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**SCIENCE**

# SAYANSI

*Telling the African science story*

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## Experts want increased awareness on Hepatitis B

Honeybees decline  
threat to Kenya's food  
security, experts warn

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

The association emphasises on rural journalism and communication.

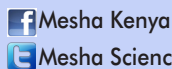
The idea for the formation of this association sprang up from the fact that there were many organisations and communicators in the fields of agriculture, environment, health and development. However, few organisations in the region bring journalists covering these issues together, for better reporting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

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

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

## SAYANSI

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Cover photo: Dr Amos Otedo, gastroenterologist and hepatologist at the Kisumu County Hospital. He specialises in the diagnosis and treatment of disorders of the stomach and intestines and problems associated with the liver, gallbladder, bile ducts, and pancreas.

Photo: Angeline Anyango



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# Journalists, be agile in science reporting, fighting misinformation

One of the tenets of journalism is working for the interest of the public. This includes educating, informing, guiding and entertaining the audience. It also encompasses protecting the public's wellbeing, uprooting crimes and impropriety and preventing the public from being misled by statements or actions of individuals and organisations.

Against this backdrop, science journalists must be keener to capture current events in their respective fields to ensure the right information is presented to the public in a way they can understand and make informed choices. They should also provide historical context to paint the bigger picture.

This is especially important in the day and age when the world is exposed to a lot of information, misinformation and propaganda, and now with the pandemic, it is even more concerning. The World Health Organisation refers to too much information in digital and physical environments during a disease outbreak as an infodemic.

It is important to note that misinformation is not restricted to the pandemic only, or to health reporting. It cuts across other science sectors as well.

Climate change has also been a victim of misinformation and disinformation. These manifest as information or behaviour that may cast doubt on or discredit climate science and research. It may also come through as exaggerating claims about climate change. This, according to studies, may cause confusion, inaction, lack of or reduced support of policies to reduce climate change. It may also lead to emotional responses such as panic, worry and fear among others.

It is quite common to come across unsubstantiated and unscientific information even from close family members, which means as an individual and journalist, one must ensure they are able to tell facts from fake news and help the community in discerning the difference.

The advantage that journalists may have over the public is the quick and easy access to experts who are vital in explaining aspects that the public need to know. Many of these journalists also access some of the biggest news platforms, which gives them wide reach and credibility to push the message across.

It is, therefore, the duty of a journalist to educate themselves in understanding climate change, the origins and spread of misinformation regarding climate change and strategies in addressing and counteracting them.

In dealing with misinformation, it is vital that journalist also keep abreast of new digital platforms and adapt to new ways of reporting to be ahead of the curve. Attending workshops, training sessions and science cafes such as the one run by MESHA will go a long way in sharpening the skills, critical thinking and media literacy of science journalists. It makes them more keen in establishing truths, half-truths and lies.

Constantly producing high quality, fact checked and relevant stories increases a journalist's credibility and in tandem the public's trust in them. This level of trust will make the journalist's job easier in creating awareness on emerging issues and in holding stakeholders including government, leaders and companies accountable for their actions and inactions.



**East African Conference of Science Journalists**

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# Honeybees decline threat to Kenya's food security, experts warn

Photo: Courtesy



Dr Eliud Muli, a senior Entomology lecturer at South Eastern Kenya University, inspects a bee comb.

According to Dr Martin Urban of Syngenta East Africa Ltd, bees are attracted to many flowering crops and it is important to reduce their exposure to toxic insecticides and pesticides.

Dr Urban said there is a campaign for safe use of pest control products as one of the mitigation measures to protect bees from extinction.

To protect bees, the lecturer advised that flowering weeds within crops and hives should be removed before pesticides are applied.

Further, he advised farmers to apply appropriate measures on case by case basis to protect wild bees and other pollinators.

Dr Urban called for cooperation between farmers and beekeepers so that they can share information on pesticide application and the nature of the applied products.

"This will prevent damage to bees through agricultural practices," he said.

He said there is a user-driven smart app that enables farmers and beekeepers to collaborate in pest management.

Dr Urban said the application uses Google Maps and notifies registered farmers within a radius of 10km of their property or crop rotation activity.

He said, "Registered beekeepers are notified when a crop protection activity is logged within 10km of their beehives."

By Bozo Jenje Bozo | [bozojenje@yahoo.com](mailto:bozojenje@yahoo.com)

Ignorance and low awareness of the economic value of pollination stifle crop production in Kenya, an expert has said.

Dr Eliud Muli, a senior Entomology lecturer at South Eastern Kenya University, said in the last 20 years, honeybee colony losses have increased, leading to a growing concern on the future of Kenya's food security.

Dr Muli said this has made agricultural researchers look into honeybee health.

He was speaking during a virtual symposium themed, 'demystifying pollinator health in Kenya', held on April 21.

Dr Muli said there is limited information and knowledge on the economic value of pollination in crop production.

"There is lack of information on the overall number of [honeybee] colonies or population size in the country," said the don, adding that data on colony placement, colony density and yields for specific crops is also lacking.

He expressed his reservation on whether there is coordination on research studies on honeybees and whether the information reaches the farmers.

Photo: Courtesy



**Dr Muli in the field. The expert says there is limited information and knowledge on the economic value of pollination in crop production.**

Pest Control Products Board Ecotoxicology and Environmental Safety Division representative June Aluoch said the pollinator discussion is a cross-cutting one and requires partnership.

Aluoch said pollinators policies should be informed based on scientific research and indigenous knowledge.

She said education and awareness on strategies that promote pollinator health such as integrated pest management are highly encouraged to reduce dependence on chemical pesticides.

She called for a restriction on the use of chemical pesticides that are a danger and toxic to bees in crops that are actively pollinated by invertebrate pollinators.

Aluoch also stressed the need for documentation and replication of best practices on pollinator conservation and resilience at the national level in collaboration with agencies.

She called on agencies and the national government to fund work plans to promote pollinators conservation and resilience activities.

Aluoch said there also is a need to have an inter-governmental dialogue with Kenya in addressing global pollinator decline.

She said agro and chemical companies should regularly provide data requirements for bee risk assessment and ensure proper communication, with precautionary statements placed on agro-chemical packages to inform the users of possible risks.

Aluoch also asked the media to report truthfully and bridge the communication gap between stakeholders through public awareness.

“The media should strive to demystify the scientific jargon and also double-check facts to avoid disinformation,” she said.

**The media should strive to demystify the scientific jargon and also double-check facts to avoid disinformation.**

Photo: George Juma



**Edwin Oguta,**  
Genexpert machine  
operator at Migori  
County Referral  
Hospital's ISO  
certified laboratory.

## How a gene machine boosts fight against TB in Kenya

**George Juma** | jumageorge10@gmail.com

**K**evin Owino from Migori County in south western Kenya is happy to be alive and healthy after surviving tuberculosis (TB).

"I started experiencing a slight cough in June 2015 and it never bothered me because I thought it would disappear soon. Unfortunately, it persisted. I decided to visit a private hospital where I was diagnosed with TB and put on treatment for six months," says Owino.

When the medicine failed to work, Owino was referred to Migori Level Four Hospital where samples were taken and sent to a government laboratory in Nairobi, the only facility with a GeneXpert machine then. He was diagnosed with Drug Resistant Tuberculosis (DR-TB).

"After I was diagnosed with the DR-TB, I was put on fresh treatment till I was declared TB free after 24 months, and now I am very stable and productive," he says.

Owino says the journey was tough. "Being on drugs for 30 months was a nasty experience, but I had no option because it was the only way I could save my life. I lost weight during the period of treatment to less than 40kg. A majority of the members of the community did not want to associate with me, but I am happy that my family stood with me until I fully recovered."

Suna East Sub-county Tuberculosis Services Coordinator, Malack Matoke, who monitored Owino for the two years he was on DR-TB treatment, says GeneXpert machine was his saviour.

"He was put on intensive treatment for the first six months where he was receiving injection and daily oral pills and, fortunately, he responded well. Unlike other patients who lost hearing, a side effect caused by the drugs, Owino did not experience any side effects," says Matoke.

Matoke says DR-TB patients take 15 tablets every day, but this number increases in case they are on drugs for other diseases such as HIV and high blood pressure, among others.

Owino is among many Kenyans who live with TB for many years due to either late diagnosis or lack of diagnostic machines, thereby not only endangering their lives but also putting their loved ones at the risk of infection.

According to a 2019 US Agency for International Development report, Kenya is among the 30 high TB and Multi-Drug Resistant TB (MDR-TB) burdened countries globally. The disease kills about 53,000 Kenyans every year. Poor and late diagnoses have been blamed for the surge in cases over the years.

However, this story seems to be changing for the better, thanks to the GeneXpert machine, which experts say has revolutionised TB treatment in the country and globally.

Migori County Medical Laboratory Coordinator, Bonface Onyango, says detecting TB, more so DR-TB, was not easy because the microscopy machine, which they used for diagnosis before the introduction of the GeneExpert machine, is limited in detection capacity.

Onyango says even detecting Drug Sensitive TB using microscopy machine is not easy, especially when the bacillus cells carrying TB are still low in the body. He says the GeneXpert machine, which detects with ease and with the best precision and accuracy any type of TB, has enhanced the fight against the disease.

A survey done by the World Health Organisation (WHO) in 2015 indicated that 40 per cent of TB cases in Kenya went unnoticed and untreated due to lack of proper diagnostic machines then.

Edwin Oguta, a GeneXpert machine operator at Migori County Referral Hospital, says they only used microscopy machine for detecting TB before the introduction of GeneXpert in Migori County in late 2016.

Oguta says the GeneXpert machine has made TB detection much faster and easier, hence, patients can be put on treatment earlier.



**Oguta shows tubes used to collect sputum from TB patients. The sputum is then tested with the Genxpert machine to reveal if it contains TB bacterium. Photo: George Juma**

“Once the samples come to this GeneXpert machine, it will extract the gene, amplify the gene and cause detection. Based on the bacterium load in a sample, it’s going to give you TB detected very low or TB detected very high,” he explains.

Unlike the Microscopy, which can only test a maximum of 10 samples per day, Oguta says the GeneXpert enables them to test at least 32 samples daily.

He adds that GeneXpert has the capacity to test four gene samples at the same time within a period of 90 minutes and in the diagnostic process, DR-TB can be detected at a glance.

GeneXpert is the main rapid test widely used and approved for diagnosing TB by WHO. It was first endorsed for diagnosis of pulmonary TB in adults in 2010.

In 2019, Migori County reported 14 DR-TB while in 2020, 24 cases were detected. All the patients are currently on treatment and are responding well to the drugs, says County TB and Leprosy Coordinator David Nyamohanga.

Nyamohanga says cases of Drug Sensitive TB mutating to Drug Resistant TB has also been limited because of accurate diagnosis using GeneXpert equipment.

“Remember treating one case of DR-TB requires about KSh1.5 million (USD12,500) and therefore accurate and early detection done by the gadget has helped the government in reducing the cost of treatment,” he says.

Although the GeneXpert machine has revolutionised the fight against TB in the country, experts say inadequate trained personnel to operate the machine remains a major obstacle.

Recent data from the Ministry of Health indicated that DR-TB cases in the country reduced from 96,186 to 86,504 in 2019 and 2020, respectively.

Even though there was reduction in cases of DR-TB in between 2019 and 2020, the Director, Public Health in the Ministry of Health coordinating Kenya National TB, Leprosy and Lung Disease Program, Samwel Misoi, says cases of DR-TB are on the rise.

He says the ministry is working on modalities, including proper testing and prescription, to deal with the rising cases. TB prevalence is higher among people aged between 25 and 35 years and is also more dominant among the male than the female. In Kenya, out of 100,000 people, about 426 people live with TB, according to a recent survey.

# Increase Hepatitis B immunisation awareness, experts urge government

By Angeline Anyango | sciencewriter2021@gmail.com

Photo Credit | Angeline Anyango

**S**ometime in March 2016, Elizabeth Chepang'at, a student at Nasokol Secondary School was rushed to a health facility in West Pokot County, Kenya, after complaining of persistent headache.

For more than a week, she had been complaining of headache, pain on her lower abdomen, fatigue and restlessness at night.

At the hospital, doctors conducted a number of tests, including malaria and typhoid, but they all turned negative.

"I was given painkillers and later anti-malaria drugs but none seemed to work, my condition kept deteriorating every day," she says.

Chepang'at was referred to another hospital where she tested positive for hepatitis B, a disease her parents had never heard of.

"My parents were asked a few questions, including if they had followed my immunisation schedule as a child to the letter. They said they did," she says.

After receiving her treatment, she had to stay in the hospital for two more days for close monitoring before she was discharged. She continued taking her medication from home.

"I also had to go for check-ups after every two weeks for three months as had been advised by the doctors.



**Amos Otedo, a doctor at the Kisumu County Hospital emphasises on the need to immunise every infant against Hepatitis B virus to lower their chances of contracting chronic disease.**

My medication also continued for another three months," Chepang'at says.

The now 22-year-old fourth year student at Maseno University says she has never experienced any similar symptoms again, although she is worried the disease could be close by.

After Chepang'at tested positive of the disease, her parents, family members or friends in school were not tested to determine if they were carriers of the virus.

Dr Amos Otedo, a gastroenterologist and hepatologist at Kisumu County Hospital (KCH), says hepatitis B is a silent killer that continues to be a challenge in Kenya, with most infected people walking around freely unaware of their status, as symptoms rarely show.





**A child gets vaccinated. Hepatitis B vaccination is recommended for infants at birth and children up to the age of 18 years.**

Dr Otedo says Chepang'at is among the few lucky patients diagnosed with hepatitis B early enough for an easier treatment.

"Being that she was also immunised of the viral infection as an infant, her body had the antibodies that helped her fight the virus, thus protecting her from the chronic effects of the disease," he says.

Dr Otedo defines hepatitis B virus (HBV) as a DNA viral disease that majorly affects the liver alongside other body organs. He explains that although the adverse effects of the disease can be prevented through infant immunisation, not every single newborn gets vaccinated as required, thus they end up being at the risk of contracting the virus from unsuspecting mothers.

Early last year, when carrying out research in Nyanza, the doctor says he came across six teenagers aged between 13 and 17 suffering from HBV. Their mothers were also screened and four of them tested positive for the virus.

In 2016, Dr Otedo also came across 256 liver cancer patients from Western region, half of whom tested positive for hepatitis B.

Nancy Otieno, a health worker at a local dispensary in Kisumu County says that although more nursing mothers are currently showing up for antenatal care, the government still needs to create awareness to ensure all newborn babies are immunised. She adds that although they take their time educating women on the importance of vaccinations, some still fail to attend clinics.

Most of those with the disease get infected during childbirth, especially if the mother is a carrier of the virus. The virus can also be contracted through transfusion of unscreened blood, unprotected sex with an infected partner and sharing of piercing unsterilised instruments, including tattooing materials.

"As much as the country is trying its best to ensure prevention of the disease through immunisation, most nursing mothers still fail to attend clinics due to cultural beliefs, lack of proper awareness of the disease and ignorance," says Dr Otedo.

The vaccine is administered to an infant at birth and at the age of 6, 10 and 14 weeks. If one skips a single dose, their immunity is compromised, thus the need to follow the immunisation schedule to the letter.

Once one contracts the virus, the patient can only be put on anti-virals which are used for life to suppress the concentration of the virus in one's system.

"During treatment, 95 per cent of patients develop immunity against the virus while the remaining five per cent continue having the virus in their system and acting as carriers," says Dr Otedo.

He adds, "The five per-cent are the main transmitters of the disease and in most cases, they live unaware of their condition unless they go for screening."

He says most HBV patients only get to know their status when they become seriously ill or donate blood.

Dr Otedo says not all diagnosed patients take their medication as required while some are always in denial of their status and fail to visit the hospital for medication.

He adds that the diagnosis is harder as the disease displays symptoms similar to those of malaria, increasing chances of misdiagnosis. If not detected and treated early enough, hepatitis B results in liver cirrhosis, liver fibrosis and liver cancer.



**The vaccine protects from chronic diseases such as liver cancer, liver cirrhosis and cancer of the liver.**

“At the moment, I am attending to four children suffering from liver cancer, with two of them confirmed to be HBV positive,” says Dr Otedo.

Dr Otedo explains that Kenya is still far much behind as far as prevention of the disease is concerned.

“As a country, we still have no strategic focused public health awareness on the silent killer disease,” he says.

The COVID-19 pandemic has made the situation worse, he says, as there has been a low turnout of blood donors, which makes it more difficult to screen for the disease.

In 2015, the World Health Organisation (WHO) recorded 887,000 HBV deaths worldwide, which resulted from cirrhosis and hepatocellular carcinoma, also referred to as primary liver cancer. A report in 2016 showed that 27 million people were living with the virus while only 4.5 million of the diagnosed cases were on treatment.

The Western Pacific and Africa have the highest cases, with 6.2 and 6.1 per cent of the total cases, respectively, according to the health agency.

One of the reasons for the high rates of infection in these regions is vaccine defectors, who are a risk to the vaccinated population.

In 2019, the coverage of the three doses of the vaccine, according to WHO, was at 85 per cent an improvement from the 30 per cent recorded in 2000.

The coverage of the dose at birth, however, remains uneven, with a global coverage standing at 43 percent and 6 percent in Africa.

Kenya is still among the African countries struggling with vaccine defectors, thus pushing the government to come up with strategies to ensure all infants are fully immunised.

In 2018, the Kenyan government, in partnership with the Kenya Aids Consortium and other partners, implemented a grant from Global Alliance for Vaccines Initiative in 17 counties with most challenges in attending the immunisation programmes.

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**In 2015, the World Health Organisation (WHO) recorded 887,000 HBV deaths worldwide, which resulted from cirrhosis and hepatocellular carcinoma, also referred to as primary liver cancer. A report in 2016 showed that 27 million people were living with the virus while only 4.5 million of the diagnosed cases were on treatment.**

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# Kangaroo mother care helps keep preterm babies alive



**Grace Bahati outside her parent's home. She is the first child in Bungoma county to go through the Kangaroo mother care**

By **Gabriel Ingubu** | [gabringu@gmail.com](mailto:gabringu@gmail.com)

**E**sther Makhanu's soprano voice rings out in the air as she calls out for her daughter Grace Bahati. Grace responds quickly and comes to join her mother with whom we are sitting under the shade of an avocado tree in front of their house in Mashambani area Bungoma county.

She joyfully tells her mother all the fun she has had with her friends and introduces herself to us, just as her peers, a group of about five, flow in each with a homemade toy.

Grace's birth is something that will forever remain in Esther's memory. The mother of three was seven months pregnant when she felt a little uncomfortable and went for checkup at Bungoma Referral Hospital.

"I did my chores well. I did not have any medical issue before," narrates Esther.

On arriving at the hospital on that day in October 2014, she was shocked to hear that her baby was due. Grace was born weighing 1.4kg.

"When I delivered Grace, I thought she was dead. She did not cry until the following day at the nursery unit where she was admitted with many others," Esther adds.

On the third day, Grace's weight had reduced to 1.2kg, a factor that ignited in Esther thoughts of leaving her at the facility.

Grace was saved through the kangaroo mother care, which was introduced six years ago an organisation called Save the Children.

The World Health Organisation defines kangaroo mother care as a method of caring for pre-term babies that involves infants being carried, usually by the mother, with skin-to-skin contact.

As the name suggest, it's a technique borrowed from kangaroos. A new-born kangaroo is highly underdeveloped. After a gestation of up to 34 days, the jellybean-sized joey, hairless and blind, makes it out through the birth canal to the pouch by clambering up her mother's fur.

Once in the pouch, it suckles solidly for just two months. At around six months, when it is sufficiently developed, it will leave the pouch for short periods, returning when it needs to feed. The pouch has milk points and more importantly warmth.

"The leading cause of death in preterm babies is lack of optimum warmth. These babies' organs are not fully grown, so they cannot produce and uphold their own heat. That's why they are put skin to skin on their mother's chests and covered. It's called hypothermia," explains Teresa Akun, Save the Children officer in charge of kangaroo mother care project, Bungoma office.

A 2010 Internews study indicates that Kenya is among 15 countries that account for two thirds of all preterm birth and one out of three premature babies in the country die from complications of preterm birth.

Worldwide, 15 million children are born preterm and in Kenya, one out of eight babies is born premature.

Kangaroo mother care was introduced in Kenya from Malawi, with Bungoma as one of the pioneer counties. Grace is the first child in Bungoma to be put on kangaroo mother care.

“Kangaroo is a miracle. When I was shown how to do it, my child started gaining weight. After just three days, Grace had increased to 1.5kg and I was discharged,” says Esther.

At home, she continued putting her child on kangaroo care, but made weekly visits to the clinic for check-ups. In all her visits, the baby showed improvement until she finally weighed 2.5kg, which happened in about one and half month.

In Kabula location, Gifty Simiyu and Fortune Simiyu, a set of twins, also received the kangaroo mother care experience between March and May 2016.

The boys spent more time than the usual three weeks at the hospital because of the brutal culture that was very ready to snatch their life.

In Bukusu culture, it is believed when a woman gets twins in her first delivery, it's a bad omen that should be cleansed by killing one of the twins at birth. Furthermore, preterm children are considered a curse to the family. Consequently, traditional rituals are supposed to be performed to cleanse the home.



**Gifty and Fortune Simiyu play outside their home. The twins are beneficiaries of the kangaroo mother care in Bungoma county.**

Gifty and Fortune were 1.5kg and 1.7kg respectively at birth, which prompted doctors to admit them to the kangaroo unit. When their mother, Ann Simiyu, heard her children could be killed, she went into puerperal psychosis, a severe mental illness that starts suddenly days or weeks after having a baby.

Gladys Wanjala, the nurse in charge at the kangaroo unit at Chwele sub county hospital who was on duty that day, took over the life-saving role. She tied both children onto her chest, and counselled their father to participate in the kangaroo practice, which he did.

Kabula location Chief Joseph Mwanja, says the sharp decline in death of children under five years in the last five years is based on the information Community health volunteers (CHVs) spread in villages on behaviour change. He also applauded the ease in which men participate in kangaroo mother care without fear.

“Ever since I gave priority to CHVs in my area, I am seeing improvement not only in areas of health, but also in reduction in domestic violence cases resulting from gender roles. Today in Kabula it is very normal for a man to help his wife in babysitting willingly,” he adds.

Today, all the facilities that offer maternity services in Bungoma County have a kangaroo mother care unit. Previously, only the referral hospital had the unit, something that increased the risk of losing preterm babies.

The services started in five health facilities and scaled up to 27 and then 30 with funding from other donors. All facilities receive technical support and interventions have been scaled up to 17 counties including Vihiga, Trans Nzoia, Kitui, Busia, Makueni, Bungoma, Kakamega, among others.



**Nurse Gladys helps a mother place her baby into Kangaroo care at Chwele Sub-county Hospital**

Anthony Evelia, programme officer, Save the Children, Bungoma office, says the organisation finds it cheaper to run a kangaroo mother care unit than a nursery unit with incubators.

“All you need is a room, a bed, a mother and a preterm baby. As an organisation, we only spend on training healthcare providers at the units, in which you may only require one healthcare worker to handle about ten mothers at ago. Already, Kenya has few nurses at her facilities, so kangaroo mother care as an option is helping relieve more skilled work force to handle needier cases at the facility as much work is done by the mothers,” he adds.

According to Teresa, for a new-born unit, one needs healthcare workers equipped with specialised new-born care training, specialised equipment such as incubators that cost approximately Sh500,000 and room heaters.

The average number of days a baby takes in the kangaroo mother care depends on a number of factors which include, weight at admission; a lower weight will stay for a longer period. Other parameters are weight gain, adherence to the project, milk production, confidence in handling the baby and ability to return for follow up.

In East Africa, Burundi has the worst survival rates of pre-term babes at 13 per cent compared to Rwanda which is at 11 per cent. Kenya and Tanzania at eight per cent and Uganda at six per cent.

Usually, in rural areas, men are always side-lined delivery and child handling process at early stages. However, things are changing with their involvement in kangaroo mother care.

Vincent Situma is such exemplary father. The young man in his early thirties, decided to go against traditions surrounding men’s involvement in child care.

In his blue t-shirt and a grey trouser and with his daughter on his lap, Vincent narrates how he spent three weeks in the kangaroo mother care unit at Chwele sub county hospital.

“I was scared that we may lose this baby,” he says. Since babies in kangaroo mother care need to be held continuously for 18 to 24 hours, Vincent took the day time shift to relieve his wife who held the baby at night. He used to report to the facility at seven in the morning and leave at six in the evening. During the day, the mother could do other chores and stretch.



**Vincent Simiyu with his family. He is among the men in Kabula location in Bungoma county who have embraced Kangaroo mother care.**

"I am happy to see my daughter this far. Her presence gives me happiness day by day. You know, I lost my first child in nursery due to malaria that attacked my wife who was seven months pregnant. So when this one was born at seven months again, it gave me goose bumps," he explained.

Nurse Gladys said by end of April 2021, the unit had assisted 100 preterm and underweight babies and recorded zero deaths.

"When you want to put a baby on kangaroo, all you need to know is if the baby is breathing normally. If she is, then you have to cover her head, and feet with socks, then put her in diapers. Then on the semi sitting position, put the baby on your bare chest, skin to skin. Then use a wrap to prevent the baby from falling," she explained.

Some risk factors that contribute to pre-term birth include short interval between pregnancies, diseases such as malaria, malnutrition, low weight, twins or more and age of the mother. Kangaroo gives 100 per cent assurance if taken in well. However, in cases where mothers don't follow the required procedures well, some lose their babies.

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**When you want to put a baby on kangaroo, all you need to know is if the baby is breathing normally. If she is, then you have to cover her head, and feet with socks, then put her in diapers. Then on the semi sitting position, put the baby on your bare chest, skin to skin. Then use a wrap to prevent the baby from falling.**

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Photo Credit | Joyce Chimbi



**A farmer inspects cabbages in his shamba. Kenya's agricultural land is turning into a concrete jungle as farmers lose the fight against climate change.**

# From breadbaskets to concrete jungles: How climate change is pushing farmers into real estate

By Joyce Chimbi | [j.chimbi@gmail.com](mailto:j.chimbi@gmail.com)

**A**s temperatures rise to unprecedented levels and rainfall becomes more intense and less predictable, farmers in agricultural areas of Central Kenya remain largely ill-equipped to withstand and overcome climate related challenges.

In the face of recurrent droughts and floods, climate change experts such as Zachary Thuna, who is also an engineer in rural development, emphasise that "climate risk presents a significant threat to the agriculture sector in Central Kenya's breadbasket regions."

Thuna affirms that with limited or no access to climate resistant crop varieties and a striking lack of access to information on climate smart agriculture best practices, an increasing number of farmers are finding the allure of the real estate difficult to ignore.

"I am ready to retire my jembe (hoe). There is no money in farming anymore," says Simon Peter Murigi, a farmer in Ndumberi, a five minutes' drive from Kiambu town.

Murigi says his elder brother sold his two acres of land in Ndumberi over a period of three years. Five years later, Murigi's brother has built a modest mansion and a total of 20 single units.

"Each room goes for Sh1, 000 per month. He has become a very important man in the village because people can see results," says Murigi.

Murigi adds that farming in Kiambu County today is akin to flogging a dying horse. Not only is farm work is tedious and time consuming but also unyielding. On the other hand, selling land brings immediate fortunes and is positively, life transforming.

Thuna agrees. He says real estate investors have presented farmers who own large farmlands of at least 20 hectares with financial offers that simply, cannot be ignored. He says that while Kiambu County is the most affected due to its proximity to the capital, Nairobi, Nyeri and Murang'a counties are not far behind.



**A modern apartment in the fast growing Thindigua in Kiambu.**

“The math is clear as day. An acre of land produces seven to eight pieces of land to the measurements of an eighth of an acre. Across Kiambu County, an eighth is at least Sh800,000 and in rapidly developing areas such as those along the Thika Superhighway, an eighth is averaging at Sh4, 000,000. What kind of crops can guarantee a farmer such instant fortunes?” Thuna asks.

Demonstrative of an underperforming smallholder farmer, statistics by the Ministry of Agriculture show that Kenya has an estimated 170,000 hectares of coffee scattered in various regions including Kiambu, Nyeri and Murang’a counties.

Even though smallholder farmers account for approximately 77 per cent of the current production area, they only produce 57 per cent of the country’s total annual yield.

Meanwhile, large scale plantations with only 23 per cent of the production area account for a whopping 43 per cent of the annual production.

Other statistics by the World Bank and UN’s Food and Agricultural Organization (FAO) show that the climate risk facing farmers today and, their inability to hold onto their farmlands is not as simple as heavy rains and high temperatures.

As it is, FAO estimates that the extension officer to farm household ratio is 1:1093, far off the recommended 1:400. As such, chances of an encounter with an agricultural extension officer have never been slimmer.

Even as smallholder farmlands continue to shrink from an average of 2.28 to 5 hectares, to between 0.2 hectares and 3 hectares, government spending on agricultural research has not risen to match the growing list of climate related challenges.

Other estimates by FAO show that the country has a paltry 1,158 full-time agricultural researchers where other countries such as Ethiopia boast of an estimated 3,025 researchers.

As it is, Kenya’s budgetary allocation to the agriculture sector is way below its commitment to the African Union to direct at least 10 per cent of its public expenditure to agriculture. It is estimated that today, between the central and county governments, the agriculture sector receives an estimated three percent of total budget.

Boniface Mutheru, a farmer, says that farmers were abandoned a long time ago and the unfolding concrete jungle should come as little surprise.

While Mutheru is yet to sell his 3.5 acres of land in Mboi Kamiti, Kiambu County, he is only biding his time. “An eighth of an acre is going for Sh1.4 million. I am waiting for the prices to rise by just Sh600, 000,” he says.

Research shows that even though the government has consistently intervened in the production of cereals by subsidising on the prices of key inputs such as seeds and fertilisers, farmers such as Mutheru maintain that these measures are not sufficient to keep smallholder farmers afloat.



He says the voice of farmers in the development of intervention targeting them is absent and, further emphasises that there cannot be a solution for farmers without an input from farmers.

“Other than ancestral land where the Mzee (old man) died and left strict instructions against trading his soil for money and where therefore, the fear of a curse hangs in the balance for anyone who goes against the wishes of a dying man, wherever you turn, you will find a ‘land for sale’ sign,” Mutheru says.

Against this backdrop, governments led initiatives to address the crippling effects of erratic weather patterns are anchored in Kenya’s National Climate Change Action plan of 2013-2017, and more recently, an action plan spanning over five years, from 2018 to 2022.

Still, climate change experts and activists remain up in arms over a lack of financial commitment to turn the plan into action.

All the same, Dr Caroline Mwongera, a scientist at the International Center for Tropical Agriculture (CIAT) says it is only a matter of time before the climate risk facing farmers is overcome.

She says the silver bullet is in the 45 Climate Risk Profiles developed by the Alliance of Bioversity International and CIAT for all agricultural counties in Kenya, with the exception of Nairobi and Mombasa cities.

Developed in three phases, the first 15 profiles were completed in 2017, the second batch of 16 profiles in 2019 and the final batch of 14 profiles will be launched this year, 2021.

Dr Mwongera says all 45 profiles are county specific overviews of “the vulnerabilities and risks posed by climate risks to people, their livelihoods, investments and the environment.”



**Karura Forest, one of the green spaces in the country**

Importantly, she emphasises that these profiles further “provide an assessment of the programmatic interventions and the level of institutional capacity needed to help farmers and pastoralists cope with climate related risks and vulnerabilities.”

Indeed Thuna concurs that aforementioned climate risk profiles covering all 45 agricultural counties are a step in the right direction. He, however, cautions that if recommended remedies towards the realisation of climate smart agriculture are not effected urgently, efficiently and effectively, Central Kenya’s breadbasket areas will become history.

The governments led initiatives to address the crippling effects of erratic weather patterns are anchored in Kenya’s National Climate Change Action plan of 2013-2017, and more recently, an action plan spanning over five years, from 2018 to 2022.



**A young farmer harvests bell peppers. Agriculture's huge potential can only be realised with the involvement of youthful agri-entrepreneurs.**

# Let's charm Kenya's youth into agriculture

By Murenga Mwimali | [mwimali@yahoo.co.uk](mailto:mwimali@yahoo.co.uk)

**K**enya's vibrant youth are critical to developing a successful agricultural sector. This means shaking off out-of-date insights and providing young people with the right motivations.

## Motivation for youthful agricultural entrepreneurs

Most leadership in many African countries acknowledge the huge potential of the agriculture sector.

There's potential to not only feeding the growing populations but also to support the export market for most foods items. Achieving this will ignite growth in most economies.

However, this potential can only be realised if the sector can harness the strength and new thinking of Kenya's fast-growing youth population. They need to be encouraged to embrace agriculture through new technologies, digitisation of applications in irrigation, fertigation, greenhouse technologies, and horticulture.

Enabling decent agriculture and agribusiness jobs programme will support in leveraging this huge demographic dividend, while contributing to the rejuvenation of the aging farming population that is average of 60 years in Kenya.

## Removing negative perceptions about agriculture

When young people want money and employment, they should take up agriculture. However, it will require greater efforts to make agriculture sexier to young people. My concern as a scientist in the sector is that advertisements on TVs, agrochemical companies, billboards, radio, make it worse by creating an impression that agriculture is for the old people. There is a need to change these archaic perceptions that agriculture involves hard-work, is unprofitable and for the old folks after retirement from formal employment.

Today agriculture is about tapping into new innovations and technologies namely, crop development software, computer modelling, ideotype farming to develop disease-resistant varieties, digital soil mapping, among others.

These innovations will make farming smarter, slicker and more profitable. It's about viewing farming as interesting to educated, entrepreneurial youthful persons who perceive a financially worthwhile future in farming; it's about making agriculture sexy. I am confident there is money to be made in agriculture. However, the initial investment period requires obligation and determination.

### **Improving financial access for the youthful agricultural entrepreneurs**

Accessing sufficient finance to get agricultural production to take off can be a challenge for most youth in Kenya due to the lack of guarantee and financial illiteracy. When the banks and corporates in Kenya mean to support the youth in agriculture, then financial products should be aligned towards this.

### **Linking youthful agricultural entrepreneurs to market**

Reliable market access is critical towards the success of any agri-enterprise. Most factors contributing to market failures could emerge including under-developed infrastructure, poor information on market prices and less exposure. International markets may require exports in large volumes and at certain quality standards the youth may not be able to meet.

The youth in Kenya need better market access to unlock the potential of new agricultural ventures. Education and training, diversity of agri-enterprises, access to price and market information, while practising sustainable agriculture will enable them access markets for the products.



**Florence Mtepe prepares kales at a vegetable nursery.**

### **Supporting youthful agricultural entrepreneurs to benefit from agriculture**

The government must practically and seriously involve youth in agriculture. They must be at the fulcrum of the country's plans to implement the national and counties' agricultural policies.

The need to show political support by tailoring agriculture budgets and national budgets to create an enabling environment for youths to contribute to diverse food production and consumption. The involvement of public-private partnerships can be a significant step towards enabling the youthful agricultural entrepreneurs to access finance.

Agricultural investments must be attractive to the youth and may include the following precision agriculture, robotic farms swarms, closed crop ecosystems, synthetic biology, and vertical farms. It may take a little longer to realise these concepts of new farming in Kenya, but it is a venture worth trying.

Besides finances and improved application of technologies, innovations, management and practices that are compliance to their needs, the youth also need support of the government and the private sector. With these, new opportunities will emerge for them to make a contribution towards food security to the increasing population.

Let us charm Kenya's youthful entrepreneurs to agriculture by making it sexy!

**The government must practically and seriously involve youth in agriculture. They must be at the fulcrum of the country's plans to implement the national and counties' agricultural policies.**

# Why scientists must tell the African story objectively

By Clifford Akumu | akumu.clifford@gmail.com

Photo Credit | Aghan Daniel

Scientists have been urged to tell the African story objectively because their work plays a crucial role in explaining to the public what works.

During a one-of-a-kind virtual training, convened by the Media for Environment, Science, Health and Agriculture (MESHA) and Internews, scientists were trained on the importance of broadening their work through the media.

The meeting also heard of the need for collaborative approach between scientists and journalists in telling the African science story.

“Both journalists and scientists must work as a joint venture. Although science used to get the back page, we are now seeing some improvements due to the efforts from scientists and journalists” said Aghan Daniel, CEO and Secretary MESHA.

“COVID-19 pandemic has created a perfect fertile ground for conspiracy theories. Evidence is key in science reporting and scientists do not work in assumption and that is why this training is a milestone,” he added.

Over 30 scientists from Western Kenya and additional eight practicing journalists attended the virtual training.

John Muchangi, science writer at the Star Newspaper opened the training by noting that scientists need to understand how journalist work in a bid to engage them.



**A scientist prepares a sample on a slide for observation. Journalists are encouraged to tell stories objectively to inform the public.**

Muchangi noted that scientists who use the media effectively have reaped not only individual dividends but also their projects and research organisations.

“Communicating your science, help journalists who in turn help communities to understand its challenges so that they can find sustainable solutions to them,” he said.

Muchangi further added that, “It also helps the journalists to understand and ask tough questions, analyse information, and demand that extraordinary claims be supported by extraordinary evidence.”

Juliah Kibochi, editor, Healthy Nation Magazine, Daily Nation Newspaper took a dive into what editors look for in a good science story reminding scientists the tips to tell an informative, captivating and game-changing stories.

Kibochi noted that quality science stories needed to have a ‘hook’- a case study to help people relate to it, use of related data, quotes from the right expert, relevant video and proof-including medical documents.

She added that the stories should always serve a purpose, what she termed as a “hurray moment”.

“Don’t just tell stories for the sake of it. Do it right by being factual, objective and give a right of reply,” said Kibochi.

She stressed on the need for scientists to work hand-in-hand with journalists in areas such as offering feedback and comment on issues, breaking down technical terms and fact-checking.

Some challenges that complicated editors’ work while sieving through a science piece, Kibochi noted, included claims without proof and photos, lack of data and technical terms.

Chaacha Mwita, a veteran journalist and media trainer called upon scientists to master the art of story telling.

“Scientists need summary and interviewing skills in writing science,” he said.

During the training several scientists raised concerns regarding how media operate noting that it created a buffer zone for them to disseminate some of their work.

On his part, Chaacha challenged the scientists to use alternative media (such as online platforms, personal blogs, Twitter) to publish their stories.

He cited SAYANSI Magazine, a science publication run by MESHA as an entry point for scientists who want to publish their work.

“The times when having a byline in the traditional media was a high moment is long gone. Today, technology has simplified how we disseminate information,” he said.

Chaacha added that scientists too need to possess the skills of simplification when communicating science.

The veteran trainer threw a spanner in the works when he paused interesting questions on scientists’ experiences during interview sessions.

Dr Laz Momanyi, one of the participants narrated how he encountered language barrier during a recent interview.

“In this age where every language across the country has a radio or TV station, scientists need to practice how to communicate science in their respective languages,” said Chaacha. “It pays to prepare before getting into an interview whether it’s a studio or live.”

Violet Otindo, MESHA chairperson, in her closing remarks, urged scientists to continue engaging journalists noting that the organisation was planning a live session that will allow for more practical engagements.

“I think the government has allowed a certain number of people to congregate, bearing in mind the COVID-19 rules. Soon, MESHA and partners will plan a similar training where scientists can engage in a better way,” said Otindo.

## ANNOUNCEMENT



### Calling on new individual and corporate members

**Do you want to join the Media for Environment, Science, Health and Agriculture (MESHA) as a member, corporate or individual?**

Please visit our website [www.meshascience.org](http://www.meshascience.org) and fill in the application form and submit it online as per the instructions therein.

We also invite members and non-members seeking internship and mentorship to send their applications to [info@meshascience.org](mailto:info@meshascience.org)

# Highlight food safety consistently, journalists told



**Leah Kagwara, Country Director, Global Alliance for Improved Nutrition.**

**By Nduta Waweru**  
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**T**hat there are children who suffer from malnutrition should be a cause of concern for everyone, including journalists, who should not only highlight the situation but also showcase solutions that have worked, science journalists heard at a recent science café in Nairobi.

The café, organised by Media for Environment, Science, Health and Agriculture (MESHA) in partnership with Global Alliance for Improved Nutrition (GAIN), highlighted the importance of sustainable ways of cultivating, producing and processing food.

“When consumers are brought to a point to determine and make deliberate informed choices about the food they eat, we create demand on nutritious food. This can be done through consumer awareness and education,” says Harold Mate, Senior Project Associate at GAIN.

The World Health Organisation places the number of people falling ill after eating contaminated food at 600 million, and those who die from such food at 420,000 people every year.

Leah Kagwara, GAIN country director, urged science journalists to consider factors such as how food is handled before it reaches the consumer in their reporting.

“The question we are looking at here includes protecting food for food safety and less waste. The more the waste, the less the food there will be, the more complex it would be to try and get food accessible by consumer,” she said.

Kagwara emphasised on the importance of highlighting support for people in the food supply chain, especially since they have also been affected by COVID-19.

“[We need to highlight] food suppliers and processors so that food remains afloat in the market. When the borders were closed due to the pandemic, food was the first thing to be hit. If food is expensive few people access it,” she added.

The International Food Policy Research Institute’s 2021 Global Food Policy Report calls for

building effective and resilient policy systems and programmes that would cater for crises such as COVID-19 in a timely manner.

“Promote food system modernisation and innovations — driven by the private sector but enabled by the public sector — that enhance resilience and help generate employment and better livelihoods along food supply chains,” recommends the report.

In the same way, the Global Nutrition Report 2020 calls for the mainstreaming nutrition into food and health systems, complete with funding and accountability to ensure nutrition inequities are reduced.

It recommends concerted efforts of all sectors, including the media, in creating awareness about safe food among members of the communities.

Acknowledging the important role of the media in championing food safety, Food and Agriculture Organization of the United Nations created a guide for journalists in reporting food security and nutrition in 2011. In the guide, it recommends painting a bigger picture and not restricting reporting to emergency situations only.

“Food security affects every level of a country’s social and economic development. The main criticism directed at the media tends to be that they only focus on food security and nutrition issues when a disaster occurs or when an organization unveils a report predicting a disaster due to food shortages and the rising global population. Although the media have an obligation to cover these topics, journalists should also take the initiative to report on more positive stories,” it advises.



Mombasa, Kenya

27<sup>th</sup> - 30<sup>th</sup> September 2021

# Seed Trade congress set for September



**Exhibition: A client visits Syngenta's booth at the 19th AFSTA Congress, Mombasa**



**M. Justin Rakotoarisaona**

**By Aghan Daniel**  
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**T**he African Seed Trade Association (AFSTA) Congress 2021 is set to take place in Mombasa, Kenya.

The event will be held from September 27-30, 2021 at the Diani Reef Beach Resort and Spa, and will bring together stakeholders from all over the world to discuss everything seed.

Online registration is now open, with AFSTA members and other interested parties encouraged to sign up for the event that will tackle interesting topics including seed treatment, the African seed industry and intellectual property rights, impact on policies on seed trade, seed innovation and harmonised seed regulations in African economic blocs among others.

To register, visit AFSTA website ([www.afsta.org](http://www.afsta.org)) and click on the AFSTA Congress 2021 logo. You will be redirected various links on registration including the registration details and online form. Once done with registration, the next step is to book a room in the congress hotel.

Participants can take advantage of the Early Bird Registration discount, which ends on September 15, 2021. AFSTA members will have received AFSTA members' code to enjoy discounted rates.

Organisers of the event assure participants that maximum precautions will be observed in line with COVID-19 protocols issued by Kenya's Ministry of Health.

"All the directives of the Kenyan Government related to the health measures will be applied as our highest priority is the safety of all the delegates. We will keep you posted on the situation of this pandemic in Kenya when necessary and in due course," says AFSTA Secretary General, Mr Justin Rakotoarisaona.

**Organisers of the event assure participants that maximum precautions will be observed in line with COVID-19 protocols issued by Kenya's Ministry of Health.**