

African Conference of
Science Journalists
16-19 November, 2020

SCIENCE

SAYANSI

Telling the African science story

Issue No. 14

www.meshascience.org

December 2019



Farmers resolve to reclaim wastelands

In this issue

City residents urged to be alert on desertification

Nigeria approves first-ever Bt Cowpea

South Africa shrub could save poor soils

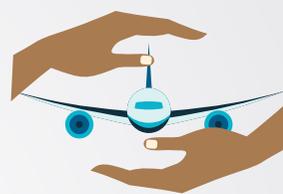
All The Cover You Need



Health



Home



Travel



Motor



Business



Marine

Resolution offers affordable, tailor made insurance solutions that you can rely on.

Quick Claim Payment | Responsive Care Team | Countrywide Coverage

0709 990 000 | 21777 | www.resolution.co.ke

@ResolutionKE | @resolution_ke



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

The association emphasises on rural journalism and communication.

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

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

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

SAYANSI

is a publication of MESHA, P. O. Box 44199 - 00100, Nairobi
email: coordinator@meshakenya.org
www.meshakenya.org

Mesha Kenya
 Mesha Kenya

Editor
Felista Wangari

Reviewer
Aghan Daniel

Cover Photo
Ms Jacqueline Sawadogo, a student of agronomy poses for a photograph with Cowpea at INERA Research Station in Ougadougou, Burkina Faso

Photo Credit: Aghan Daniel



Health:
Teen pregnancies worry health experts

7



Testimonies:
Why we still do science reporting

14



Wonder plant:
Shrub could help save bad soils

22

Time for science organisations to fund science journalism

Our media network, which turns 14 years next year, has over the years made training and mentoring of science journalists a priority for its members and beyond.

Over time, we have continually witnessed growth of science journalism to amazing standards. Today, we as an association are very proud of the fact that through our efforts and those of many others, science journalism is slowly but steadily being recognized as a key contributor to the society.

Even though the growth is demonstrable, African science journalists still face many problems, including hostile editors who believe that politics sells better than science.

Some media houses, with little recognition to science journalism, have not made life any better for those who specialize on science writing. In many occasions, they suffer from poor pay, scanty skill building forums, and are bogged with organization agenda laden trainings from the industry, and more often than not, they suffer from a general lack of amenities, such as TV cameras to cover science events, facilitation to access story sources and locations. Their work is made harder by the disdain with which many scientists treat them.

The media houses, on their part, say that many science journalists, are lazy and hardly delve deep into science issues. They observe that the work rate of science journalists, in comparison to other cadres of in the newsrooms, is low, slow and laden with scientific errors which portray these media houses in very bad light with science based organisations. Further, they note that many science journalists do not write compelling pieces hence science reporting has remained a dull and drab section of the bulletins. They add that journalists hold their fate on their own hands. They have to work hard to turn around their own fortunes.

Scientists complain that African science journalists are poorly educated in science and often in journalism, that many do not prepare for their interviews properly, and that they write inaccurate copy even after thorough and professional engagement with scientists. On the other hand, scientists, hardly understand how the media works or how to handle the media.

Whereas it is true that science reporters are overlooked with regards to specialized training in the communication of complex technical information, the remedy lies on organizations which occupy the science space. They must work with media based organisations such as MESHA to deliberately and consistently sustain regular training and retraining for the journalists.

Media and these science based outfits must, as a team, design specific approaches towards science journalists in order to enhance skills of those journalists already practicing science journalism. Organisations must desist from holding their own agenda based trainings which have ended up not yielding to a critical mass of science communicators able to articulate science issues devoid of public relations.

These organizations must put money, resources and time on science journalists with an aim of making tangible contribution to the body of science journalism not to focus on their organisations work. They must stop thinking that because they have some funding at their disposal, they can train journalists on their own. No and never. They must align themselves to media organizations such as MESHA to offer the trainings together. They must meet journalists at their needs and not vice versa. Too often, fundraising for science journalism events are like walking on broken glass bare feet. The organizations, many of them beneficiaries of science journalists' work, take science journalists for granted. These organizations do not set aside any budget for journalists training, tours among others and in cases they do, word has it that the communication budget is usually the first to be slashed in case of budgetary shortfalls. This must stop and the organizations must reach out to science journalists and partner with them to help tell the African science story.

It is difficult for under-resourced publications, journalists and radio stations to devote time to contacting researchers and cutting through complex research findings to find a suitable story or feature.

Confronted with this challenge and despite the urgent need for journalists to be consistently retrained on science communication and supported to write stories regularly, we appeal to many organisations to come out and fund science journalists - **Aghan Daniel**

Africa could be declared polio-free by early 2020, says WHO

Photo Credit | Joyce Chimbi



It was in the seventies that Hamisa Zaja's bout with polio left her unable to use her legs unaided.

By Joyce Chimbi | j.chimbi@gmail.com

Looking at the map that tracks the efforts towards a polio-free world, there are barely traces of the time when polio was an epidemic in Africa, ravaging children in all corners of the continent. In the seventies and eighties, the incurable disease that causes temporary or permanent paralysis and even death in severe cases, left a trail of children and young adults with disability, among them Hamisa Zaja.

After a bout with polio, Ms Zaja could no longer use her legs unaided; and having lived with the effects of polio all her life, the well-known political figure and human rights defender from the Coast region, says that her story need not be the story of any other child.

"It's not an easy life, even for me. There is a lot of stigma and people tend to undermine your capacity to get things done. Every day is a fight for access to both physical infrastructure and opportunities," says Ms Zaja, who focuses on the rights of people with disabilities.

While these difficulties have done little to dampen her spirit, the same cannot be said of many others affected by polio.

"Many people who have been scarred by polio are languishing at home confined to wheelchairs. Every day I push forward because I want to be a living example that disability is not inability," she says.

Her work and perseverance has not gone unnoticed; it has earned her recognition as an ardent defender of the rights of people with disabilities in the Coast region.

Zaja has received numerous awards, among them, The Human Rights Activist for Persons with Disabilities awarded by Muslim for Human Rights (MUHURI). She was also recognised as the Best Woman Achiever by Gulf African Bank, for her efforts to secure bursaries for needy students with disabilities.

"We have to do everything we can to support children with disabilities and more importantly, to ensure that polio is truly kicked out of Africa," she says.

Her wishes might just come true soon, as the World Health Organisation (WHO), Africa Region, recently released a statement that Africa is on the brink of eliminating polio.

"Africa today passed a milestone threshold – three years with no case of wild poliovirus detected," the statement reads in part.



Ms Margaret Oketch, Siaya County (Western Kenya) Polio Immunization Champion, administers polio vaccine during an immunization campaign in the area recently.

According to the global health body, Nigeria was the last African country to have recorded a case of polio three years ago, and since then, not a single case has been reported. This is a far cry from 2012 when Nigeria alone accounted for more than half of all cases of polio in the world.

Closer home, even though Kenya's last reported cases of polio were in 2013 when an outbreak in neighbouring Somalia led to importation of 14 cases across the border, all is not well. In March 2018, the Kenya Medical Research Institute (Kemri), detected poliovirus type 2 from an environmental sample in Nairobi. An unvaccinated child coming into contact with such contaminated samples, could easily be infected with polio which is highly infectious. Within this context, Kenya has remained unrelenting in its polio vaccination drives. For instance, in 2018, a vaccination campaign targeting 800,000 children in Nairobi County, a very high-risk area, successfully vaccinated 600,000 children. In July this year, another vaccination campaign was rolled out in 11 high-risk counties including Nairobi, Mombasa and Mandera, targeting more than 2.6 million children under the age of five years.

Such efforts and better public health practices have seen Africa inch closer to eradicating polio, with other East African countries, namely Uganda, Rwanda and Tanzania, having last recorded a case of polio more than a decade ago. The past three years of zero polio cases are the first serious indicator that Africa is on track.

In this regard, WHO's statement on polio further states that the three years of no polio are not only a landmark, but also set in motion "a comprehensive evaluation process by the Africa Regional Certification Commission to determine if the entire WHO African Region of 47 countries can be declared to have eradicated wild poliovirus."

But even as Africa rides this wave of renewed hope, health experts urge cautious optimism. They say that governments and other stakeholders, including volunteers who have taken the precious vaccine to every doorstep, should ensure that every corner of the continent is reached.

Moreover, there is need for thoroughness to affirm that no cases have been overlooked.

But even as Africa rides this wave of renewed hope, health experts urge cautious optimism. They say that governments and other stakeholders, including volunteers who have taken the precious vaccine to every doorstep, should ensure that every corner of the continent is reached

All precautions having been taken, and if no other cases are witnessed in Africa, certification that the African Region is free of wild poliovirus is expected in early 2020.



Africa on the verge of bidding crippling disease goodbye

By Christine Ochogo | christawine@gmail.com

It is Thursday morning, the market day in Siaya. Margaret Adhiambo Oketch, a 42-year-old who lives atop the hills of Got Ragna, struggles to get to the market. She has a physical disability that hinders her mobility.

Ms Oketch had a poliovirus attack when she was only three months old, leading to paralysis in her legs. Rehabilitative therapy did nothing to help her situation, so today she uses crutches to get around.

The businesswoman and single mother of three boys aged three, 12 and 18 years, says it has not been easy to find a job or sell her wares.

"People judge you as incapable by virtue of your physical appearance. This has cost me numerous opportunities," she says.

However, she went through the integrated schooling system, and in 2013, she was nominated to the County Assembly of Siaya. She was also appointed the county Polio Ambassador to champion routine polio immunisation to children under the age of five.

During her time as a county legislator, she advocated for rights of persons with disability and came up with a Disability Bill, to tackle the challenges persons with disability face when seeking employment,

as well as challenges with mobility, among others. However, she did not go past the second reading.

Nevertheless, her work as a champion for routine polio vaccination is helping protect children from the disabling disease. Her efforts and those of others have borne fruit, as the World Health Organisation announced that Africa has passed the crucial three-year threshold when no case of wild poliovirus has been detected.

Currently, the Africa Regional Certification Commission is conducting a comprehensive evaluation to determine if the entire African Region can be declared free of the wild poliovirus.



Immunization campaign: Experts say that with the imminent eradication of polio, it will be the third disease to achieve this feat after smallpox and rinderpest.

"We are confident that we will soon be trumpeting the certification that countries will have once and for all, kicked polio out of Africa by 2020," said WHO Regional Director for Africa Matshidiso Moeti.

She praised the continent's resilience and strong commitment to stopping the virus and overcoming tough challenges.

"The path to eradicating polio in Africa has been a monumental effort of multinational coordination on an unprecedented scale, providing vaccinations to hundreds of millions of children and conducting immunisation campaigns in some of the most remote locations in the world," said Dr Moeti.

However, sub-optimal routine immunisation coverage remains a critical challenge in some countries. Therefore, Dr Moeti cautioned that immunisation is still needed to protect communities from the rare non-wild polio strains that can emerge when a population is not thoroughly immunised.

"The milestone on wild poliovirus is a positive sign of progress across the continent, but our work is not yet done," said Dr Moeti.

"We must remain vigilant in our immunisation and surveillance efforts. Every country must continue to ensure that it is looking closely for the virus and reaching every child with vaccines."

If the evaluation process proves that the wild poliovirus is gone, Africa will join four of the WHO regions – the Americas, the Western Pacific, Europe and South-East Asia – in holding this distinction. It will leave only the WHO Eastern Mediterranean region still working to stop the virus. And if the world succeeds at eradicating polio, it will be the third disease to achieve this feat after smallpox and rinderpest.

Polio is a highly infectious viral disease caused by poliovirus. It mainly affects young children and can cause total paralysis and in severe forms, death.

The virus is transmitted from person-to-person through ingestion of infected faecal matter. However, many people with polio do not display any symptoms or become noticeably sick and when symptoms appear, they differ depending on the type of polio.

According to the Centers for Disease Control and Prevention (CDC), there are three types of wild poliovirus. People need to be protected against all the three types through vaccination. There are two vaccines used to protect against polio – oral polio vaccine and inactivated poliovirus vaccine.

At present there is no known cure for polio. Therefore, once a person is infected, treatment focuses on increasing comfort, managing symptoms and preventing complications.

Teen pregnancies: Experts call for multi-sectoral approach

By Christine Ochogo | christawine@gmail.com



Getting out of hand: The high rate of adolescent and teenage pregnancy is worrying many governments in Africa.

Seventeen-year-old Kagendo (not her real name) is already a mother of a toddler. When she conceived at the age of 15, while in Form Two at a school in Nairobi, she concealed the pregnancy for several months to avoid the shame and stigma attached to adolescent pregnancy.

When it was no longer possible to hide the pregnancy, on the eighth month of her pregnancy, she left school. Her mother, who was greatly disappointed, scolded her endlessly at first, but eventually turned around and gave her daughter much-needed support.

After delivering her son, Kagendo enrolled in an adolescent mentor group, where she received counselling and was encouraged to attend post-natal care. Support from the group and her mother has helped Kagendo accept herself as an adolescent mother, as well as helped her resume school to focus on her dreams of becoming a journalist.

The case of Kagendo and other girls who become mothers between age 10 and 19 has health officials concerned as they work to prevent teenage pregnancies. At a recent national stock-taking meeting in Nairobi, Kenya's Ministry of Health called for a multi-sectoral approach to address the high rate of adolescent and teenage pregnancy.

In 2018 alone, 430,825 schoolgirls aged 10 to 19 years got pregnant and had children. Moreover, girls of the same age group made up 40 per cent of pregnant women seeking ante-natal care in public health facilities. In addition, 77 teenage girls died during pregnancy, childbirth or within 42 days after birth, contributing to maternal mortality. These figures were shared by the Principal Secretary for Health, who spoke at the two-day stock-taking event held in September to discuss the elimination of mother-to-child transmission of HIV and syphilis, as well as reproductive, maternal, neonatal, child and adolescent health.

"One in 10 adolescent girls got pregnant in 2018 and the counties with the highest rates of teenage pregnancies were Tana River, Siaya, Busia and Meru," she said, adding that Narok, Trans Nzoia, Kisii and Kwale also had high rates of teenage pregnancy.

Other speakers who attended the stock-taking meeting, said that preventing teenage pregnancies required a multi-sectoral approach that goes beyond the health sector. Already, Homa Bay County, which has nearly half (48 per cent) of its population under the age of 15, has instituted a county multi-sectoral working group on teenage pregnancy. According to the County Director for Health Gordon Okomo, 33 per cent of girls aged 15 to 19 have begun childbearing, which is higher than the national rate of 18 per cent.

Speakers at the stock-taking meeting called for open sex education discussions with adolescents at all levels in schools, churches and homes.

Head of the National AIDS and STI Control Programme (NASCOP) Catherine Ngugi, said that in 2018, there were 428,807 adolescent girls aged 15 to 24 years who were on contraceptives, indicating that they are sexually-active and need sexual and reproductive health education.

"We cannot shy away from talking about sexual and reproductive health with adolescents and teenagers because there are many more whose data are not captured yet they access family planning services over the counter in chemists and private facilities," said Dr Ngugi.

She added that one in three children has been a victim of sexual violence or exploitation, which has resulted in pregnancy. In Murang'a where 170 girls aged 10 to 14 years got pregnant last year, 70 per cent were said to have been impregnated by married men, but the county only jailed 22 of the men responsible for defilement (raping children).

Teenage pregnancy poses health risks to girls because their reproductive systems are not yet fully developed to sustain safe pregnancy and childbirth.

According to literature developed by the UNESCO Early and Unintended Pregnancy Campaign, early and unintended pregnancy is a global public health concern, with particularly high prevalence in Africa, south of the Sahara.

The Eastern and Southern Africa (ESA) region has one of the highest adolescent fertility rates in the world, at 102 per 1,000 live births. Many of these early pregnancies are not planned, as indicated in the high rate of unintended pregnancy in Africa at 89 per 1,000 overall and 112 per 1,000 in Eastern Africa, resulting in an estimated 21.6 million unintended pregnancies per year.

The UNESCO campaign adds that adolescents are more likely to have complications during pregnancy including unsafe abortion and more likely to become young mothers a second time. After AIDS, the second highest cause of death for adolescent girls are pregnancy-related complications in the ESA region. Their babies also face a substantially higher risk of dying than those born to women aged 20 to 24 years, and are at greater risk of malnutrition, poor mental and physical development, and low educational attainment.

We cannot shy away from talking about sexual and reproductive health with adolescents and teenagers because there are many more whose data are not captured yet they access family planning services over the counter in chemists and private facilities



African Conference of Science Journalists

16 - 19 November, 2020

Venue: Kisumu, Kenya

Contact: meshacongress@gmail.com



Kenya in pact to train health equipment handlers

By **Henriette Mangome I jogilocho@gmail.com**

In 2016, the government of Kenya set out on an ambitious project to bring health services closer to the people, by supplying high-tech medical equipment for advanced diagnosis of disease, to nearly 100 health facilities across the country.

The Sh38-billion managed equipment services (MES) project dispatched theatre equipment, sterilisation equipment and theatre instruments, renal dialysis equipment, intensive care unit (ICU) equipment, x-ray and other imaging equipment, among others, to 98 health facilities across the 47 counties.

However, four years later, most of the high-tech equipment is still not operational due to lack of staff with specialised skills to operate it, among other reasons.

As a result, research by the Parliamentary Research Service (PRS) indicated that various equipment installed under this programme is not in use in at least half of the counties. Looking at specific equipment, the PRS report found that renal equipment is not in use in 44 out of 49 health facilities, namely Tana River, Lamu, Mandera, Wajir and West Pokot. Furthermore, theatre equipment remains unused in Busia, Elgeyo Marakwet, Samburu and West Pokot, while radiology equipment remains unused in 19 counties.

To revive the multi-billion medical equipment lying idle across the country, the Ministry of Health has partnered with GE Healthcare to train healthcare workers on the use of the equipment. Already, 1,600 health technologists have been trained on mammography, dental x-ray, ultrasound,

C-arm and their clinical applications, as well as environmental, health and safety issues that come with the use of the equipment. The 12-week course was attended by radiographers, radiologists and biomedical engineers drawn from all Level 4, 5 and 6 hospitals across the 47 counties.

The curriculum is based on the 800 weeks and beyond education programme that happens during onsite sessions in health facilities and classroom sessions at the GE Healthcare Skills and Training Institute in Nairobi. The \$13 million US-funded institute was launched in 2016 to train health technologists and other healthcare workers as part of the MES project.

GE Healthcare East Africa Managing Director Andrew Waititu said that the refresher trainings sustain the quality of services in public hospitals across the country and ensure that staff skills remain up to date in support the country's universal health coverage agenda.

"Continuous training and skills development are essential ingredients in ensuring the efficiency of healthcare staff, considering the rapidly developing technologies and constant updates in procedures," said Mr Waititu.

Managed Equipment Services Implementation Committee Chairman Morang'a Morekwa said that the purpose of the MES project is to fast-track the government's objective of attaining equitable, affordable and quality healthcare services of the highest standards in public hospitals across the country.

He added that the training will ensure that this mandate is attained through proper running and maintenance of specialised, modern, state-of-the-art medical equipment in county and sub-county health facilities.

"This will ensure that all citizens regardless of location have access to uninterrupted, quality, specialised healthcare services," said Mr Morekwa.

My journey from wading to swimming through water journalism



Kenyan science journalists at a past function.

By Maina Waruru | mainawaruru@gmail.com

I have been a water journalist for as long as I have been a science reporter. I first became a journalist in the late 1990s, when I joined Nation Newspapers (now known as the Nation Media Group), as a correspondent in the current Tharaka Nithi County.

Working for Nation was a prestigious and coveted gig, but while Nation correspondents wielded power and influence in their jurisdictions by virtue of working for an influential media company, the pay was nothing to write home about. “Corres” as the correspondents in the districts were scornfully referred to as, were neither on a monthly salary, nor on a retainer. They were more like stringers,

who were paid based on the length of the published articles. Remuneration was based on stories that were eventually published, rather than those that were filed, and typically, nearly half of all stories filed ‘died’ despite having been commissioned, and the correspondent got nothing for his efforts.

Back then, we filed copy over the phone, making calls from the now extinct telephone booths after making a reverse call request to the switchboard operators at Nation headquarters in Nairobi. Once the request was approved by the news or duty editor, the call would be transferred to the copy taker.

I reported general news, local politics, crime (such as cultivation of cannabis and illegal logging in the Mt Kenya Forest), banditry and border conflicts, road accidents at the infamous Nithi River Bridge, and the politics of coffee and cooperatives.

There is no denying that Nation gave correspondents exposure that is difficult to get anywhere else or perhaps on any other job. More importantly, rigorous standards sharpened correspondents’ nose for news and made them diligent writers – skills that would serve them when they moved to other publications. Those who could not match up, quit after a few months on the job, citing frustrations from ruthless editors and a heap of unpublished articles, besides the ridiculous wages.

After about five years of reporting from Chuka, the headquarters of Tharaka Nithi District at the time, I quit and moved to Nairobi to begin my journey as a freelance journalist. I started off writing political and business news for Indigo Publications (France), the defunct Africa Analysis (London), and a few other publications. This was made possible by the coming of the internet in 1999 and 2000 as well as the entry of the mobile phone. While the two publications paid me many times better than Nation, I quickly realised that my passion was neither in business reporting, which I was excellent in, nor in politics and current affairs, but in environmental reporting. After a relentless search for online publications that would pay for my stories on the subject, I found science publications which covered environment as well as agriculture, water, climate, health and technology, among others.

By mid-2000s, I was covering more science stories, but I had not specialised yet. I wrote whichever story I pitched successfully.

As none of the main local newspapers would take my articles – and if they did, the pay was inadequate and exploitative – I was getting published in foreign online publications. In addition to writing, I got opportunities to attend events on climate and water, which piqued my interest in the two topics. The more conferences, workshops, press briefings and similar events I attended, the more well-versed I became in water issues, and as all journalists know, the more you know about something, the more comfortable and confident you become writing about it. I attended workshops on water organised by Media for Environment, Science, Health and Agriculture (MESHA), as well as numerous water dialogues hosted by Watercap Network around Nairobi. All these events imparted a lot of knowledge, without necessarily giving me an immediate story.

Some of the events were very technical, with content suited for professionals in the water sector. However, I sat through them, often as the only journalist, fighting boredom amid strangers, and trying to get a grasp of the proceedings.

MESHA’s Aghan Daniel and Watercap’s Engineer Wangai Ndirangu, pushed me to attend two memorable events – one at the Boma Hotel in Nairobi’s South C, and the other at the Kenya Meteorological Services head office in Nairobi. While I was not required to write anything from either workshop, I found and published a story, over and above gaining invariable knowledge.

As a result, somebody randomly picked my name from a list of workshop attendees and invited me to a high-level workshop on disaster risk reduction in the



Journalists from around Africa discuss an assignment handed to them during a training by MESHA nearly three years ago.

Mediterranean resort city of Antalya, in Turkey. I was the only reporter present, so I published articles from the event with the Thomson Reuters Foundation. I also enjoyed what turned out to be a holiday.

From these experiences, I have learnt a lot about water – that water is the main component of climate-related disasters, about hydro-meteorology, about the importance of weather forecasting in relation to hydrology, about the water cycle, the water-food-climate-energy nexus, disaster risk reduction and water, and all about water sources.

I attended workshops on water organised by MESHA, as well as numerous water dialogues hosted by WaterCap Network around Nairobi. All these events imparted a lot of knowledge, without necessarily giving me an immediate story.

As a result, I have published water articles in the New Agriculturalist, Scidev. Net, Thomson Reuters (all in the UK), India’s Down To Earth magazine, Equal Times (Belgium), RenewableEnergyWorld.com and our very own Kenyan platform, Science Africa, plus a few others.

Over time, I have also won three grants to report on water issues.

All this would certainly not have been possible, had I not been as exposed as I am to the subject. However, I confess that I still do not know all there is to know about it, and in writing, nothing is as challenging as an area that one is unfamiliar with. However simple or obvious the facts involved seem to be, there will always be the risk of mis-stating things and making wrong assumptions and conclusions.

That aside, it is important to note that anything we write well or competently on is courtesy of the experts we interview, seek opinion from and who gladly pick our calls, respond to email and take their time to offer insights that help us write accurate and informative articles.

One of the people I would wish to thank is Eng Wangai, from whom I have learnt a lot, and who has always spared his time to expound on issues whenever I seek his expertise. There is also the former Kenya Meteorology Services Director Peter Ambeje, and his predecessor Joseph Mukabana, who is now the Director of the World Meteorological

Organisation, who readily granted me interviews and responded to my email queries in a most professional manner. I can’t forget veteran journalist Otula Owuor, for publishing my stories whenever I need a platform for my work.

Maina Waruru is a freelance science journalist based in Nairobi



Paul Sarwatt, a senior journalist from Tanzania's Raia Mwema newspaper. To him, trainings for journalists are key in improving their skills on science writing.

My highs and lows as a science journalist

By Paul Sarwatt | paul.sarwatt.james@gmail.com

My experience covering conservation, and the science beat in general, spans more than 15 years. Having been brought up in rural Tanzania, I learnt early that natural resources have sustained millions of the country's rural population since time immemorial. Tanzania's economy is also based on natural resources. For instance, wildlife is a cornerstone of the \$2.4 billion tourism industry – a sector that accounts for nearly 17.5 per cent of the country's gross domestic product (GDP).

Similarly, the sector is a leading foreign exchange earner, with official data showing that the industry brings home about 25 per cent of all foreign currency.

These factors triggered my interest in building capacity to cover conservation and science from my cub reporter days. My passion for science journalism, led me to the Journalist Environmental Association in Tanzania (JET), which I joined in 2002, and received several trainings.

In 2005, I was part of a group of journalists who underwent comprehensive training at the St Augustine University of Tanzania, thanks to sponsorship by the Swedish International Development Cooperation Agency (SIDA). I have also been trained on science and other related subjects, both locally and internationally, courtesy of the Kenya-based Media for Environment, Science, Health and Agriculture (MESHA).

All these trainings have significantly sharpened my skills in investigating, writing and analysing issues in science, conservation and natural resources. This culminated in my winning a prestigious media prize in the 2011 Excellence in Journalism Awards organised by the Media Council of Tanzania (MCT).

My winning story uncovered a wildlife smuggling scandal that saw 136 animals trafficked out of Tanzania. The scandal began when the country aided a huge Qatar Emir Airforce aircraft in landing smoothly at Tanzania's second-largest airfield – Kilimanjaro International Airport – in November 2010. Then in the wee hours of November 26, 2010, the military aircraft illegally flew out to Doha in Qatar, with 136 live wild animals from 14 species, worth \$113,715. It would take Tanzania's security organs five months to learn of the smuggling. My painstaking investigation showed that the deal involved six masterminds, comprising unscrupulous government officials, international traders, airport security personnel and airport ground handlers. Thanks to my series of articles, the government acted swiftly to arrest all culprits and arraign them. They were found guilty, with the mastermind, Kamran Ahmed, a Pakistani, sentenced to 60 years in prison in absentia.

Scientific stories are very interesting because they are factual and real.



Gaetano Pesa, a journalist based in the border town of Busia makes a point during a science media café organized by MESHA. Many African countries economies are driven by rural sector and journalists need to highlight science issues in such areas.

They also command a good fraction of readership because there is a direct link between people's daily lives and nature. For instance, my latest story is about a low-cost water filter that has yielded massive impact on thousands of low-income earners, who can now afford clean and safe drinking water. It is an innovation of Dr Askwar Hilonga, a Tanzanian chemical engineer behind the Nanofilter prototype, which absorbs all impurities - from copper to fluoride and bacteria. The Nanofilter cleans water to about 99.999 per cent purity levels, freeing it from bacteria, micro-organisms and viruses and thus making it safe for domestic use.

Nevertheless, there are some challenges that come with the science beat. My biggest obstacle is cracking the jargon, which makes developing and writing science stories a complex and time-consuming affair. I also face difficulties convincing my editors that science stories are important. Many of them think that science subjects are difficult, an assertion they see validated when readers have difficulties understanding scientific stories, to the extent of contacting the newsroom seeking clarification on issues we have covered.

A recent example is a story I wrote about antibiotic resistance as a new health crisis in Africa. We were flooded with feedback from readers who thought that we had reported on an outbreak of a new disease. This compelled me to write an in-depth

story in the next edition to shed more light on antibiotic resistance in response to our readers. The story attracted nearly 15,000 readers, a considerable number by any standard. Despite these challenges, covering science will be my driving force for as long as I live.



Researchers from KEMRI Kisumu: Scientists are key in providing accurate information for journalists hence relating with them helps the cause of science journalism.

Farmers out to reclaim wasted land

By Leopold Obi | leopoldk40@yahoo.com

Before residents of Kikule Village in Yatta, a semi-arid region in Eastern Kenya, took to planting grass and some species of local trees, a better part of the area lay bare, with patches of shrubs here and there, and deep gullies cutting across the landscape. Pasture for their livestock disappeared by day, as did the trees that would put soil erosion and the sun's heat in check. And with surface run-off constantly washing off fertile topsoil from farms into nearby streams during the rainy season, many farmers were left dismayed as there was no meaningful harvest to be reaped.

"There was hardly any grass and rivers were dry, so water was scarce too," says Kikule Village Farmers Chairman Dominic Kivuvo, recalling the headache of locals who didn't have a ready solution.

They got a breakthrough more than two years ago, through the Dryland Development Programme, a project of the Ministry of Agriculture and World Vision, an international non-governmental organisation. The project trains farmers to rehabilitate wastelands through terracing, pits and farmer-managed natural regeneration using seed balls.

"We emphasise integrated farming and enrichment planting by rehabilitating wasted lands," Emmanuel Fondo, the drylands development project manager at World Vision Kenya, told SAYANSI Magazine.

Through the programme, farmers in Kikule were trained to rehabilitate their farms by constructing terraces and growing grass and fast-maturing trees. And because they had to reclaim large tracts of land, "seed bombing" the degraded farms was the quickest method for broadcasting the small grass and tree seeds.

In this technique, the seeds are encased in a ball of biochar, made from charcoal dust and cassava starch for binding. The encased seeds or seed balls are then randomly thrown across farms using a catapult or helicopter (in the reforestation of large forests). When it rains, the water disintegrates the charcoal dust casing to expose the seed for germination in ideal conditions.



Seed bombing: A farmer broadcasts grass and tree seeds. In this technique encased seeds randomly thrown across farms using a catapult.

The casing also helps retain a bit of moisture around the seed, while the cassava starch has sugars and minerals that boost seed germination. Seed balls last longer on the ground awaiting rainfall, compared to bare seeds, because the casing protects the seeds from being blown away or being eaten by birds.

"Farmers from across the village came together for the initiative, which was first demonstrated on one plot of land before being replicated on each farm," says Mr Kivuvo.

The farmers got high-quality certified grass and sesbania seeds from the Kenya Agricultural and Livestock Research Organisation, Kiboko Centre.

"For Kikule area, we chose acacia since they are indigenous trees, and sesbania trees because they can easily support regeneration. The germination rate was about 75 per cent. And now any crop can grow here," said Mr Fondo of World Vision Kenya.

With the seed bombs and the terraces, Kikule residents turned their degraded farms into a breadbasket. They now harvest the grass, which they sell at \$1 (Sh100) per bale.

"During drought, we sell bales for as high as \$4 (Sh400) per bale," said Mr Kivuvo, adding that they discourage farmers from overstocking to conserve the soil.

The drylands development programme also helps farmers build water resilience using sand dams. As part of the project in Kikule, farmers designed six sand dams along riverbeds. The dams provide water for irrigation and domestic use. In the larger Machakos County, the drylands development programme has put up 18 sand dams.

Mr Fondo observes that the rehabilitation effort and climate smart production has so far been a success in the region despite prolonged drought because the locals are diversifying into pasture and poultry farming.

Managing Director of the Centre for Science and Environment Sunita Narain notes that lack of green cover increases desertification conditions, adding that if farmers can improve how they manage land and water, they can shave off the worst impacts of climate change.



Mono-cropping: An initiative called Drylands Development Programme helps farmers build water resilience using sand dams.

"Growing trees can sequester carbon dioxide; improving soil health captures carbon dioxide, and most importantly, changing agricultural practices and diets reduces greenhouse gas emissions. By doing this we mitigate greenhouse gases," explains Ms Narain.

In 1994, the United Nations established the Convention to Combat Desertification (UNCCD), through which 122 countries committed to curb land degradation, the same way they committed to reduce carbon emissions under the Paris Agreement. These efforts involve working with farmers to safeguard arable land, repair degraded land and manage water supplies more effectively.

In the absence of these efforts, each year 12 million hectares of land, where 20 million tonnes of grain could have been grown, are lost to desertification. The UNCCD predicts that more than 50 million people across the world will be forced to leave their homes by 2020 because their land will have turned to desert, and reports indicate that Africa is the most adversely affected continent. The continent loses about 280 million tonnes of cereal crops from about 105 million hectares of cropland, losses that could be prevented if soil erosion is curbed.

Kenya's land degradation assessment report released in 2016 by the Ministry of Environment revealed that almost all counties are at the risk of one form of land degradation.

"The problem is serious because high land degradation is likely to occur on about 61.4 per cent of the total area of Kenya, while very high degradation affects 27.2 per cent of the land," the report noted.

The report however indicated that arid and semi-arid lands (ASALs), where soils are highly erodible, combined with high-intensity storms, were at risk of excessive degradation and soil erosion. While it listed Samburu, Kitui, Garissa, Tana River, Mandera, Turkana, Marsabit, Baringo, West Pokot, Kajiado, Kilifi, Wajir and Makueni Counties the most affected, it further showed that even some relatively wetter zones also have higher risks for soil erosion, especially on steep slopes of Mt Kenya and the Aberdares, as well as parts of Murang'a, Nyeri, Meru and Tharaka-Nithi Counties.



The city of Kigali: Urban centres have been warned to take desertification seriously

Why city residents should be concerned about desertification

By Leopold Obi | leopoldk40@yahoo.com

Clean water is perhaps one of the most crucial requirements for every urban dweller, yet not every city resident has easy access to this important commodity.

In many towns, residents are forced to buy water from unregulated vendors which is not only exploitative, but also a health risk since their water sources are unknown. Moreover, while a lack of piped water systems hinders water distribution in some areas, many urban residents who are connected to water lines do not have daily access to water due to scarcity of the commodity.

In the face of growing water scarcity, several cities across the world have been compelled to impose strict water rationing regimes. Nairobi, for instance, forewarned residents to brace themselves for prolonged water rationing due to persistent drought. The Nairobi Water and Sewerage Company, which supplies 505,000 cubic metres of water a day against a demand of 760,000 cubic metres, thus updated its equitable water distribution programme to reflect the prevailing conditions. This would see residents go for days without water in their taps.

Therefore, environmental experts are calling on city dwellers to pay attention to desertification and efforts to conserve water towers, because they know exactly where the shoe pinches. Moreover, besides perennial water shortages, scarce rainfall affects food production and in turn commodity prices, and eventually people's food security, nutrition and health.

Speaking to African and Indian journalists at a recent media briefing on desertification, Sunita Narain, the director general of the Centre for Science and Environment (CSE) based in New Delhi, India, explained that urban populations need to understand



Farming: Rural areas provide space for agriculture but usually bear the brunt of desertification. Not anymore, urban centres are now vulnerable too to desertification.

desertification because they need water. She noted that urban dwellers are the cause of a large amount of water being pumped from rural areas into urban areas.

"Urban areas take clean water and return wastewater, so, cities should understand their role in desertification, in aquifer depletion and in water pollution," said Ms Narain.

A case in point is the damning expose that was published in the Daily Nation less than a month ago, trailing the Nairobi River from its source in Kiambu County, through Nairobi, Machakos, Makueni, Taita Taveta and Kilifi counties, until it exited into the Indian Ocean at Sabaki Bridge. The investigation revealed wanton pollution which begins from around the city, but whose side-effects are felt in villages more than 400 kilometres away.

Experts say that because urban residents consume huge amounts of water and produce large amounts of waste, they should play a more responsible role, knowing that their use of resources is impinging on many poor people.

"The first thing we need to do is to become water prudent, which means that every city dweller must harvest rainwater. It is our responsibility to recharge groundwater," said Ms Narain, adding that people should understand that water scarcity is only going to worsen.

The CSE director general noted that cities are becoming more vulnerable to water shocks each year and added that urban dwellers suffer a twin curse of water scarcity and flooding.

"The only way to deal with these cases is to protect our lakes, our ponds and our channels," she said.

Titbit

Last September, researchers and policymakers from across the world convened in New Delhi, India, for the 14th Conference of Parties (COP) to the United Nations Convention to Combat Desertification, to deliberate on land use management and governance. The Delhi Declaration – a two-page document summarising the intent to combat desertification and land

degradation – announced that the parties would take a "people first" approach towards land restoration, implement drought preparedness plans in a proactive manner, and encourage local governments to adopt land use management and governance.

Experts believe that since urban citizens are big users of resources who not only consume huge amounts of water but also produce a lot of wastes, should also play a much more responsible role knowing that their use of resources is impinging on a large number of very poor people

Nigeria sets sights on grand biotech advances

By Special Correspondent I info@meshakenya.org

Having approved its first GMO food crop earlier this year, Nigeria is poised to take another step forward in the biotechnology arena. The nation's legislature wants to give its biotech agency the power to regulate several new technologies, including gene editing, gene drives and synthetic biology.

The Nigerian government signed the National Biosafety Management Agency (Amended) Act 2019 with the aim of preventing any adverse effect to human health and environment. The measure expands the role of the National Biosafety Management Agency (NBMA), which was established in 2015 to safeguard human health and the environment from potential adverse effects of modern biotechnology and genetically modified organisms and to harness the potential of modern biotechnology.

Since its inception, the agency has given Nigerian scientists the ability to develop new crops, including a pest-resistant cowpea. Universities and research institutes now have confidence to carry out biotechnology research, which is expected to increase agricultural productivity and contribute to food security in Nigeria. Nigeria also approved its GMO cotton seed in 2018.

Many countries across Africa have yet to develop and embrace the products of modern biotechnology. But Nigeria – Africa's most populous nation – has achieved significant strides in this arena, looking to modern biotechnology to counter some of the major challenges bedeviling the continent including food insecurity, climate change and disease. Nigeria's biotech efforts started in 1992, when the nation signed the Convention on Biological Diversity, followed by the Cartagena Protocol on Biodiversity in 2002.



Cowpea: Nigeria is the first country to commercialize Bt cowpea. The country has started its journey towards grand biotech advances.

Now, Nigeria is seeking to bring other new technologies – including gene editing, synthetic biology and gene drives – under the umbrella of its national biosafety law. At a public hearing in May, Nigerian scientists, policymakers, government agencies and civil society organisations discussed the bill to amend the Biosafety Management Act of 2015.

"The idea of expanding the Biosafety Act of 2015 is a step in the right direction and a demonstration of Nigeria's willingness to take a leadership position in science, technology, and innovation in Africa," said Abdulrazak Ibrahim, a molecular biologist at Ahmadu Bello University, Zaria.

"It means we have come of age, and it shows foresight in the path of the Nigerian scientific community and biotechnology stakeholders," he added.

In an interview with the Genetic Literacy Project, Dr Ibrahim said that many scientists have grown concerned that Africa is missing out in the global "gene revolution." The issues have grown more complicated with the addition of these emerging technologies with potential to disrupt both agriculture and human medicine. CRISPR, for example, is completely different from traditional genetic engineering and its products are different too.

"So, if we don't prepare, it means that we will not only miss the benefits of 'gene revolution,' but may eventually miss these powerful emerging technologies," he said.

He added that it is important for Nigeria to develop a regulatory framework for gene editing, gene drives, and synthetic biology to help scientists develop home-grown solutions.



Women farmers are seen here working on a cowpea plot by a seed company in West Africa.

"Otherwise, companies will just flood our markets with products from these technologies. The ground is already prepared for this to start happening."

Africa's agriculture is highly rain-dependent and the continent's food systems are threatened by climate change and global green-house gas emissions.

Dr Ibrahim believes that one way to solve Africa's agricultural challenges is through the deployment of new technologies, describing them as "quick win solutions" to existing problems.

"Our population is expanding. Technologies like CRISPR which has the ability to produce results instantly are critical in solving our food and nutrition needs in Africa," he said.

Africa's agriculture is highly rain-dependent and the continent's food systems are threatened by climate change and global green-house gas emissions

However, the move to include emerging biotechnology into the regulatory framework has raised public concerns over the risks involved in the use of gene editing, gene drives, and synthetic biology.

Notably, a memorandum on the NBMA Act of 2015 signed by Nnimmo Bassey, an environmental activist and director of the ecological think-tank, Health of Mother Earth Foundation (HOMEF), called for the dismissal of the bill. Bassey argued that other evolving aspects of modern biotechnology pose a threat to life, ecological diversity, and environmental sustainability.

However, Dr Ibrahim argued that risks often associated with new technologies are nothing new and Nigeria has the capacity to manage the possible risks that emerging biotechnology poses, adding that Nigeria should not shy away, but rather prepare for it.

He noted that three transformations changed human history on earth: domestication, globalisation and fossil fuel.

"Imagine thousands of years ago before all of these [transformations]; if you were asked to weigh the possible harms from each of them, you would say 'No, don't let us go this way, it's too risky.' This is exactly where we are with these emerging technologies. They represent the next big biological transformations that will change the world," said Dr Ibrahim.

The inclusion of emerging biotechnology into Nigeria's biosafety regulatory law, could place Nigeria high among its African peers and in the global biotechnology landscape. But the nation's biosafety agency must ensure an accountable, transparent, and participatory regulatory regime that is inclusive of non-governmental stakeholders while considering the societal perception of other evolving aspects of modern biotechnology and its potential risks on human and environmental health.

<http://gubbagroup.com/following-approval-of-gmo-crops-nigeria-sets-sights-on-other-biotech-advances-including-gene-editing-and-synthetic-biology/>

South African shrub could help save impoverished soils



Of plants and poor soils: A perennial legume plant called lebeckia from South Africa that can grow during summer on infertile sandy soils is being grown in Australia

By Aghan Daniel I aghan@meshakenya.org

Each season of the year James Namayi, a 48-year-old smallholder farmer from western Kenya, attends to his half-acre farm, hoping to reap a harvest that can sustain his family until the next season.

He tills his farm early, in readiness to plant maize and beans, the staple crops in his locality. However, at the end of each season, Namayi is disappointed by the low yields. He is among many other smallholder farmers across the country, who suffer the fate of low yields brought about by declining soil fertility.

Traditionally, long fallow periods were used to restore soil nutrients, but increasing population pressure has seen farmers practise continuous cropping, meaning that there is little or no replenishment of soil nutrients. This leads to decreased land potential, and in turn the need to spend ever more money on fertilisers hoping for good yields. Low yields in turn have a bearing on poverty and malnutrition.

According to a 2001 study by the Food and Agriculture Organisation (FAO), African soils lose 48 kilogrammes of nutrients per hectare every year, or an equivalent of 100 kilogrammes of fertiliser per year.

To mitigate this, farmers need to know the characteristics and constraints of their soils and use sustainable agricultural practices to conserve soils and make them more fertile. Communities also need to adopt economically viable technologies that have been recommended after long-term research.

One such research finding has been implemented miles away in Australia, where more than three million hectares of infertile sandy farmland could benefit from the commercialisation of lebeckia, a perennial legume plant from South Africa, that can grow during summer on infertile sandy soils.



A rice farmer in Burkina Faso: In faraway Australia, a plant with its origin in Africa, has been found to have the potential to create substantial savings for farmers, reducing the need to purchase supplementary feed and support higher animal stocking rates.

This discovery comes after a decade-long global search for legume plants capable of surviving in Western Australia's harsh, dry summers and sandy soils.

Researchers at Murdoch University's Centre for Rhizobium Studies in Perth, Western Australia, said that lebeckia was designed to be used by farmers on soils that may otherwise become incompletely unproductive.

"We discovered the plant in the Western Cape of South Africa and commenced trials on the poorest sandplain soils of the Western Australian Wheatbelt," said lead researcher Professor John Howieson, adding that lebeckia has the potential to turn as much as three million hectares of Australia's marginal farmlands into much more productive country. This means that farmers would have adequate provisions of pasture over summer

"We have recorded very promising

results in agronomy, soil fertility and feed quality trials, and this will translate to farmers keeping more sheep, that grow more wool, and provide better animal husbandry over the summer-autumn," said Prof Howieson.

In a press release by Murdoch University, which has been working with the South African government to secure full commercialisation rights, Prof Howieson said the plant had the potential to create substantial savings for farmers, reducing the need to purchase supplementary feed and support higher animal stocking rates.

"Economic analysis has shown that using lebeckia on sandy soils could be worth up to \$400 per hectare per year to the farmer and we think it will be incredibly valuable for farmers by providing high-quality feed and shelter," he said.

South African Agricultural Research

Council President and CEO Shadrack Moephuli said that cultivation and alien invasion reduce soil pH, therefore, lebeckia, an acid tolerant legume, has economic benefits to farmers, especially those in areas with sandy and acidic soils.

West Australia Agriculture Minister Alannah MacTiernan witnessed the signing of a commercialisation agreement for the new cultivar of lebeckia called Isanti (Xhosa for sand) by Murdoch University Deputy Vice Chancellor, Research and Innovation, Professor David Morrison and Dr Moephuli.

Under the agreement, a royalty on seed sales will be paid to the Agricultural Research Council. The new crop will also be made available to South African farmers, meaning farmers in both Australia and Africa will have access to the benefits of this research thus produce food for the growing population. The first seed will be available for sale next year.

World staring at a climate catastrophe, UN report warns



Zero grazing to help ease land pressure? Land is now under a lot of pressure and is now over utilized.

By Joyce Chimbi | j.chimbi@gmail.com

Scientists on the United Nations Intergovernmental Panel on Climate Change (IPCC) have revealed in a Special Report on Climate Change and Land that the world is staring at a climate catastrophe.

IPCC is the world body for assessing the state of scientific knowledge related to climate change, its impacts and potential future risks, and possible response options.

This major United Nations report released in Geneva, Switzerland this past August, explored how land use and management contributes to climate change and how climate change affects land.

It is a report that rings true across Africa where rapid deforestation continues and extreme climatic changes have taken effect.

"IPCC's report focuses on the link between global warming and land use. At the core of this report is the nexus between climate change and unsustainable land use including unsustainable global food systems," says Richard Munang, the Sub-Programme Coordinator on climate change at UN Environment –Africa Office.

Munang says that this nexus "is already coming to the fore in Africa especially now that the continent is losing forest cover at a rate that is much higher than the global average."

In Kenya for instance, during the first two months of this year, at least 114 forest fires were recorded across Kenya with at least five major forests being adversely affected, according to Kenya Forest Service.

In just a matter of days in February, a wild fire ravaged an estimated 80,000 acres of Mount Kenya's forest moorlands.

Forest and wildlife experts are adamant that communities living around these forested areas are responsible for the fires. And yet deforestation is one of the major drivers of climate change, according to a new report.

According to the report, land is a critical resource and also part of the solution to climate change.

However, as more land becomes degraded, it becomes less productive and at the same time reducing the soil's ability to absorb carbon. This in turn exacerbates climate change.

That burning forest vegetation attracts rainfall is a long held belief among communities living around major forests in various parts of Africa, raises alarm that if such misconceptions continue, the continent is on track towards a catastrophe.

According to the report, satellite observations have shown promising vegetable greening in parts of the world, including Asia and South America, and more vegetable browning in some parts of Africa particularly the Central Africa's Congo basin. This has been attributed to water stresses due to lack of sufficient water.

Within this context, Munang further explained that globally, Africa bears the second highest cost of land degradation estimated at 65 billion dollars per year and that this has put a strain on economic growth.

"While average losses resulting from land degradation in most countries are estimated at nine percent of Gross Domestic Product (GDP), some of the worst afflicted countries are in Africa and lose a staggering 40 percent of their GDP," he expounded.

Photo Credit: | James Wanzala/Standard)



Francis Ndolo on his farm in Landless Estate, Kiambu County, central Kenya. He makes a huge income from urban farming.

Co-authored by 107 scientists, almost half of whom are from developing nations and 40 percent of whom are female, the report resoundingly places land management at the very centre of the raging war to combat climate change, stating that effective strategies to address global warming must place sustainable land use systems at their core.

"Last year the United Nations Development Program indicated that Africa's urban transition is unprecedented in terms of scale and speed and that the continent is 40 per cent urban today," says Dr Wilfred Subbo, a lecturer in natural resources at the University of Nairobi.

IPCC report emphasizes that while climate change in itself can increase land degradation through increases in rainfall intensity, flooding, drought intensity, heat stress and dry spells, it is land management practices that has tipped the balance.

"Food security will be increasingly affected by future climate change through yield declines – especially in the tropics – increased prices, reduced nutrient quality, and supply chain disruptions," said Priyadarshi Shukla, Co-Chair of IPCC Working Group III in a statement.

"We will see different effects in different countries, but there will be more drastic impacts on low-income countries in Africa, Asia, Latin America and the Caribbean," he said.

Experts are therefore adamant that a lot needs to be done to heal damaged land. As the situation stands, researchers hold the position that the world is heading straight into a climate disaster.

The report has extensively highlighted how damaged land is no longer serving as that large sink that absorbs harmful carbon dioxide emissions.

As a result of significant land use changes, grazing pressures and substantial reduction in soil fertility, UN researchers now say that one-third of total carbon emissions come from land.

"Land is under a huge amount of pressure and we are increasingly witnessing how human-induced environmental changes contribute to catastrophic carbon emissions," says Dr Subbo.

Last year, the Institute for Agriculture and Trade Policy and GRAIN conducted an analysis of the planet's 35 largest meat and dairy companies.

Their report concluded that meat and dairy companies will surpass oil industry as biggest polluters.

Munang nonetheless points out that all is not lost. "Over 90 percent of countries in Africa have ratified their commitments to accelerate climate action towards achieving the 2015 Paris agreement," he emphasizes.

This agreement seeks to achieve a sustainable low carbon future. Munang emphasizes that such climate goals calls for countries to embrace ambitious ecosystem friendly techniques such as agro-forestry, use of organic fertilizer and clean energy.

He says that a number of African countries are on track. "Ethiopia has done very well and set a new unofficial world record of planting over 350 million trees in just 12 hours," he says.

Kenya targets to run entirely on green energy by 2020 and is on record as having the largest wind farm in Africa, as is Morocco with the largest solar farm in the world.

"The key going forward is to change perspective and to look at these actions within the broader goal of building globally competitive enterprises with climate action co-benefits," Munang concludes.

Last year the United Nations Development Program indicated that Africa's urban transition is unprecedented in terms of scale and speed and that the continent is 40 per cent urban today



Dr Mike Okal of *icipe* explains how they use the tsetse fly repellent collar to lure the insects away from cattle, and use traps set to pull them hence reduce their population.

Technology to eradicate tsetse fly on the way

By Tendeka Darrell | info@meshascience.org

The tsetse fly menace could become history once a new technology developed by Kenyan researchers at the International Centre of Insect Physiology and Ecology (*icipe*) is hits the shelves.

Scientists at the institution have developed technology that enables livestock to avoid nagana which is transmitted by the bite of tsetse flies.

The technology is contained in a wearable animal collar that emits a smell similar to that of waterbuck, which the tsetse fly does not bite.

According to Dr Mike Okal of *icipe*, the technology was developed after studies on the various wild animal species revealed that the fly does not bite the waterbuck.

"From our studies on the feeding habits of the tsetse fly, we observed that the fly does not bite the waterbuck, the zebra, elephants and lions, among other animal species," he said.

"We carried out a comprehensive profile of the waterbuck's smell in our labs and the chemicals involved in the production of that smell. We then designed the collar the cows would wear to emit a smell that would be similar to be that of the waterbuck," added Dr Okal.

The project involves animals wearing the collar which can work for a week. Scientists then test their blood samples weekly for evidence of trypanosomiasis, using a group of farmers that have been identified for the tsetse fly control study.

Dr Okal says the technology will be easy to adapt on a global scale because it is environmentally friendly.

"It is safe to use as it does not involve the release of harmful chemicals into the environment," he said.

Once the collar is commercialized after licensing procedures are completed, Dr Okal says it will cost around Sh 320 (\$3) a month, or four collars purchased at Sh 80 (\$8) per week.

He said *icipe* is in negotiation with agrochemical manufacturers for commercial production of the technology.

The 10 year old program is being used in a study involving 500 farmers and their 4,000 animals in the Shimba Hills area located in Kenya's South Coast.

Josephine Wayua, a farmer in Tangini Village, Kubwa Ward, Matungu Constituency in Kwale County, says the technology has helped her increase her herd from just 3 to 12 heads of cattle.

"Before the scientists reached out to us to participate in the project, I was only able to dig up to half an acre per day by hand, which was a tedious and tiring figure. Now I can plough up to three acres a day," a beaming Ms Wayua told SAYANSI.

Ms Wayua, 42, has also gone ahead to plant fruit trees on her 5 acre of land to allow her expand her livestock venture into a mixed farming project.

In Tangini Village, there are 50 farmers who now regularly visit Ms Wayua's farm for lessons on sustainable farming technologies. One of them is the use of tsetse fly trap technology that attracts the insects into an enclosure that makes use of cattle urine and a blue and black fabric to fool the insect into seeing the structure as a cow.

"Together with the other farmers, we are learning from the *icipe* scientists on how to effectively take care of our livestock as well as planting fruit trees and other crops," she said.

The trap and the collar are the twin components of what Dr Okal calls "push and pull" approach to tsetse fly control.

"We use the tsetse fly repellent collar to "push" the insects away from cattle, and use the traps set up in selected areas in the study region to "pull" the flies in and reduce their population," said Dr Okal.

So far the *icipe* effort has seen farmers in the area increase their herd sizes by an average of 72 percent.

According to Dr Moses Cheruiyot, who is the Coast Region Coordinator at the Kenya Tsetse and Trypanosomiasis Eradication Council, trypanosomiasis causes around Sh20billion (\$20m) in losses to livestock and human death on the continent, a fact that is also contained in the Tsetse Fly Control Strategic Plan, which also states that 11 million people at risk for sleeping sickness.



Josephine Wayua, a cattle keeper in Kenya's coast says a new technology has helped her increase her herd from just 3 to 12 heads of cattle.

Speaking at the Third Kenya Science Journalists Congress organized by MESHASCIENCE in Mombasa last month, the expert said 38 counties out of the country's 47 devolved units are currently infested with tsetse fly.

"Trypanosomiasis transmitted by tsetse flies is a silent disaster that does not kill animals immediately and a silent but deadly driver of poverty. Some families may have livestock, but their children will be born and live without knowing that their parents ever owned livestock," said Dr Cheruiyot.

Dr Cheruiyot said the tsetse fly control program is hampered by the fact that it is a neglected tropical disease that receives "dwindling or insufficient funds."

"When a disease is classified as a neglected tropical disease (NTD), then it means that access to donor funding is limited, and it is also liable to budget cuts. In the last six or seven years, the NTD budget for tsetse fly control has been suffering from budget cuts every year," he said.

Dr Cheruiyot attributed the reduction in funding partly to the fact that the disease is not fast acting, but causes losses in livestock productivity by gradually weakening and then killing the animals.

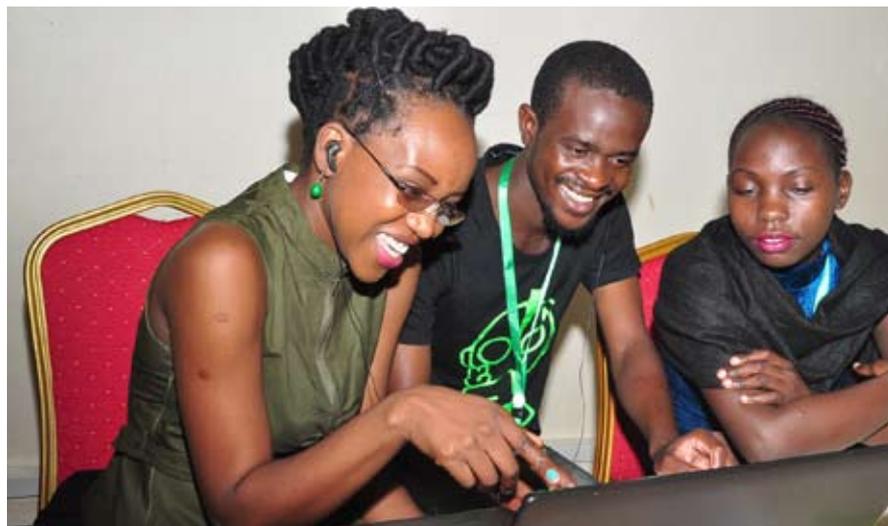
"Tsetse fly infestation and the diseases it causes to human beings and livestock is a silent disaster that cause economic disruption in the lives of many livestock farmers. It is the driver of poverty that creeps into families and interferes with livelihoods by taking away their ability and enthusiasm to rear livestock," said Dr Cheruiyot.

He estimated the national funding gap in the tsetse fly and control program to be sh12b (\$12m).

"We require an additional sh12 billion (\$12m) to achieve the tsetse fly and trypanosomiasis control targets as a country," he told SAYANSI.

Kenya Science Journalists Congress 2019

Scientists hail MESHHA for training on media skills



African science journalists working on a joint project: Scientists have thanked MESHHA for training them on how to work with the media.

By Suzgo Chitete | chitetesuzgo@gmail.com

Scientists have hailed the Media for Environment, Science, Health and Agriculture (MESHHA) for providing them with an opportunity to learn basics in journalism saying the training is a milestone in improving the interaction between experts and journalists.

This orientation on journalism was part of sessions for a three-day Kenya Science Journalists Congress organized by MESHHA at Sai Rock Hotel in Mombasa, Kenya.

The facilitator, Christine Nguku from the Media Council of Kenya, shared basic journalism skills which included news values and writing techniques. The facilitator also provided a chance to other journalists to share their experiences in covering science, more importantly how they deal with scientists.

Among others journalists complained about scientists' tendency to use technical terms saying this was confusing not only to reporters but the public as well. Others blamed the experts for being mean with information.

On their part, scientists said they were skeptical of journalists because they seemed more focused on negative stories and twisted facts deliberately for their own reasons.

While the two - scientists and journalists seemed to disagree, later on in the session a good number of scientists confessed that the orientation was worthwhile adding that they now have a better understanding of journalism.

"This training has been very helpful. Some of us are usually skeptical of journalists. This interaction helps build trust. Once there is trust, it is easy to share information because you know that you are dealing with the right person. We thank MESHHA for this opportunity," said Dr. Nina Wambiji an official from Kenya Marine and Fisheries Research Institute.

"I got to learn a lot at the congress. Particularly the need to communicate the knowledge we generate in a simplified form that the audience can receive and probably act where necessary," said Dr Dorah Chao Kilalo of the University of Nairobi.

Beyond sharing notes, the scientists had a practical session to write a news story of their choice ranging from an opinion piece, commentary, feature story and hard news story.

Paul Ngaruiya from the Pests Control Board found the practical exercise more appealing and eye-opening. He said: "We need to share information with the public and our understanding of journalism helps to know how we can deal with journalists".

This year's congress pulled on one table journalists from Kenya, Uganda, Tanzania, Rwanda, Ethiopia and Malawi. MESHHA (www.meshascience.org) has since announced that next year's indaba will take place in Kisumu from November 16 to 19, 2020. Last year's annual science journalists meeting took place in Nairobi – meaning in three years' time the congress will have taken place in all the three cities in Kenya.

Additional reporting by Aghan Daniel aghandan09@gmail.com