like processed meat like sausages, bacon, salami, associated with a high risk of cardiovascular and other chronic diseases, which should only be eaten occasionally.



Fruits vendor: Experts recommend consumption of vegetables and fruits more frequently for a balanced and healthy diet.

Within this context, the climate pyramid classifies different foods based on their carbon footprint or carbon dioxide equivalent emissions. Again, foods are arranged into 18 groups and seven layers starting from those with a very low carbon footprint to a very high footprint.

The pyramid shows production of animal-based products, especially red meat, followed by cheese and processed meat, layers five to seven cause the highest GHG emissions compared to plant-based products.

As per research by FAO, "cattle raised for both beef and milk, and for inedible outputs like manure and draft power are the animal species responsible for the most emissions, representing about 65 per cent of the livestock sector's emissions."

Barilla's Double Pyramid is therefore an illustration of how people can eat varied, balanced and healthy diets and at the same time reduce their contribution to climate change.

The pyramid recommends a consumption frequency for all food groups and shows the impact they each have on health and the climate.

Additionally, the Barilla Foundation devised another seven cultural double pyramids in line with different geographical contexts including Nordic countries and Canada, USA, South Asia, East Asia, Africa, Latin America and Mediterranean countries.

Each of the seven pyramids reflects and celebrates the global value of diversity while promoting healthy, sustainable eating and consideration for planet health.

On the one hand, the double pyramid provides a summary of key knowledge gained from medicine, nutrition studies, and the impact of people's food choices on the planet.

On the other, it is a consumer education tool.

Edible insects can solve African food security challenge, experts advise

Photo Credit | *icipe*



Processed long horned grasshopper, fondly called as “Nsenene” sold in Masaka, Uganda. During outbreak seasons, the average cost of “Nsenene” is more than the conventional animal proteins such as beef.

By Dareen Keana | boibizi@gmail.com

With the frequently rising prices of food items like maize flour, bread, fish, beef, milk and cooking fat, it is increasingly becoming harder for Kenyans to afford three meals a day.

High-protein foods like chicken and fish are becoming an expensive delicacy for many people.

In a bid to find alternatives, enterprising and innovative individuals are now turning to insects as food.

According to Dr Saliou Niassy, head of the International Centre of Insect Physiology and Ecology (*icipe*) Technology Transfer Unit in the Environmental Health Theme Team, insect consumption in Africa is not a new trend.

Some of the insects commonly eaten as food include white ants, or kumbikumbi, popular in the Western Kenya region.

icipe, which collaborates with more than 300 partners worldwide, plays a vital role in entomological or insect research in the East and Central Africa region as well as the globe.

icipe estimates indicate that more than 1,900 edible insect species are consumed by over two billion people. At least 500 of these species are found and eaten across Africa.

“For instance, one kilogram of termites costs Ksh1,275 (\$11) in Kenya. The number of insect eaters is expected to grow to nine billion by 2050,” says Dr Niassy.

Insect foods are higher in protein content compared to conventional protein foods such as fish, beans and soya. Chicken and pigs prefer insect-based feed compared to fish or soya meal.

The insect foods are quite affordable, and a stable source of income in sustainable settings.

“A kilo of *r.differens* or long horned grasshoppers costs around Ksh300 (\$2.6),” Dr Niassy says.

Dr Niassy says the time is ripe for the continent to exploit its rich treasure of biodiversity to provide much needed resources to its people, including food, with a special focus on conservation to maintain sustainable use.

icipe estimates that Africa’s food import bill is expected to rise to \$110 billion by 2050, with its forest cover shrinking to less than 600 million hectares over the same period due to growing demand for firewood and conversion of forests to farmland.

During the same period, the continent’s population, which was estimated at 1.3 billion in 2020, is expected to grow to 2.5 billion.

According to the estimates, the populations of more than half of Africa’s 54 nations will double or grow even more by 2050 as a result of high fertility and improving mortality rates.

At least one in every four people, or 25 per cent of the world’s population will be living in Africa, compared to just one in 10, or less than 10 per cent who were living here in 1950.

This growth rate represents more than double the current population on the continent, and will present an additional food security challenge to the region.

Photo Credit | icipe



Long-horned grasshoppers harvested from the wild with traditional light traps. Women are largely involved in the processing of these grasshoppers prior to sale.

Our solution to the expanded population's demand for food, Dr Niassy says, is a change in the way we eat by using sustainable and cost effective ecosystem services.

The scientist believes food security challenges can be alleviated by greater investment in the cultivation of insects for use in African diets.

"More than ever, it is vital for us to implement the adoption of a sustainable and circular approach to ecosystem services for better livelihoods, food and nutritional security. One of the ways to achieve this goal is switching to cheaper and more nutritious insect foods," says the expert.

Dr Julius Ecuru, the Manager of Biolnnovate Africa, which is an *icipe* subsidy, describes the firm's approach to societal challenges as driven by the need to wisely use the resources provided by nature.

"Biolnnovate uses science biodiversity to provide practical, affordable solutions to pressing societal challenges," says Dr Ecuru.

As part of its work, Biolnnovate is currently pursuing the black soldier fly project that uses bio waste to feed the adult insects.

Black fly larvae are used as nutritious food rich in Omega 3 proteins.

Biolnnovate is working on the project with partners in Kenya, Ethiopia and Tanzania.

Another ongoing project aims to produce jet fuel using the 'somaize' or sorghum and maize hybrid extracts. The crop is used as food, while its syrup can be used to produce bioethanol that can be used as aviation fuel and livestock feed.

Biolnnovate is collaborating with partners in Uganda, Kenya and Ethiopia to implement the project.

Dr Ecuru says biodiversity conservation and biomass stewardship are required at the genetic, species and ecosystem levels, including soil and watershed management.

Pursuing the objective with the involvement of local communities in the target areas will not only conserve the environment, but also create employment.

"Let us provide alternative livelihoods for communities that are biomass custodians, especially fuel sources, farm inputs and markets, value chains and jobs," he says.

"Using science and technology, we can optimise production and reclaim degraded environments," adds the scientist.

Dr Ecuru sees an enduring potential for even more significant and game changing biodiversity-based innovations in our economy.

He also emphasises that further research and multisectoral collaborations are required to actualise this vision.

Partnership to conserve elephants across Kenya/Uganda border launched

By Special Correspondent | info@ugandacf.org

A new and exciting partnership has formed to conserve elephants across the Kenya / Uganda border, including through the incredible Kidepo Valley National Park in Uganda.

In February, 2022 the Uganda Wildlife Authority (UWA) and Uganda Conservation Foundation in Uganda, and the Northern Rangelands Trust and Save the Elephants (STE) from Kenya teamed up to satellite collar elephants across the region. We will learn where they move, why and when, and how best to conserve them across the ecosystem.

Human elephant conflict is a serious problem for local farmers, and for the long term conservation of elephants and other wildlife. Every effort is being made to invest in a better future for the regions people and its wildlife.

The collaring exercise saw Kenyan and Ugandan professionals working together, sharing experience and expertise – for a common purpose – something very special to witness.



Elephants in the Mara: A new cross border collaborative initiative seeks to conserve the animals in Kenya and Uganda

All of the collared elephants are being monitored in real time through software called EarthRanger, aiding the management, operations and research of wildlife and conservation throughout the landscape.

The STE team has also committed to helping to develop UWAs own elephant monitoring and analytics team – which will support UWAs ability to manage human elephant conflict and elephant conservation in the region.



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High yielding seeds will place Kenya on track to zero hunger - experts

Photo Credit | Joyce Chimbi



Desmond Kipkorir, a seed systems analyst, says uncertified seed cannot match the threat posed by factors such as climate change and extreme weather.

These assertions are backed by the 2019 Access to Seeds Index, which indicates that “less than 10 per cent of the world’s smallholder farmers have access to improved and quality seeds that can halt and tolerate climate change impacts.”

Kipkorir says Africa is no exception. The most recent data shows that despite a growing private seed sector to supplement public seed sector and extensive rural agro-dealers, farmers are still unable to access the high quality seeds they need and in a timely manner.

“Seeds systems involve a lot more than the production of seeds, they include all the factors that lead to the timely delivery of produced seeds to farmers and at a price they can afford. As recently as 2016, up to 90 per cent of farmers in Africa relied on unregulated informal seed systems,” he says.

Uncertified seeds, Kipkorir says, cannot match the threat posed by factors such as climate change and extreme weather, land degradation and reducing farmlands, water and energy constraints and an ever growing demand for food in tandem with a growing population.

“Informal seeds system is outside the control of government agencies. The quality of unregulated and uncertified seeds is too poor to address challenges facing farmers today. Seeds saved from previous harvests, borrowed from neighbours and those bought from local markets are lacking in many aspects,” says Chelangat Ochieng’ from the Ministry of Agriculture.

“Uncertified seeds are often available, accessible and affordable to farmers but they are not adaptable, they lack germination vigour and disease resistance.”

By Joyce Chimbi | j.chimbi@gmail.com

In October 2021, the Kenya National Bureau of Statistics (KNBS) indicated that the cost of food in the country had increased by 10.60 per cent over the same month in 2020.

Similarly, the UN’s Food and Agriculture Organisation (FAO) revealed an increase, by over 60 per cent, of acute food insecurity in Africa in the past year.

FAO data shows that COVID-19 introduced new challenges at the level of food production, distribution and consumption.

By June 2020, a massive job haemorrhage was reported in Kenya, with over one million employees being out of work due to the COVID-19 pandemic.

“Farmers struggled to access affordable and quality farm inputs, they struggled to transport food produce and consumers, on the other hand, struggled to purchase food as many were laid off due to the ongoing health pandemic,” says Desmond Kipkorir, a Kenyan seed systems analyst in East and Southern Africa.

Now experts such as Kipkorir say a lack of high yielding seeds has made it difficult for farmers to match challenges facing the agriculture sector.

He says prevailing Africa’s food insecurity and a growing inability to meet Sustainable Development Goal 2, to end hunger and all forms of malnutrition by 2030, is down to a lack of access to high quality, high yielding seeds.

Against this backdrop, Kipkorir warns that the existing yield gap will only widen and with it, a rise in food prices.

Even though the Agricultural Commodity Price Index stabilised in the third quarter of 2021, it is 14 per cent higher than it was in January 2021.

As per the index, "maize and wheat prices are 44 per cent and 38 per cent higher, respectively, than their pre-pandemic, January 2020, levels."

Further, the index shows high retail prices, an increase that has been confirmed by other indices that show a high food price inflation at the retail level across the globe.

FAO's Food Price Index, for instance, which is a measure of the monthly change in international prices of a basket of food commodities, released in November 2021 showed the fourth consecutive monthly rise in the value of the food price index.

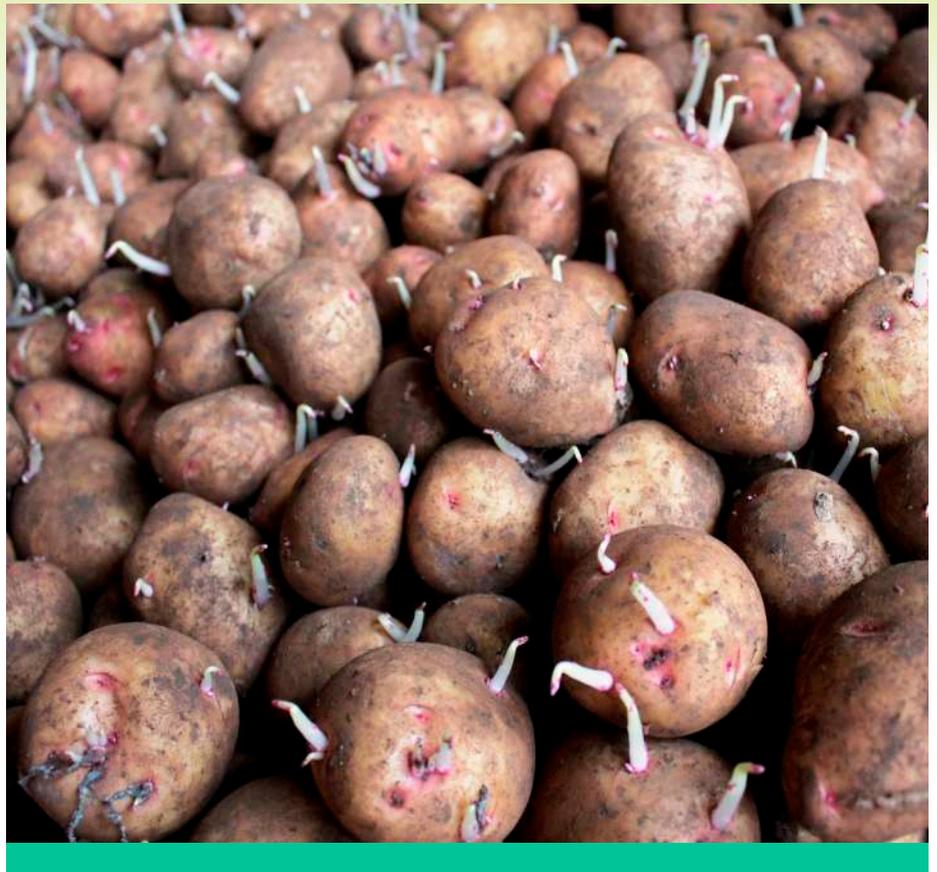
Prices for cereals and dairy rose significantly followed by sugar and the November 2021 index was at its highest level since June 2011.

"Governments and the private sector need to strengthen three pillars of food security, quality of seeds, input and good agricultural practices," Kipkorir says.

The African Seed Access Index, a seed industry research initiative, indicates that national seed systems on the continent are at varying stages of development.

As such, Kenya, South Africa, Zimbabwe and Zambia have established mechanisms for seed inspection and Mozambique, Malawi, Ghana, Nigeria and Tanzania are on track.

Experts such as Kipkorir say this is a step in the right direction. However, he says, "something must be done about prevailing high cost of certified seeds.



Potato seeds

For instance, the government ought to subsidise seed prices to ensure that farmers plant seeds that can withstand climate and weather risks and crop diseases."

In July 2021, Kenya's Ministry of Agriculture warned of a maize shortage in this East African nation due to failed rains and fall armyworm.

Kipkorir warns that an even more severe food insecurity looms if farmers are not facilitated to access quality, high yielding maize seeds.

Maize, as per FAO, is a staple and a critical food security crop in sub-Saharan Africa, with more than 40 million hectares of farmlands dedicated to maize farming in at least 32 countries in the region.

The African Seed Access Index shows that Western and Central Africa lag behind other regions of the continent in seed company presence and investments in local seed business activities, including seed breeding, production and processing.

Overall, the Index notes important progress in Kenya, South Africa, Zambia and Zimbabwe. Other countries such as the Democratic Republic of Congo, Liberia and Madagascar are notably lagging behind as they are characterised by "under-funded government seed agencies, poorly implemented seed regulations and a variety of weak private sector."

Kipkorir says that only improved or modern seed varieties produced through a systematic and scientific process of selection and breeding will help close the existing yield gap and place the continent on track to achieving SDG 2.

New tool to facilitate easy access to seeds now available

Photo Credit | Aghan Daniel



Dr Ed Mabaya, Research Professor in Global Development at Cornell University.

He said that the quality and availability of seeds is a crucial component of supporting smallholder farmers to increase food security in these African countries, including Kenya, Zimbabwe, Zambia, Uganda, Tanzania, South Africa, Senegal, Rwanda, Nigeria, Mozambique, Mali, Malawi, Madagascar, Ghana, Ethiopia, DR Congo and Burkina Faso.

“By providing clear data and insights on country seed systems, the TASAI-VISTA dashboard helps partners identify where and how to create policies and investments that support farmers and their crops,” said Mr Powell.

Dr Ed Mabaya, Research Professor in Global Development at Cornell University and Chief Scientific Adviser to TASAI, mentioned rising populations, climate change and other environmental aspects as key factors threatening food and nutritional security in many sub-Saharan African countries.

He emphasised the need to improve seed quality, this being one factor that can help in addressing these challenges and that decision makers need information on where and how seed quality and availability are lagging. This dashboard, he said, is one step towards making that information more easily accessible, user-friendly and actionable.

“The TASAI team has been collecting country-level seed sector data since 2015, and we are excited to share this wealth of information in this new digital format.”

By Christine Ochogo | christawine@gmail.com

Farmers in Africa now have an easy-to-use, digitised seed information tool that facilitates access to data that supports seed system development.

Development Gateway - an IREX Venture (DG), The African Seed Access Index (TASAI), and Cornell University started developing the dashboard in 2019 to support policy reform by government, investment priorities by development partners, and strategy by private companies working in Africa’s formal seed sector.

The new interactive digital tool dubbed Visualising Information on Seeds Using Technology in Africa (TASAI-VISTA) Dashboard will visualise and use data to support a fully functional formal seed system.

Speaking during the launch of the tool at the 22nd African Seed Trade Association (AFSTA) congress in Djerba, Tunisia, a fortnight ago, Mainza Mugoya, TASAI Regional Coordinator, said the tool will enhance access to improved seeds by smallholder farmers in Africa.

The CEO of Development Gateway (DG), Mr Joshua Powell, added that the new interactive digital tool includes data from 17 African countries and displays 22 different indicators such as number of active breeders by crop, availability of basic seed, number of active seed companies/producers, number of varieties sold, and number of seed inspectors.



Quality and availability of seeds is a crucial component of supporting smallholder farmers to increase food security in Africa.

Seed sector stakeholders already rely on TASAI country reports as a source of valuable information, but the new dashboard will expand their access and allow for comparisons across time and space that were difficult to do previously," Dr Mabaya said.

He explained that the TASAI-VISTA Dashboard was developed after an initial assessment of stakeholders in the seed sector. Following the assessment, Development Gateway and TASAI held a co-design workshop to get feedback and to validate initial findings before incorporating user responses into the final design.

"Along with the public dashboard, DG and TASAI have developed survey tools for internal use by TASAI researchers, which have allowed the team to digitise their data collection and validation process. Data collected through the new tool is published on the dashboard after final validation," said Dr Mabaya.

For much of sub-Saharan Africa, rising populations combined with climate change and other environmental factors are threatening food and nutritional security.

Experts say timely availability of improved seeds at affordable prices is critical to improving food security, resilience, and livelihoods for smallholder farmers in Africa.

Improved seeds, they observe, can deliver state-of-the-art technology to farmers, including higher yields, disease and pest resistance, climate change adaptation, and improved nutrition.

According to Duncan Onduu, the Executive Secretary at Seed Trade Association of Kenya, over the last two decades, formal seed systems in Africa have been gradually liberalised, resulting in increased participation of private seed enterprises.

His counterpart in Ghana, Augusta Clotey, welcomed the dashboard, saying that a competitive seed sector will ensure farmers access quality seeds of improved, appropriate varieties at affordable prices to help attain food security in Africa.

The launch of the tool comes amidst findings of a recent report that stated that Africa still trades in both old and new varieties.

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For much of sub-Saharan Africa, rising populations combined with climate change and other environmental factors are threatening food and nutritional security.

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How a mix of melons and measuring tape is safeguarding lives in West Pokot

By Aggrey Omboki | omboki2725@gmail.com

Photo Credit | Aggrey Omboki

When the melons began to flower, the women were told to stay away from Jane Chepchumba's kitchen garden.

"Our husbands had told us that the melons would go bad if we stepped on the patch," says Chepchumba.

She had joined other women in the Chamakagh Mother to Mother Support Group in Sigor Sub-county, West Pokot County in north western Kenya, to plant watermelons as well as kales, spinach and black night shade or managu.

The activity was part of an empowerment programme by Action Against Hunger (ACF) a non-governmental organisation that works in West Pokot, Mandera and Isiolo counties.

West Pokot has a population of 621,214 people. Out of these, 307,013 are men and 314,213 are women, with an intersex population of just 15, according to the 2019 Kenya Population and Housing Census.

The programme covers Cheptule, Annet and Chepkook locations in Pokot Central, which has 119,016 people made up of 59,682 men and 59,331 women.

It seeks to take a decisive action against the causes and effects of hunger.

One of the causes of food insecurity in such patriarchal societies has been the lack of access to varied agricultural activities by women, who are the children's main caregivers in the home.

Prior to ACF's entry into the matrix, the married women and widows in the group based in Cheptule location were used to rearing livestock and mostly relying on their spouses to provide for their families' needs.



Members of the Chamakagh Mother to Mother Support Group at their watermelon and kitchen garden project in Sigor Sub-county, West Pokot County, Kenya.

All that changed in August 2020 when the group received a major boost from ACF.

"We had discussions with ACF personnel and the organisation subsequently agreed to our request for assistance. The NGO helped us set up the kitchen garden," says Chepchumba.

According to ACF's Food Security and Livelihood (FSL) Assistant Lucas Odhiambo, ACF is an organisation dedicated to fighting the causes and effects of hunger through integrated community empowerment.

"Working with the ministries of agriculture and health, we provided programme beneficiaries with training on agriculture, seed, health information and basic financial management skills," says Odhiambo.

ACF provided seed for the vegetable and watermelon project, and organised for visits by the Ministry of Agriculture's extension officers.

According to Odhiambo, some of the women are young widows. Most of those, he says, lose their husbands to the violence that sometimes accompanies inter-community conflicts.

Initially, the programme had begun with some misgivings from the community's men. In Pokot Central, like many other parts of Kenya and Africa, it is clear that men head the family unit.

"Our husbands were not very impressed with the project at the beginning, but as we began to get vegetables from the garden, the resistance began to melt away," says Chepchumba.

When the melons began to flower, the men's warning was enough to keep the women away from the garden. To keep the project going, the women resorted to hiring some men to water the garden and tend the melons.

"We had a hard time in ensuring the garden was tended in our absence because of invasion by livestock. It was at that time we decided to use my patch as test case on whether the melons would rot according to the cultural belief," says Chepchumba.

To the women's delight, the Sukari 4 variety of melon seeds on Jane's kitchen garden defied tradition to survive in the nursery, before growing into large, luscious fruit.

Odhiambo says the organisation is aware of the society as patriarchal, but adds that it has not been an immovable obstacle to progress.

"We had to involve the men in our programmes to establish accountability and ensure that they were part of the process of deciding on whether to adopt the new project," he says.

Encouraged by the impressive harvest that was the result of their tenacity and resilience, the women went on to sell the watermelon crop for Sh67,000 (USD 670).

The group is awaiting the next crop, having learnt the valuable lessons from their first successful outing in the gardening business.

"A positive change is visible in our lives. We no longer sponge on our men to give us cash for every single need around the home," Ms Chepchumba.

Mr Isaac Loitangiro attributes the violence that accompanies cattle rustling in the region to poverty, and partly to the pressure on the men to provide for their families.

It's the pressure to provide for families that pushes men into cattle rustling and other related criminal activities," says Mr Loitangiro, who is Jane's husband.



Action Against Hunger Nutrition Coordinator Lucas Odhiambo addresses members of the Annet Women Group in Sigor Sub-county, West Pokot County, Kenya.

He admits having had a few doubts about the kitchen garden project when it began, but is now convinced of its positive impact on his family's life.

Having seen and tasted the success of the project, Loitangiro is now convinced that that mixed farming is the way to go for other families in the region.

"The programme has opened our minds to the benefits of mixed farming.

My children are eating better, and their health has improved. Even cases of kwashiorkor and other diet-related childhood diseases in the village have significantly reduced," he says.

Loitangiro is now appealing to fellow men in the county to allow their wives to cultivate greens, saying it will not only enrich their diets, but also provide extra cash for buying other household items.

Group member and teacher Eucabeth Korinyang agrees with ACF's move to consult the village's men on the project.

"We are glad we talked to our husbands before implementing the project because it cleared the way for the garden to become the success story it is today," says Korinyang.

Child health, hygiene and sanitation is yet another pillar of the programme.

To keep track of their children's nutrition, Ms Korinyang and other members of the group have been taught to use the measuring tool known as Mid-Upper Arm Circumference (MUAC) tape. It helps her track whether her two young children are growing up while healthy or malnourished.

"I use the MUAC tape to monitor my children's growth. It has taught me to know when I need to act to ensure that their diet continues to be balanced for optimum development," she says.

"Red means there is danger, orange means there is reduced danger but the parent must take the child to the medical facility for medical advice. Green on the other hand means the child is healthy," she adds.

Benard Atiko, who is the Community Health Extension Worker (CHEW) covering Kokwositot, Lepei and surrounding areas, says the programme has changed the health outcomes for the parents and their children.

"We are seeing a significant decrease in cases of malnutrition since the nutrition and kitchen garden interventions were put in place," he says.

Why single-use masks are an environmental ticking time bomb

By Otieno Mwana | otienoalfy@gmail.com

Photo Credit | Otieno Mwana



Environmental pundits are now pushing for the production of re-usable masks locally.

Efforts by the Ministry of Health and the National Environment Management Authority (NEMA) to control wrongful disposal of masks are fading away as more Kenyans get vaccinated, and slowly move back to their old ways of disposing of masks anywhere like they do other types of trash.

The once scarce and expensive items have now become readily available and affordable to every Kenyan, but also a threat to our environment. These single use masks have become part of our everyday trash since the advent of COVID-19 and subsequent protocols that were put in place by the government in a bid to control the spread of the virus.

Other than being hazardous to the environment, these masks are also a health risk. Other than spreading the coronavirus, wrongfully disposed masks also have the potential of spreading other communicable diseases. "Respiratory pathogens on the outer surface of the used medical masks may result in self-contamination." (Chughtai et al.)

Some wrongfully disposed masks find themselves in rivers, on the roadsides, gardens, forests, parks, protected areas, and storm water drainages; joining the plastic bottles that constantly clog drainage lines. These masks are non-biodegradable and are a danger to the soil where they will remain for a very long time.

Conservationists say that masks will deal a blow to the government efforts to get rid of masks in the future, the same way it's a nightmare to get rid of single-use plastic bags and bottles.

Within the home setup, it is advised that masks be burnt after they are used to reduce the number that go into the garbage bins and eventually find themselves in public dumpsites.

Parents have to train their children during these times on how to dispose of their masks and not to pick up any masks while playing.

Flushing masks down the toilets is discouraged because they might clog the sewer lines.

It is disappointing that adults contribute a lot to the number of wrongfully disposed masks, especially within the residential areas and along roads and storm water ways, and this is quickly picked up by children who are good imitators of what adults do.

Statistics from the Ministry of Health (MOH) indicate that protocol to contain coronavirus pandemic helped reduce respiratory infections among children and adults, thereby reducing the number of patients seeking medical treatment for respiratory and related diseases.

A study by the European Journal of Medical Research concluded that “the implemented prevention measures and protocols might have reduced the incidence of influenza and some other common respiratory infections,” (Dadras, et al.)

If you walk into your local dispensary, the number of patients suffering from ordinary flu is much lower unlike before COVID-19 came into the country. Most of these infections were caused by poor sanitation and hygiene, which could be slowly returning because of wrongful disposal of single-use masks.

There would be a drawback in the strides made by the government to combat TB if proper guidelines on disposal of masks are not adhered to. According to a research by Gilbert Atuga of the Kenya Marine and Fisheries Research Institute (KMFRI), 23.8 million disposable masks are being used daily and 714 million monthly. He says these amount to tonnes of plastic waste, considering the usage of masks since March 2020 when cases of coronavirus were first reported in the country.

“If we assume that only one per cent of the masks are not properly disposed of then it means 7.1 million masks are likely to end up on land monthly, with the bigger percentage in the rivers and the ocean because they are washed by runoff water,” said Atuga.



Some wrongfully disposed masks end up in rivers, parks, forests, water drainages among other places.

COVID-19 will be around for a long time and more masks are produced to cater to the needs of the public.

With schools back in session, the situation might be worse since schools cannot handle health waste, in this case the used masks. Similarly, handling such wastes is costly to the schools since it involves waste segregation, disinfection, and purchasing of bin liners. Cleaners are more exposed since they are responsible for the cleaning of the school compound without any protective gear.

The Ministry of Environment indicates that Kenyans release 22 tonnes of waste daily, one per cent of which is medical waste. However, these numbers have increased since March 2020 when COVID-19 health protocols were introduced in the country. Although coronavirus infection rate is going down in the country, there is a need for NEMA to enforce the guidelines set to facilitate proper disposal of masks to avert a crisis in the future.

The government is still struggling to wipe out the usage of single-use plastic bags and bottles that continue to ‘terrorise’ the environment.

The ban has not been very effective due to a lack of cooperation from the public. Somehow, despite the strict guidelines and stiff penalties that will be levied on those arrested, the bags still find their way into the market.

Conservation pundits say this may be the case in the future if the government does not take action to ensure the proper disposal of masks. Moreover, there is a need for civic education to change the attitude of the public towards environmental conservation and motivate them to keep their surroundings clean since NEMA cannot police everybody to ensure they follow the guidelines on disposal of masks.

The situation is no different globally; countries are battling with the side effect of using masks and gloves amidst the COVID-19 pandemic. In Uganda, the Ministry of Tourism is decrying the irresponsible disposal of masks, posing a danger to birdlife.

Photo Credit | Otieno Mwana

The Uganda Wildlife Authority says the masks are blown away by wind and end up in areas that birds forage and nest.

Already the grey-crowned crane that is facing extinction disappeared; it has become so rare to see the cranes since the coronavirus hit Uganda. Global environmentalists say manufacture, transportation, and disposal of tonnes of single-use masks and other medical waste emit tonnes of carbon dioxide to the environment.

Amanda Keetley, in an interview with the independent newspaper, said that there is no safe way of disposing of masks since anything manufactured for a single-use either end up in landfills or nature since many countries' waste management systems cannot cope with the volumes of waste. She adds: "Unless you're in a medical situation, the best option is to get a reusable face mask that can be worn and washed again and again."

In Spain a campaign dubbed 'a mask lives multiple lives' is ongoing in the city of Cantabria. A pharmacists consortium is carrying out a recycling campaign where masks from various households are collected in containers and placed in 261 pharmacies where they are packaged and sent to manufacturing companies to recover the useful materials. Other than promoting recycling, this campaign helps to inculcate environmental protection as a civic duty.

Discussion is now rife on how the manufacture of single-use masks can be stopped globally and instead promote re-usable masks that are environmentally friendly.

Environmental pundits are pushing for the production of re-usable masks locally so that every country can recycle elements of plastic.

Production of washable masks in Kenya was promoted by the Ministry of Health with strict guidelines during the upsurge of COVID-19 cases and in a bid to reduce the cost of masks, which at that time was Ksh100 a piece.



This has led to the growth of several SMEs dealing in re-usable masks.

However, production costs are high because of increased taxes on raw materials, thus, making the price of a washable mask higher than that of a single-use mask. This has killed the excitement of buying washable masks, instead more are more Kenyans are resorting to single-use masks because they are more accessible and affordable.

As part of global efforts to find a lasting solution to the harmful effects of single-use masks on the environment, the Queensland University of Technology in Australia is pursuing ways of making biodegradable masks from sugarcane waste. The university is currently running tests on materials made from weaving the sugarcane waste. According to the research, the cellulose fibers in the sugarcane waste would allow it to filter out nanoparticles the size of viruses while allowing you to breathe comfortably.

If the statistical data on waste management is anything to go by, the Government of Kenya needs to pull up its socks in managing single-use masks to avert an environmental crisis in the future.

It is prudent that government reduces or zero rates taxes on raw materials used to make masks so that more masks are manufactured cheaply using cotton to meet the required standards and retail affordably for everyone. This will cut usage of single-use masks, reduce the amounts produced or imported, and eventually protect the environment.

“

Discussion is now rife on how the manufacture of single-use masks can be stopped globally and instead promote re-usable masks that are environmentally friendly

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Photo Credit | Tebby Otieno



Controller of Budget Dr Margaret Nyakang'o.

COVID patients struggled to get a ventilator amid plenty in stores

By Tebby Otieno | tebbyotieno62@gmail.com

Daniel Otunge's relative, who lived with him in his Nairobi residence, started having breathing difficulties one evening.

Having noticed his relative show COVID-19 symptoms, Otunge, the Director of the Africa Science Media Center, immediately called a doctor friend to attend to his relative at home.

After examining the patient, the doctor recommended that he be admitted in a hospital.

Their first stop was at Nairobi Women's Hospital in Nairobi's Hurlingham area. Unfortunately, the hospital had no free ICU bed.

"Our next stop was a hospital in Nairobi West. To our surprise they demanded a down payment of a whopping Ksh600,000 (\$5,250). We could raise only Ksh200,000 (\$1,750) immediately since it was late in the night and no banks were open," Otunge says.

Kenyatta National Hospital (KNH) had run short of ICU beds and other COVID-19 beds were also full to capacity.

Fortunately, Otunge's doctor friend, who is based at Kenyatta University Teaching and Referral Hospital, managed to secure a bed for the patient at Komarock Modern Hospital, a small but well-equipped medical facility in the Utawala area on the east of the Nairobi Metropolitan Area.

Komarock Hospital agreed to take Ksh200,000 (\$1,750) as down payment before admission. The patient would stay in the hospital for the next 16 days, with the bill accumulating to Ksh1.2 million (\$10,500).

"Fortunately, the patient survived. The bill, though steep, was manageable compared to what other COVID-19 patients paid in the high-end hospitals dead or alive," Otunge says.

However, as Otunge's relative and many others could not get space in any public hospital in Nairobi, some ventilators were lying idle in stores either because there were no ICU facilities or because some facilities were not ready for installation at the time.

A case in point is Mama Lucy Kibaki Hospital, which according to a report by the Auditor General, received 18 ventilators.

According to the report dubbed '*Utilisation of COVID-19 funds by national government entities for the period 13 March-31 July, 2020*', the 18 ventilators were "not in use since there was no items were in store as at the time of the audit."

Our efforts to get the current status of these ventilators from the facility bore no fruit due to bureaucracy.

A ventilator is like an artificial lung whose purpose is to help with a gaseous exchange. It helps to remove carbon dioxide and bring oxygen into the lungs.

"A ventilator helps with breathing by taking over and breathing for a human being," says Dr Jeremy Gitau Njenga, founder and Chief Executive Officer at Dakteri Msafiri.

However, Dr Njenga says, a ventilator itself will not help a patient. It has to be in a specific hospital setup with trained personnel, hence the need for an ICU.



In 2020 Nairobi had the highest number of Intensive Care Unit beds at 283 in both public and private health facilities.

“Not everyone can take care of a ventilator, you need ICU-trained nurses and doctors who are the critical care personnel. Like in the laboratory you need to keep checking the blood gas,” he explains.

The COVID-19 pandemic has increased ICU demand globally. As a result, different governments adjusted by either buying or receiving donations to beef up capacity for COVID-19 response.

For example, Kenyatta University Teaching Referral Hospital, which had 24 ICU beds before COVID-19, received additional 25 ICU and 20 HDU beds.

The special audit report by the Office of the Auditor General also indicated that 15 ventilators that were distributed were put in use.

According to the Kenya Healthcare Federation, in 2020 Nairobi had the highest number of ICU hospital beds at 283 in both public and private health facilities.

The same could not be said of West Pokot, Siaya, Kajiado, Baringo, and Lamu counties, which were among the 21 counties that had no ICU facilities despite having large populations to serve.

The challenge of getting a ventilator by COVID-19 patients was reported even a year after Kenya reported its first case of the virus. In an interview by English News in April 2021, Dr Samuel Njenga, Infectious Disease Specialist at KNH, explained how difficult it was for COVID-19 patients who required a ventilator or very high levels of oxygen to get it in the country’s biggest referral hospital.

“Sometimes you may only get a bed after a death in the ICU So basically it is too many infections that may mean too many patients requiring ICU management,” he said.

In 2020, Kenya received funds from the World Bank for recurrent and development purposes in various government facilities. According to data released by the Institute of Economic Affairs, as of July 31, 2020, Ksh22.4 billion had been directly allocated to the Ministry of Health.

Ksh15.08 billion of the allocation went into recurrent activities and only Ksh7.35 billion was left for development activities.

Government oversight institutions say there are problems when a government spends more of its borrowed money on recurrent activities instead of development.

“The reason why public debt should be used on those things that will generate revenues in the future is so that those who come after us can then benefit from the expenditure arising from public debt... sustainability requires that we fulfil our needs without depleting the shares for future generations,” says CPA Dr Margaret Nyakang’o, the Controller of Budget.

Dr Nyakang’o says it was sad to see a lot of equipment in the stores not being used while patients desperately needed them.

Weatherman warns of disease outbreak as the rainy season sets in

Photo Credit | Maxwell Joshua



Floods in Budalang'i, western Kenya. There are fears of people and wildlife being displaced as rains begin to pound the country.

By Mike Mwaniki | mikemwaniki2016@gmail.com

Brace yourself for flash floods, lightning strikes, disease outbreaks and landslides/mudslides in some parts of the country during the imminent long rainy season, weatherman has warned.

In the March to May rainy season forecast released on February 22, 2022, the Meteorological Department identifies Kisii, Kisumu, Nandi, Bungoma (Mt Elgon areas) and Kakamega counties as areas where highly probable lightning strikes will occur.

Speaking in Nairobi, Meteorological Department Director Stella Aura said, "Cases of flooding in flood-prone areas such as Budalang'i and Nyando as well as along rivers over the south-eastern lowlands, Tana River and Garissa counties are likely due to the enhanced rainfall expected upstream."

"The high water levels in Lake Victoria and the Rift Valley lakes are likely to be maintained or rise further."

At the same time, landslides or mudslides are likely on the highlands west and east of the Rift Valley.

"The floods or landslides may lead to displacement of people and wildlife with possible loss of lives, livelihoods and destruction of property," said Ms Aura.

The director also warned that flash floods are likely to occur in Nairobi County, the Lake Victoria Basin, the highlands west and parts of east of the Rift Valley as well as Central region and South Rift.

"This may lead to structural damage to roads, bridges and sub-standard infrastructure, which in turn may lead to transport challenges, damage to property and loss of lives," she said.

Ms Aura urged the Interior ministry, county governments and humanitarian institutions to put in place measures to avert possible negative impacts.

"County governments are also advised to clear drainages in good time to avert artificial flooding of the urban areas. The public is advised not to drive or walk through flooded rivers or moving waters," she said.

During the period, the director added, slippery roads and poor visibility during rainstorms may also pose a danger to motorists and pedestrians, especially along the Kikuyu-Kinungi stretch on the Nakuru-Nairobi Highway.

"I would, therefore, like to appeal to members of the public to take utmost care during the rainy period to minimise accidents that could result from such weather conditions," she said.

Ms Aura also warned that vector-borne diseases such as malaria are likely to emerge over the Lake Victoria Basin, northeast, northwest and the coastal regions, especially in areas with poor drainage, as these may harbour pools of stagnant water, which create conducive breeding areas for mosquitoes.

"In areas expected to receive near to above average rainfall, water-borne diseases such as cholera, diarrhoea and typhoid may emerge as a result of flooding and subsequent contamination of water.

"Cases of dengue and chikungunya fevers may also increase over the Coast region while scarcity of food over the ASAL regions of Northeastern may lead to malnutrition-related diseases," she said.

Rapid risk assessment, Ms Aura advised, should therefore be carried out to identify high risk areas.

“Health authorities should preposition and redistribute medical supplies and insect treated nets in the affected areas while food security assessment should be carried out in the ASAL areas to identify the most vulnerable communities and provide them with water, food and/or food supplements,” she said.

However, all is not gloom as the enhanced rainfall expected in most parts of the country is conducive for agriculture.

“Thus, farmers in the agricultural counties of the Lake Victoria Basin, highlands west and east of the Rift Valley, the south and central Rift Valley, southeastern lowlands are advised to take advantage of the expected rains and maximise on crop yields through appropriate farming and land use management practices,” said Ms Aura.

The director urged farmers to liaise with the Agriculture Ministry’s agricultural extension officers for further advice.

“However, due to the prolonged drought that is being experienced in the Arid and Semi Arid (ASAL) region, which has led to land degradation, the expected rainfall will lead to further soil erosion,” she said.

At the same time, the expected enhanced rainfall in these counties, coupled with high temperatures, may lead to emergence of pests and diseases and the relevant authorities should therefore stock enough herbicides and pesticides and enhance disease surveillance, control and prevention.

The director said in Northeastern and Coast regions the rains may regenerate pasture and browse as the season progresses but recovery from the current drought may take time.

“The current shortage of food, water and pasture for both humans, livestock and wildlife is likely to persist for some time.

“The national and county governments as well as humanitarian organisations are therefore advised to continue with measures that are already being implemented to avert loss of lives, livelihoods and livestock,” she said.



Northern Kenya has suffered the effect of severe drought for the last one year, with the pastoralists losing their only source of livelihood.

Water resources, Ms Aura noted, are expected to be replenished over most of the Lake Victoria Basin, the highlands west and east of the Rift Valley, central and south Rift Valley as well as over the southeastern lowlands due to the expected enhanced rainfall.

This is expected to improve domestic and ground water supply. “At the same time, the major river catchment areas for the country’s hydroelectric power generating dams are forecasted to receive near-average rainfall.

“This means surface water run-offs may register maintained inflows into rivers Sondu Miru, Turkwell, Tana and Athi. There is however a risk of flooding downstream of the Tana and Athi rivers. Thus, flood risk awareness should be carried out to the communities expected to be affected,” said Ms Aura.

The forecast shows that most parts of the country are expected to receive enhanced and near average rainfall during the long rainy season whose peak is expected in April for most regions except over the coastal strip where the peak is expected in May.

Enhanced rainfall is expected in Siaya, Kisumu, Homa Bay, Migori, Kisii, Nyamira, Trans Nzoia, Baringo, Uasin Gishu, Elgeyo-Marakwet, Nandi, West Pokot, Laikipia, Nakuru, Narok, Kericho, Bomet, Kakamega, Vihiga, Bungoma and Busia counties.

“Other areas expected to receive near to above average rainfall include Turkana, Samburu, western parts of Marsabit, Nairobi, Nyandarua, Nyeri, Kirinyaga, Murang’a, Kiambu, Embu, Meru, Tharaka Nithi, Wajir, Garissa, Mandera, eastern Marsabit and parts of Isiolo, Kajiado, Kitui, Makueni, Machakos, parts of Tana River and Taita Taveta.

“However, normal rains are expected in Mombasa, parts of Tana River, Kilifi, Lamu and Kwale counties,” said Ms Aura.

How targeted intervention works in managing children living with HIV

By Joyce Chimbi | j.chimbi@gmail.com

Photo Credit | Joyce Chimbi

Despite progress made to reduce new HIV infections in children, the East and Southern Africa region remains far behind the 95-95-95 fast-track global targets for ending paediatric AIDS by 2030.

Nearly seven out of every 10 HIV positive children globally live in East and Southern Africa, as per the World Health Organisation (WHO).

Kenya is no exception. Statistics by the National AIDS and STI Control Programme (NASCO) indicate that out of 1.4 million people living with HIV in this East African nation in 2019, 90,000 were children under the age of 14 years.

According to NASCO, an estimated 11 per cent of these children are in the Lake Victoria region of Homa Bay County.

Overall, Homa Bay County has the highest HIV prevalence of 20.7 per cent, which is more than four times the national prevalence of 4.8 per cent.

Against this backdrop, Gideon Mikoye Libulele, a senior technical officer in HIV care and treatment based in Homa Bay County, says the county is at the forefront with interventions to reach the 95-95-95 fast track goal to end HIV/AIDS.

"The global community follows UNAIDS visionary goal, 95-95-95, that seeks to end four decades of the most dominant epidemic in living memory," says Libulele.



Paediatrics: Viral suppression in the blood is critical to treatment success and significantly reduces child illnesses and death.

"To do so, 95 per cent of all people living with HIV should be aware of their positive status, 95 per cent of all people diagnosed should receive sustained antiretroviral treatment (ART) care and treatment and 95 per cent of all those on ART should be virally suppressed."

Libulele says viral suppression or having a significantly reduced amount of HIV in the blood is critical to treatment success and significantly reduces child illnesses and death.

According to NASCO, there are an estimated 1,401,498 adults aged 15 years and above living with HIV and approximately 1,164,753 or 83.1 per cent are on ART.

The data indicates that Kenya is not on track towards reaching the 95-95-95 target. More so, children aged one to nine years have notably poor treatment outcomes.

Of all adults under ART coverage, 94.7 per cent have achieved viral suppression. Currently, of all children living with HIV aged 0 to 14 years, 63.7 per cent are on ART.

Of all children receiving HIV care and treatment, 87.2 per cent have achieved viral suppression.

With studies in paediatric HIV conducted by the Ministry of Health showing that in every three children who had a viral load test, one was virally unsuppressed, Kitare Health Centre, a small rural clinic in Homa Bay County, has found the silver bullet.

"Pediatrics suppression rate at the facility was 67 per cent in 2019. We were struggling with many virally unsuppressed children. The more the amount of HIV in the body, the higher the chances of treatment failure," says Jacob Ocholla, a clinical officer at Kitare Health Centre.

"You may change the treatment regimen but at some point, there will be no other treatment option so the best treatment outcome means keeping our HIV client on a working HIV treatment regimen for as long as possible."

Libulele says it is recommended that people living with HIV have a viral load of 400 and below. A viral load of 400 to 999 is acceptable but, he cautions, as numbers move towards the 1,000 mark, it is an indication that the individual is moving towards troubled waters.

To reach the desirable levels of a viral load that is 400 and below, the facility introduced the Directly Witnessed Ingestion of Therapy (DWIT).

DWIT involves the introduction of a witness to ensure that medicine is in fact swallowed and not hidden inside the mouth to be spit later.

Ocholla says it is not enough for a primary caregiver to watch a child put the medicine in their mouth, the caregiver must ensure that the medicine is swallowed.

"Children will in many occasions take the sweet medicine and spit out the bitter pill. This is counterproductive and the results are the high cases we had of virally unsuppressed children," he says.

A child can also forget to take medicine or completely pretend to have taken the medicine when in fact they have not, he says.

Ocholla says that due to their young age, the seriousness of the situation they are in is often not clear to the children and they must be supported to stay on track. He stressed that DWIT is serving that purpose effectively.



Photo Credit | Maxwell Joshua

It is not enough for a primary caregiver to watch a child put the medicine in their mouth, the caregiver must ensure that the medicine is swallowed.

Out of 32 children in pediatrics care at Kitare Health Centre, 29 children have a viral load of below 400 copies, one has a viral load of between 400 and 999 and two have a viral load of beyond 1,000.

Through DWIT, a most cost effective intervention, Ocholla says that pediatrics suppression rate at the facility moved from 67 per cent in 2019 to 88 per cent in 2020, to the current 94 per cent.

The intervention is however not without its share of challenges. Ocholla says problems in the life of a primary caregiver can impact the intervention negatively.

He says a primary caregiver must have the presence of mind to consistently implement the intervention.

"Time is a factor and the caregiver must designate a time, day and night, to witness the ingestion. This is not always possible especially in a fisher folk community where men are out at dawn and women follow suit to buy the best fish," Ocholla says.

The most important pillar of the intervention, Ocholla emphasises, is consistency. He adds that a change from one caregiver to another often disrupts implementation of intervention and produces negative treatment outcomes.

In the worst case scenario, more vulnerable children must rely on their health providers and will often go to the facility every day for the nurses or clinicians to witness the ingestion. Despite these challenges, Ocholla affirms that it has been done in Kitare Health Centre and can be done elsewhere with similarly remarkable success.

Tobacco fund could save 2.5 million Kenyans from cancer

By Mike Mwaniki | mikemwaniki2016@gmail.com

Photo Credit | Jared Otieno

A lobby group has urged the Ministry of Health to effect the Tobacco Control Fund as well as add two new non-nicotine tobacco cessation medicines to Kenya's 2022 essential medicines list.

The Kenya Tobacco Control Alliance (KETCA) says at least 2.5 million Kenyans are directly exposed to cancer through a habit that puts them and those close to them at high risk.

According to the National Strategic Plan for Prevention and Control of NCDs 2021-2026, 2.5 million Kenyans are currently using tobacco.

At the same time, the Health ministry has identified the use of tobacco as now the topmost preventable cause of deaths in Kenya, killing at least 9,000 people every year.

This occurs through such diseases as cancer, heart diseases, diabetes, respiratory illnesses and other complications caused by tobacco use.

According to the Kenya STEPwise survey for non-communicable diseases (NCDs) risk factors (2015) report, NCDs account for more than 50 per cent of total hospital admissions and over 55 per cent of hospital deaths in Kenya.

The major NCDs are identified as cardiovascular conditions, cancers, diabetes and chronic obstructive pulmonary diseases with their sequelae and their shared risk factors.

At the same time, the World Health Organisation (WHO) warns that in low-resource settings, healthcare costs for NCDs, can quickly drain household resources, driving families into poverty.



According to Kenya's Health ministry, the use of tobacco kills at least 9,000 people in the country every year.

"The exorbitant costs of NCDs, including often lengthy and expensive treatment and loss of breadwinners, are forcing millions of people into poverty annually, stifling development.

"However, up to 80 per cent of premature deaths from heart disease, stroke and diabetes can be averted with evidence-based behavioural and pharmaceutical interventions," WHO says.

In a statement, KETCA called on the government to hasten measures to control the use of harmful tobacco substances, including the nicotine pouches that are "deceptively" being sold as quitting agents.

Regulations to the Kenya Tobacco Control Act also requires tobacco companies to pay an annual fee into a designated tobacco control fund to assist the government in paying for the health burdens of tobacco use.

KETCA National Chairman Joel Gitali says the 2.5 million Kenyan smokers are directly at risk of lung cancer, which is principally caused by tobacco use.

"Cigarette smoking is the number one risk factor for lung cancer. In countries such as the United States, cigarette smoking is linked to about 80 per cent to 90 per cent of lung cancer deaths.

Photo Credit | Jared Otieno



WHO says Kenya is among countries where a high number of people are already quitting smoking.

Cases of lung cancer are also rising in Kenya, and are mostly attributed to tobacco use," says Mr Gitali.

He adds that there is no safe level of tobacco use.

"We therefore urge Kenyans who use any type of tobacco or nicotine products to quit. This is because research has shown people who quit smoking have considerable gains in life expectancy compared with those who continue to smoke. Also, if you have been diagnosed with cancer, quitting smoking will reduce your risk of death," he says.

According to WHO, tobacco use also causes cancer of the larynx (voice box), mouth, oesophagus, throat, kidney, bladder, pancreas, liver, stomach, colon and rectum, and cervix, as well as acute myeloid leukaemia.

Experts say currently, the cancer burden in Kenya is growing, with about 47,000 new cases and 33,000 deaths annually.

According to the Kenya Cancer Control Strategy, cancer cases in the country are expected to rise by 70 per cent over the next two decades.

"Current evidence indicates that between 30 per cent and 50 per cent of cancer deaths could be prevented by modifying or avoiding key risk factors, including avoiding tobacco products, reducing alcohol consumption, maintaining a healthy body weight, exercising regularly and addressing infection-related risk factors," the strategy says.

According to WHO, Kenya is among countries where a high number of people are already quitting smoking. This information is contained in the recently released WHO Global Investment Case for Tobacco Cessation.

KETCA says control of tobacco use, and stopping the use of emerging nicotine

products presents Kenya with the greatest public health potential and the most cost-effective long-term method of cancer control.

However, due to the fact that many smokers in Kenya are already quitting, tobacco companies have introduced new, highly addictive nicotine products to recruit more customers.

Mr Gitali says, "It's unfortunate that tobacco companies have started focusing on and producing new products termed as safer alternatives to tobacco."

"Tobacco companies say that their future lies in the smokeless tobacco and the electronic nicotine delivery system /electronic non-nicotine delivery system.

They, therefore, do not support total quitting but want their consumers to switch to the new products. They also use the new products to addict minors who get attracted to them."

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