

Turning to green grams to fight harsh climate



In this issue

icipe's technology effective in controlling fall armyworm

HIV infection in Burundi remains high

Rising temperatures spelling doom for Lake Victoria

Letting premature babies thrive



MAZINGIRA LTD

Water, Sanitation and Environmental Consultants

SPECIALISTS IN:

- Environment impact assessment
- Environment audits
- Health and safety audits
- Energy audits
- Solid waste and wastewater management

ENVIRONMENTAL MEASUREMENT

- Air quality measurement
- Noise level measurement
- Water quality measurement
- Electromagnetic fields (EMF) measurement

P.O. Box 1674 - 00100, Nairobi, KENYA, Tel: +254 20 5100359

We are located at Visions Plaza along Mombasa Road on 1st Floor Room 27.

info@mazingiralimited.co.ke, www.mazingiralimited.co.ke

Who we are

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

Aghan Daniel

Reviewers

Wandera Ojanji, Maureen Odiwuor,
Rhoda Odhiambo and Diana Warira

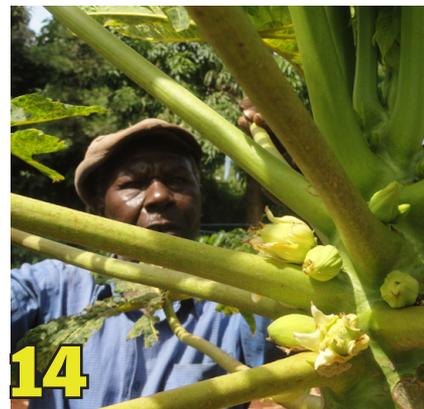
Cover Photo

Credit: Farm Africa/Mwangi Kirubi



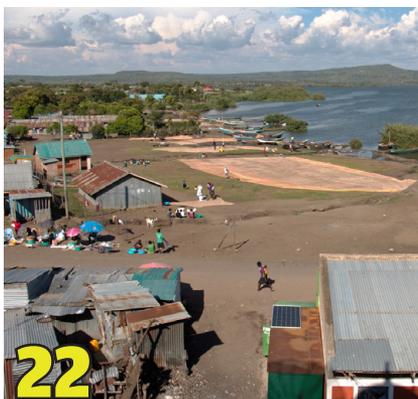
12

Food security:
World Food Prize winner to support young scientist



14

Agriculture:
Scientists: Biotech likely to solve Africa's food insecurity



22

Climate change:
Rising temperatures spelling doom for Lake Victoria



26

Animal Health:
New body launched to oversee veterinary medicine in Kenya



27

Health:
Salt not major cause of hypertension



29

Science Journalism:
Time to keep the HIV story alive

Setting the pace: Time to embrace solutions based journalism

Seasoned and rookie journalists agree that their trade thrives on the mantra of if it bleeds, it leads.

At MESHSA we have always wanted to tell a balanced African science story. It therefore came out as naturally as it could possibly be that we are on the right track and on the right side of history during a recent discussion based on the question - what should we journalists do when our audiences grow tired of the doom and gloom of traditional reporting?

On this occasion, the participants recognised that we are members of a profession that loves the bizarre and the incredible which many a scholar have time and again referred to as man bite dog story. But then, a section of the participants noted that a little known journalistic form of telling stories domiciled in the United States, is quickly spreading to the rest of the world albeit subtly. This is solutions-based journalism, a rigorous and compelling reporting about responses to social problems.

It focuses on reporting solutions to known problems. In a way, it takes what longform pieces already do one step further - after identifying the problem and their causes, it goes on to look for the solutions that exist around the globe, according to a posting by the US based International Journalists Network.

But the Network, which trains media practitioners on this new approach besides archiving solutions stories from across the globe is quick to add that solutions stories should not be seen as 'positive' reportage or public relations for the featured organizations, governments or individuals.

A good solutions story observes several tenets including exploring a social problem, and responses to that problem.

The journalist must show that the response is actually working. However, there are those responses which are ground breaking which warrant being highlighted in the early stages.

Those keen to embrace this kind of journalism must bear in mind that most solutions are not sure-fire or magic bullets, and thus the story must show limitations to the response. A good piece of solutions journalism, according to the Network, focuses on the work done to solve the problem and explains how it was made possible. It provides real, data-based evidence of the work's results, and produces tangible insights so the reader understands how the solution can be replicated. And while people and their good intentions are important, they aren't the main hero of the story.

Finally, it's important that such a piece does not make overly high claims, but names the limitations of the solutions it's reporting, as the goal of such a story is not to simply inspire its readers.

But most of these stories never get to see the light of day denying other communities, which could replicate the solutions, a chance to learn. The stories, if done well will inspire people to think out of the box, and innovate to solve their problems.

Around the world, many publications have adopted solutions reportage like the Mail & Guardian, SA, and BBC's People Fixing the World podcast series.

For journalists in Africa, it is time to embrace this type of journalism because it has the potential to define not only the future of our trade but that of development in our continent too.

Kiundu Waweru is a health media trainer at Internews Maternal Health Program based in Nairobi, Kenya



Products

✓ household furniture

✓ Kitchen and Wardrobe fittings

✓ Office Furniture

✓ Doors and other wooden fittings and many more..



Quality hardwood hand crafted furniture peices ranging from Dining table, Consoles, Beds, TV stands and many more

Free with any order above Kes 160k

Special Offer!!



CALL US

📍 Kerarapon Drive, Drive 9

☎ +254 736 636524

✉ info@mialefurniture.com

www.mialefurniture.com



Farming matters: icipe has developed a technology effective in controlling the fall armyworm

Push-Pull technology halts fall armyworm rampage

By Special Correspondent

The fall armyworm is a moth that causes devastating damage to almost 100 plant species, including sorghum, rice, wheat and sugarcane, thereby threatening food and nutritional security, trade, household incomes and overall economies. The fall armyworm spreads very fast – in its adult stage it can move over 100 kilometres in a single night. The pest is also capable of laying hundreds of eggs, with the emerging larvae burrowing into crops, destroying and eventually killing the plants.

Until 2016, the fall armyworm was constrained to its native region of origin, the Western Hemisphere (from the United States of America to Argentina). However, in January 2016, the pest was reported

in Nigeria and it has since spread at an alarming rate across Africa; its presence has been confirmed in more than 28 African countries, while a further nine either strongly suspect, or are awaiting confirmation of invasion.

Already, in less than 2 years, the impact of the fall armyworm is being felt across Africa. Estimates from 12 African countries indicate that the pest is causing annual maize losses of between 8 and 21 million tonnes, leading to monetary losses of up to US\$ 6.1 billion, while affecting over 300 million people in Africa, who, directly or indirectly, depend on the crop for food and well-being. The pest's impact is likely to be even higher when its damage on other crops is quantified.

This new menace piles onto a range of existing challenges afflicting Africa. For instance, many regions of the continent are already experiencing the impacts of climate-change, including drier and hotter weather, stressed out soils, various invasive pests such as *Tuta absoluta*, and increased outbreaks of existing pests such as stemborers and the parasitic *Striga* weed.

“Efforts to control the fall armyworm through conventional methods, such as use of insecticides is complicated by the fact that the adult stage of the pest is most active at night. The pest also has a diverse range of alternative host plants that enables its populations to persist and spread. Moreover, fall armyworm has been shown to develop resistance to some



Armyworm infestation: Farmers spray a field infested with armyworms. icipe Push and Pull technology is effective against the moths

armyworm infestation while neighbouring monocrop plots were being ravaged by the pest. Therefore, we evaluated the climate-adapted version of the technology as a potential management tool for fall armyworm in Kenya, Uganda and Tanzania,” explains Prof. Zeyaur Khan, Push-Pull leader at icipe.

The study revealed fall armyworm infestation to be more than 80% lower in plots where the climate-adapted Push-Pull is being used, with associated increases in grain yields, in comparison to monocrop plots. The findings were supported by farmers’ perceptions through their own observations regarding significantly reduced presence of fall armyworm in Push-Pull plots.

“The ability to manage such a devastating pest clearly demonstrates Push-Pull’s utility as a platform technology in addressing the multitude of challenges that affect cereal-livestock farming systems in Africa. icipe intends to continue disseminating the technology as widely as possible across Africa, while advancing studies to understand the scientific basis of its effectiveness against the fall army worm,” says icipe Director General, Dr Segenet Kelemu.

insecticides, while the performance of such chemicals is also hindered by limited knowledge and purchasing power of farmers, resulting into use of low quality, and often harmful products,” notes icipe scientist, Dr Charles Midega.

A recent study has established that a climate-adapted version of Push-Pull, an already widely used technology developed by icipe and partners is effective in controlling the fall armyworm, providing a suitable, accessible, environmentally friendly and cost-effective strategy for management of the pest.

Push-Pull, an innovative companion cropping technology developed over the past 20 years by icipe in close collaboration with national partners in eastern Africa and Rothamsted Research, United Kingdom, is modelled along the African smallholder farming system of multiple cropping. Originally developed for the control of stemborers, the key pests of cereal crops across most of Africa, and the parasitic *Striga* weeds, Push-Pull involves intercropping cereal crops with insect repellent legumes in the *Desmodium* genus, and planting an attractive forage plant such as Napier grass as a border around this intercrop. The intercrop emits a blend of compounds that repel (‘push’) away stemborer moths, while the border plants emit semiochemicals that are attractive (‘pull’) to the pests. Push-Pull has recently

been adapted to drier areas through the incorporation of drought tolerant companion plants: Greenleaf *Desmodium* as an intercrop and *Brachiaria cv Mulato* as a border crop. In addition, Push-Pull also controls maize ear rots and mycotoxins, while improving soil health and providing high quality fodder, since the companion crops are superior forages. Therefore, the technology facilitates crop-livestock integration thus expanding farmers’ income streams.

“Over the past several months we received information from Push-Pull farmers that their fields were free of fall



This article first appeared on www.icipe.org.



The base for a water catchment tank. Faced with severe droughts, many farmers in the Caribbean have found it necessary to set up catchment areas to harvest water whenever it rains. Credit: CDB

New tool helps define what climate smart agriculture is all about

By Desmond Brown

A Trinidadian scientist has developed a mechanism for determining the degree of climate-smart agriculture (CSA) compliance with respect to projects, processes and products.

This comes as global attention is drawn to climate-smart agriculture as one of the approaches to mitigate or adapt to climate change.

Steve Maximay says his Climate-Smart Agriculture Compliant (C-SAC) tool provides a certification and auditing scheme that can be used to compare projects, processes and products to justify the applicability and quantum of climate change funding.

"C-SAC provides a step-by-step, checklist style guide that a trained person can use to determine how closely the project or process under review satisfies the five areas of compliance," Maximay told IPS.

"This method literally forces the examiner to consider key aspects or goals of climate-smart agriculture. These aspects (categories) are resource conservation; energy use; safety; biodiversity support; and greenhouse gas reduction."

He said each category is further subdivided, so resource conservation includes the use of land, water, nutrients and labour. Energy use includes its use in power, lighting, input manufacture and transportation. Safety revolves around production operations, harvesting, storage and utilization.

Biodiversity support examines land clearing, off-site agrochemical impact, limited introduction of invasive species, and ecosystem services impact. Greenhouse gas reduction involves enteric fermentation (gas produced in the stomach of cattle and other animals that chew their cud), soil management, fossil fuel reduction and manure/waste management.

"These subdivisions (four each in the five categories) are the basis of the 20 questions that comprise the C-SAC tool," Maximay explained.

"The manual provides a means of scoring each aspect on a five-point scale. If the cumulative score for the project is less than 40 it is deemed non-compliant and not a truly climate smart agriculture activity. C-SAC further grades in terms of degree of compliance wherein a score of 40-49 points is level 1, (50-59) level 2, (60 -69) level 3, (70-79) level 4, and (80-100) being the highest degree of compliance at level 5.

"It is structured with due cognizance of concerns about how the global climate change funds will be disbursed," he added.

The United Nations (UN) Food and Agriculture Organisation (FAO) describes climate-smart agriculture as agriculture that sustainably increases productivity, enhances resilience (adaptation),

reduces or removes greenhouse gases (mitigation) where possible, and enhances achievement of national food security and development goals.

The climate-smart agriculture concept reflects an ambition to improve the integration of agriculture development and climate responsiveness. It aims to achieve food security and broader development goals under a changing climate and increasing food demand.

CSA initiatives sustainably increase productivity, enhance resilience, and reduce/remove greenhouse gases, and require planning to address tradeoffs and synergies between these three pillars: productivity, adaptation, and mitigation.

While the concept is still evolving, many of the practices that make up CSA already exist worldwide and are used by farmers to cope with various production risks.

Mainstreaming CSA requires critical stocktaking of ongoing and promising practices for the future, and of institutional and financial enablers for CSA adoption.

Maximay said C-SAC is meant to be a prioritizing tool with a holistic interpretation of the perceived benefits of climate-smart agriculture.

"It can be used as a preliminary filter to sort through the number of 'green-washing' projects that may get funded under the rubric of climate-smart agriculture...all in a bid to access the millions of dollars that should go to help small and genuinely progressive farmers," he said.

"C-SAC will provide bankers and project managers with an easy to use tool to ensure funded projects really comply with a broad interpretation of climate



Steve Maximay says his Climate-Smart Agriculture Compliant tool can be used to compare projects, processes and products to justify the applicability and quantum of climate change funding.

smart agriculture."

Maximay said C-SAC incorporates major categories of compliance and provides a replicable analysis matrix using scalar approaches to convert qualitative assessments into a numeric compliance scale.

"The rapid qualitative analysis at the core of C-SAC depends on interrelated science-based guidelines honed from peer reviewed, field-tested practices and operations," Maximay explained.

"Climate-smart agriculture often amalgamates activities geared towards adaptation and mitigation. The proliferation of projects claiming to fit the climate smart agriculture designation has highlighted the need for an auditing and certification scheme. One adaptation or mitigation feature may not be enough to qualify an agricultural operation as being climate-smart. Consequently, a more holistic perspective can lead to a determination of the level of compliance with respect to climate-smart agriculture.

"C-SAC provides that holistic perspective based on a structured qualitative assessment of key components," Maximay added.

The scientist notes that in the midst of increased opportunities for the use of global climate funds, it behooves policymakers and financiers to ensure projects are not crafted in a unidimensional manner.

He added that small farmers in Small Island Developing States are particularly vulnerable and their needs must be met by projects that are holistic in design and implementation.

Over the years, agriculture organisations in the Caribbean have been providing funding to set up climate-smart farms as demonstrations to show

farmers examples of ecological practices that they can use to combat many of the conditions that arise due to the heavy rainfall and drought conditions experienced in the region.

Maximay was among the first agricultural scientists addressing climate change concerns during the Caribbean Planning for Adaptation to Climate Change (CPACC).

A plant pathologist by training, he has been a secondary school teacher, development banker, researcher, World Bank-certified training manager, university lecturer, Caribbean Development Bank consultant and entrepreneur.

Maximay managed the first Business Development Office in a Science Faculty within the University of the West Indies. With more than thirty years' experience in the agricultural, education, health, financial and environmental sectors, he has also worked on development projects for major regional and international agencies.



A biogas facility in Uganda: Biogas has a credible opportunity to reduce dependence on firewood and expensive dirty fossil fuels

Farmers reap big by investing in biogas production

By **Leopold Obi** | leopoldk40@yahoo.com

For Dionisia Ireri, installing a biogas plant at her homestead in Kathongororo in Runyenjes- Kirinyanga County, can only be likened to shooting several birds with a single rock.

With the biogas plant in place, the coffee farmer's household energy needs and farm fertiliser needs are well taken care of all year round. Besides, the annual yields of her coffee beans have as well increased two fold thanks to bio slurry—a bi-product of biogas production—which she began using about a year ago as fertiliser on the coffee farm.

"Before I began using bio-slurry in my farm about 12 months ago, I used to harvest six kilos of coffee beans from per

tree but now I harvest 12 kilos. Moreover I stopped spending money buying fertiliser," she explained.

After years of unpredictable climate which dipped coffee yields, farmers in the areas set to build their resilience by diversifying into other aspects of farming such as mixed farming which include integrating crop farming with dairy or poultry farming.

But Dionisia chose dairy farming because of its multiple benefits.

"I currently milk 35 litres a day which I sell to Kerimeri Dairy Cooperative at Sh40 per litre," the farmer said.

Dionisia rears two dairy cows under zero-grazing unit and their dung used in the digester to produce biogas energy and bio-slurry. Cow dung is just but one of the

many raw materials that individuals can use to produce biogas, other materials include kitchen wastes or plant wastes.

As most off-the-grid households in the country struggle to get power connections, domestic biogas has emerged as among the top few affordable solutions which provide a sustainable way for rural folks to get their homes lit. At the same time, it provides individual livestock farmers with a credible opportunity to reduce their dependence on firewood and expensive dirty fossil fuels by adopting a solution whose bi-product is also an essential inorganic fertiliser and pest repellent.

A biogas digester converts cow dung into biogas that can be used for cooking, lighting and water heating in bathrooms. And the bio-slurry that is produced by this

process is an excellent organic fertiliser is said to have, more nutrients compared to any form of manure researchers say.

Ordinarily, coffee farmers like Dionisia spend at least USD32 on a 50Kg of bag NPK fertiliser during planting and another Sh3, 200 for another 50 kg fertiliser of CAN fertilizer during top dressing.

"A bag of fertiliser is used on 100 trees so I needed four bags during planting and the same amount during top dressing which in total was very expensive because I have 400 trees," the farmer pointed out.

But with the slurry, they no longer need to spend a dime buying fertilizers.

After the gas is produced inside the bio digester it escapes into a container ready for use while the slurry is channelled into the farm.

The slurry is applied around the root of the crop.

"My digest produces 12 cubic metres of gas which I use for lighting and cooking in the kitchen," explained Dionisia, "However during flowering you I stop using the bio-slurry because it repels important pollinating insects such as bees,"

Peter Mwangi, another farmer who grows coffee on 0.5acre in Runyenjes noted that he's been using the slurry in controlling the stubborn whiteflies among other insecticides on his coffee farm for two years now.

"When this idea of using bio-slurry was introduced to us, I experimented it on just a few trees but realized that those trees were not affected by whiteflies, again the berries were bigger than those on the trees where I used fertilisers," observed Mwangi.

Mwangi who owns four dairy cows explained that he used to spend USD100 monthly buying firewood used for boiling water for milking the cows.

"I milk my cows three times a day and each time we had to boil water for milking," he said, "now I have



Biogas: Kenya will soon have a protocol to guide farmers on the quality of materials to be used

installed biogas which we use for lighting, cooking and in the bathroom as water heater."

To have such multiple uses of biogas one need to have enough biogas which forced him to install two bio-digesters which cost him at least USD2500.

Daniel Njoroge biogas coordinator at Kenya Biogas Program says biogas uptake in the country has been on the rise over the last few years and its installation cost has also since reduced by 50 per cent.

"As Kenya Biogas Program we are working with several stakeholders such as SNV and Hivos to educate farmers and promote biogas technology, we are also trying to create a viable market for biogas," he said.

At the start of 2009 there were only 2,000 biogas plants in the country, compared to 18,000 units which have been installed to date.

Dr Samwel Guto, agricultural engineer at the state department of agriculture, says that the ministry is currently laying emphasis on the use of bio-slurry on the farm.

Dr Guto who was speaking during the national bio-slurry conference recently held in Nairobi said they are planning to come up with standard to be observed by farmers who use the bio-slurry.

He also noted that for individuals to reap the full benefits of investing in bio-digester they should combine bio-slurry and electricity use.

"We are convincing farmers to adopt bio-slurry for farm use. It can be used as soil amendment and fertiliser for crop production. Or be used to increase population of plankton in fish farming when added to the pond" he said, adding it can also be used as animal feeds as an additive in livestock feed but not as a core feed.

World Food Prize winner to support young African scientists

By Leopold Obi | leopoldobby@gmail.com

Dr. Akinwumi Adesina, the president of the African Development Bank (AfDB), has been awarded the World Food Prize 2017 for the contributions he made towards increasing productivity in Nigeria's agricultural sector.

Considered the "Nobel Prize of agriculture," the World Food Prize which come with \$250,000 is an annual award administered by the Des Moines-based World Food Prize Foundation to individuals who have made a specific and exceptionally significant contribution to the production or distribution of food.

"There will be no rest for me until Africa feeds itself, and for that we need the youth," declared Dr Adesina in his acceptance speech during the World Food Prize event held in Des Moines

Dr Adesina who served as the minister for agriculture in Nigeria between 2010 and 2015 has a long list achievements under his belt while at the helm of the sector, introduction of the Electronic Wallet (E-Wallet) to Nigeria's food production and distribution chain being the most focal one.

The AfDB President committed part of the prize award -quarter of a million dollars- "to set up a fund fully dedicated to providing grants, fellowships and financing for the youth of Africa in agriculture as a business."

He also announced that his World Food Prize money will be used to establish a World Food Prize Global Youth Institute for Africa, an organization he said will support a new generation of agricultural scientists and innovators



African Development Bank Chief: Dr Akinwumi Adesina

across Africa. This organization will nurture and produce graduates known as Borlaug-Adesina Fellows, who will become the next generation of hunger fighters.

Through the E-Wallet, Dr. Adesina pioneered a new way for the Nigerian government to deliver subsidized farm inputs, such as fertilizer and seeds, to local

farmers through private agro-dealers. The farmers, in turn, get to redeem these subsidized inputs from the agro-dealers using e-vouchers, which they can access through their mobile phones.

He initiated a Growth and Enhancement Support Scheme (GES) and powered the scheme by orchestrating the successful registration of more than five million



A scientist at work: The 2017 World Food Prize Winner, Nigeria's Dr Akinwumi Adesina will support a new generation of agricultural scientists and innovators across Africa

Nigerian farmers, whose information and mobile phone numbers were added to the GES database. The database, coupled with the E-Wallet, now allows Nigerian farmers to receive directly everything from fertilizer to high-yield rice seeds and palm oil seedlings from the government.

In the past, such subsidized inputs would have bypassed the farmers and fallen into the hands of middlemen who would have sold the inputs on the open market or in neighbouring countries. According to the World Food Prize, through the E-wallet Dr. Adesina succeeded in breaking the "back of corrupt elements that had controlled the fertilizer distribution system for 40 years."

The platform also helped solve other previously intractable problems in the way of commercial large scale food production in Nigeria.

The country's paddy rice farmers, for instance, were able to receive high yield NERICA rice varieties, through the E-Wallet platform, which saw their output rise from five to six tons per hectare. Thousands of paddy farmers producing a consistent grade of rice soon created the opportunity for several agro-based companies to switch from rice importation to local rice production, and standardization of the country's rice output led to large private sector investments in rice milling.

The World Food Prize compares the spread of Dr Adesina's efforts in scale to the "Green Revolution" work of the Nobel Peace Prize winner Norman Borlaug. In the 1970s and 1980s, Borlaug introduced high-yield dwarf wheat to Latin America and Asia, spawning "Green Revolutions" on two continents.

As other African countries start to adopt E-Wallet platforms to get subsidized inputs - and even financial services - directly to their farmers, the World Food Prize claims Adesina's E-Wallet is "sparking a Borlaugian 'Take It to the Farmer' revolution across Africa."

Dr. Adesina wants to drive Africa's economic transformation by empowering the continent's youth population and making agriculture the hottest startup sector for young people. To achieve this goal, he wants to change the perception of agriculture in Africa from being a survival activity to a vehicle for wealth creation; from a hobby to a business.

"We must turn rural areas from zones of economic misery to zones of economic prosperity," Dr. Adesina said "This requires new agricultural innovations and transforming agriculture into a sector for creating wealth. We must make agriculture a really cool choice for young people."

Photo: Joyce Chimbi



Biodiversity is part of the solution to Africa's food insecurity challenges.

Scientists: Biotech could unlock the key on armyworms control

By Joyce Chimbi | j.chimbi@gmail.com

A growing number of African countries are increasingly becoming food insecure as delayed and insufficient rainfall as well as crop damaging pests such as the ongoing outbreak of the fall armyworm, cause the most severe maize crisis in the last decade.

Experts have warned that as weather patterns become even more erratic and important crops such as maize are unable to resist the fall armyworm infestation, there will not be enough food on the table.

Confirming that indeed a severe food crisis looms while at the same time calling for immediate and sufficient responses,

the Food and Agriculture Organisation of the United Nations (FAO) 2017 World Food Day theme is "Change the future of migration. Invest in food security and rural development."

Over 17 million people in Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda have reached emergency food insecurity levels, this is according to the UN agency.

"Maize is an important food crop in many African countries and the inability of local varieties to withstand the growing threats from the fall armyworm which can destroy an entire crop in a matter of weeks raises significant concerns," said Hilda Mukui, an agriculturalist and conservationist in Kenya.

"Due to its migratory nature, the pest can move across borders as is the case in Kenya where the fall armyworm migrated from Uganda and has so far been spotted in Kenya's nine counties in Western, Rift Valley and parts of the Coastal agricultural areas," she observes.

FAO continues to issue warnings over the fall armyworm expressing concerns that most countries are ill prepared to handle the threat.

David Phiri, FAO Sub-regional Coordinator for Southern Africa says that this is "a new threat in Southern Africa and we are very concerned with the emergence, intensity and spread of the pest. It is only a matter of time before most of the region will be affected."

The UN agency has confirmed that the pest has destroyed at least 17,000 hectares of maize fields in Malawi, Zambia, Namibia and Zimbabwe. Across Africa, an estimated 330,000 hectares have been destroyed.

"To understand the magnitude of this destruction, the average maize yield for small scale farmers in many African countries is between 1.2 and 1.5 tons per hectare," observes Dr George Keya, the national coordinator of the of the Arid and Semi-arid lands Agricultural Productivity Research Project .

FAO statistics show that Africa's largest producers of maize including Nigeria, Kenya, Tanzania, Uganda and South Africa are all grappling with the fall armyworm outbreak.

Uganda's Ministry of agriculture notes that the maize stalk borer or the African armyworm which is different from the fall armyworm cost farmers at least 25 million dollars annually in missed produce and is concerned that additional threats from the vicious Fall Armyworms will cripple maize production.

FAO and the government of Nigeria in September 2017 signed a Technical Cooperation Project (TCP) agreement as part of a concerted joint effort to manage the spread of the fall armyworm across the country.



A farmer toils in his farm. Experts warn that with unpredictable weather patterns important crops such as maize are unable to resist the fall armyworm infestation leading to food insecurity.

According to experts, sectors such as the poultry industry that relies heavily on maize to produce poultry feed have also been affected.

Within this context, scientists are now pushing African governments to embrace biotechnology to address the many threats that are currently facing the agricultural sector leading to the alarming food insecurity.

According to the African Agricultural Technology Foundation, a genetically modified variety of maize has shown significant resistance to the fall armyworm.

Based on results from the Bt (*Bacillus thuringiensis*) maize trials in Uganda, scientists are convinced that there is an immediate and sufficient solution to the fall armyworm.

Although chemical sprays can control the pest, scientists are adamant that the Bt maize is the most effective solution to the armyworm menace.

Experts say that the Bt maize has been genetically modified to produce Bt protein, an insecticide that kills certain pests.

Consequently, a growing list of African countries have approved field testing of genetically modified crops as a way to achieve food security using scientific innovations.

The Water Efficient Maize for Africa (WEMA) which is a public-private crop breeding initiative to assist farmers in managing the risk of drought and stem borers across Africa is currently undertaking Bt maize trials in Kenya, Uganda, Mozambique and recently concluded trials in South Africa to find a solution to the fall armyworm invasion.

The African Agricultural Technology Foundation confirms that in a scale of one to nine, based on the Bt maize trials in Uganda, the damage from the armyworm was three for the Bt genetically modified variety and six on the local checks or the popularly grown varieties.

Similarly, Bt maize trials in Mozambique have shown that on a scale of one to nine, the damage was on 1.5 on Bt maize and seven on popularly grown varieties.

"These results are very promising and it is important that African countries review their biosafety rules and regulations so that science can rescue farmers from the many threats facing the agricultural sector," Mukui explains.

In Africa, there are strict restrictions that bar scientists from exploring biotechnology solutions to boost crop yields.

According to Mukui, only four countries; South Africa, Sudan, Burkina Faso and Egypt have commercialized genetically modified crops, while 19 countries have established biosafety regulatory systems, four countries are developing regulatory systems, 21 countries are a work in progress, and 10 have no National Biosafety Frameworks.

Further saying that Nigeria, Uganda, Malawi and more recently Kenya were among countries that have approved GM crop trials after the Kenya Biosafety Authority granted approval for limited release of insect resistant Bt maize for trials.

As Africa's small scale farmers face uncertain times as extreme climate conditions, crop failure, an influx of pests and diseases threaten to cripple the agricultural sector, experts says that there is sufficient capacity, technology and science to build resilience and cushion farmers against such threats.

"But even as we push for biotechnology there is a need for regulations that guarantee the protection and safety of people and the environment," Mukui cautions.

Reversing the tide of progress: Burkina Faso's cotton story



By Joseph Opoku Gakpo | joseph.opoku@gmail.com

With three wives, 10 children and dozens of grandchildren to take care of, 63-year-old Seidu Konatey is a man who knows no rest. He spends at least 10 hours every day working in his 38 acres of cotton fields at Diguima and Palsama in the Pandema District of Burkina Faso.

With 2018 marking the 35th continuous year that he has been in this business, there is nothing about cotton farming he hasn't seen before. Cotton production is a lot of work as it takes about 24 weeks from planting to maturity. But nothing troubles Seidu more than the bollworm pests that attack and destroy cotton. The larvae of the bollworm have the capacity to cause up to 90 percent yield loss on cotton fields.

The pest feeds voraciously on the leaves of the plant, the plant itself and the pod that produces fibre. In West Africa, 25 to 35 percent of all cotton is lost to these pests.

Spraying pesticides has long been the main means of dealing with them. Half of all pesticides imported into Africa are used on cotton, a situation that poses an extraordinary threat to the health of humans and the environment.

Seidu says the problem with pest attack got out of hand in the mid-1990s. Farmers used at least one to two liters of pesticide per hectare to spray cotton fields, at least six times a season. In Burkina Faso, there are more than 600,000 hectares (nearly 1.5 million acres) of cotton fields. That amounts to about 7.2 million liters (nearly 1.9 million gallons) of potentially hazardous chemicals being sprayed in Burkina Faso every year—just for cotton.

"We were cropping conventionally until it got to the point when we were spraying up to six to 15 times a season," Seidu says. "A lot of the chemicals were inefficient in dealing with the pests. We got lots of fields being destroyed. Most farmers couldn't pay back their loans. We kept changing the chemicals but still the infestation was massive."

So stakeholders began looking for alternatives to deal with the pests. Government was desperate as the nation was spending up to US\$60 million annually on imported pesticides. In the early 2000s, the US agricultural firm Monsanto began tests to introduce genetically engineered cotton seeds with the potential to combat the bollworm pests in Burkina Faso.

Known as Bt cotton, the seeds contain genes from a bacteria that makes it naturally resistant to the bollworm pests. Bt (*Bacillus thuringiensis*) is a commonly occurring soil bacteria that produces protein that is toxic to certain pests, including the bollworm, but does not harm humans nor animals. It has been used to successfully combat pests in many GE crops across the globe, as well as in organic agriculture. After five years of trials, the Bt cultivar was made available to Burkina Faso farmers in 2008.

"From 15 times spraying a year, they promised us that with Bt cotton, we will spray only two times," Seidu recalls. "We were surprised. We tried it and realized that was true. We were all very happy,".

Bt cotton became hugely popular and by 2014, more than 70 percent of all cultivated cotton in Burkina Faso was genetically modified. It helped cut down on the use of pesticides by up to 70 percent, resulting in significant economic savings for farmers and less stress on the environment. With the capacity of the new variety to deal with the pests, cotton yield increased by about 22 percent on the average on Burkina Faso farms. The amount of additional profit gained by farmers averaged about 51 percent in savings on labor for spraying and investments in chemicals.

In the words of Ali Campaore, who is company secretary for the Interprofessional Cotton Association of Burkina (AICB), "under eight adoption cropping seasons, the record shows that genetically modified cotton has better control of pests and fostered a good pest control in cotton."

But there were problems with the new variety. Burkina Faso produces cotton that is of premium quality because of the long length of the fiber it produces. Cotton companies expressed concern that the length of fiber from the new variety was shorter and less trendy, and they were having difficulty getting premium prices for the product on the international market.



Before the cultivation of GM cotton, the majority of all cotton in Burkina Faso had an average fiber length of 28.58 mm. But after the introduction of GM cotton, much of the cotton had a fiber length of 26.98mm. Cotton companies say this difference of 1.6mm cost them 50 billion CFA (US\$89.5 million) over five cropping seasons. So they decided to take a break on the further planting of GM cotton until the issue could be resolved.

"The Interprofessional Cotton Association of Burkina (AICB) has decided to temporarily suspend the cultivation of GM cotton in Burkina Faso from the next cropping season. This decision will stand until a technical solution can be found by Monsanto and any other partner," a statement from the industry in 2015 said.

Varying reasons have been given for the problem. The GM cotton (Bollgard II) was produced by crossing already engineered Bt American varieties of cotton with local varieties in Burkina Faso. Whilst some believe the problem was the result of a low number of repeated crosses (three instead of seven), others say the problem arose because the Bt gene was moved into a local variety that doesn't give 100 percent assurance of long fiber length. But Monsanto officials have a different explanation.

"What happened is that Burkina had a biotech crop approved. They did not have an ongoing breeding program to

improve the variety," explains Jonathan Jenkinson, the Asia Africa Breeding Lead at Monsanto. "So what was happening was, the trait was there and it was providing all the necessary benefits, but the varieties that were being released were not new and improved ones every year." Asked why Monsanto did not insist on the annual improvement programme for the GM cotton, Jenkinson replies: "We made the trait available to the Burkinabe research institution. The local owner of the germplasm should have been undertaking an annual improvement program."

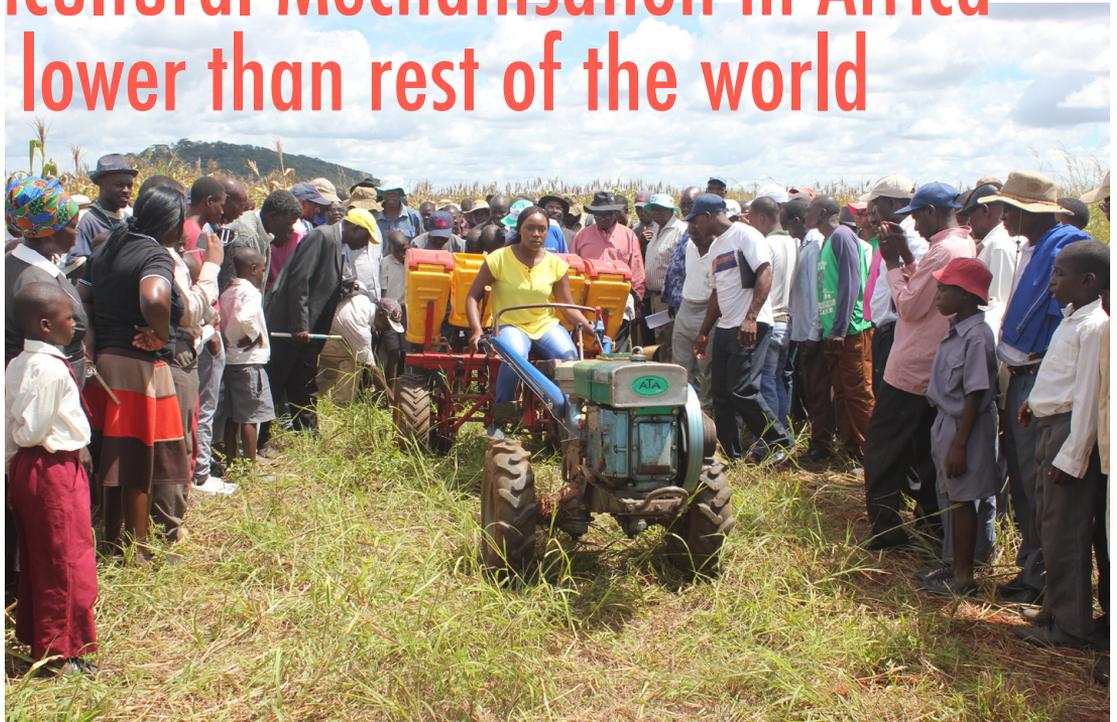
Dr. Robert Fraley, vice president and chief technology officer at Monsanto, sheds more light on the issue. "The biotech traits work well but the cotton has to be continually bred for quality and yield and all the agronomic properties. It needs an ongoing commitment to both develop the technology, develop the breeding and provide the best system for farmers."

Monsanto and Burkina Faso researchers agree that the problem can be resolved scientifically. Dr. Edgar Traore, Burkina Faso coordinator for the Open Forum on Agricultural Biotechnology (OFAB), says: "More backcrossing can be done. Or the trait can be introduced into a local variety with an even longer fiber length to correct this." But those options were not fully explored and now the decision has been taken to withdraw the novel varieties.

To page 19

Agricultural Mechanisation in Africa lower than rest of the world

Mechanization: To increase adoption of farm machines in Africa, the Italian Trade Agency (ITA) is seeking ways of expanding agricultural mechanization in the continent to promote food security in the region



By **Kimani Chege** | ezekichege@gmail.com

Redemtor Mwimi is a small scale farmer along the banks of Tana River in Kitui County. Her farm is stashed at the far edge of Thaana Nzau Village which is the last village before crossing to Embu County in a rugged and dry part of Kenya. Armed with a petrol powered generator, several hoes and pipes, Mwimi weeds her irrigated field with flourishing maize and watermelon.

While she can only wish for a more convenient method of tilling her land, she is also aware of the high cost of mechanization as well as non-existent equipment for her work, a case that affects millions of other farmers in Africa. Despite the fact that she is a civil servant, working for the Kitui County government, affording tractors and other farm machinery is a dream.

In Africa, UN Food and Agriculture Organisation FAO estimate that over 60 percent of farm power is still provided by people's muscles, mostly from

women, the elderly and children only 25 percent of farm power is provided by drudge animals like donkeys and cows. In Contrast less than 20 percent of mechanization services are provided by engine power.

Agricultural mechanization in Kenya mirror those in Africa although Kenya is doing much better than other countries in Sub Sahara Africa with an exception of South Africa, Zambia, Zimbabwe and North African countries.

In order to increase adoption of agricultural machines in Africa, Italy, through the Italian Trade Agency (ITA) is pursuing expanding agricultural mechanization in Africa as a way of promoting food security in the region.

In a recent event held in the southern city of Bari, over 100 businesspeople mainly small and medium enterprises dealing in agriculture from over twenty countries in Africa had intensive one on one business meetings with their counterparts from Italy.

The international Exhibition of Machinery and Technologies for Agriculture known as Agrilevante is organized after every two years in Bari bringing together manufacturers of top agricultural equipment drawn from throughout the world.

These business-to-business (B2B) meetings are geared towards sealing business deals that will see various agricultural machines sold in their countries. The major countries represented included Kenya, South Africa, Uganda, Ethiopia, Tanzania, Tunisia, Algeria, Senegal and Zambia.

The agricultural mechanization equipment showcased in the three day event included those in farm preparation, planting, harvesting, irrigation, fruits and cereal cleaning as well as wine production.

One of the Kenyan businesspeople represented in Bari was Gurprith Bhurji, the proprietor of Feil group of Companies based in both Nairobi and Kisumu. Having spent a full day interacting with

businesses from Italy and Europe, she is confident that deals will be signed in the coming months.

Equally, Esther Nakibirango, a business manager of Musa Body Machinery based in Kampala, Uganda had several B2Bs meetings with several investors showing potential.

Thomas Kukovec, the business development manager for Africa for an Austria based company Technik-Plus noted that his company was in the process of introducing tractors that are designed for the African terrain and was already in consultation with governments in Kenya, Uganda and Ethiopia.

Having evolved in close contact with the highly varied agricultural practices in the different regions of the country, the Italian agricultural mechanization industry has designed and fine-tuned technological solutions for all types of processes and for all climatic and environmental conditions.

This background has allowed many companies making up the productive fabric of the sector to manufacture a vast range of machinery and equipment able to meet technological demands from the Italian regions and above all from foreign markets.

In another side event several discussions were held on various opportunities available for investing in Africa. The event was organized by

the federal construction and machinery organization known as Feder Unacoma and brought representatives from Food and Agricultural Organisation (FAO), Italian agencies including the regional government of Puglia, as well as representatives of the governments of Sudan and Zambia.

"The machinery inventories are generally very scarce with outstanding exceptions such as Kenya and Zambia indices of 251 and 209 tractors for 100,000 hectares, figures which drop drastically for Nigeria and Uganda and even lower levels for Ghana and Ethiopia with 40 tractors per 100,000 hectares," noted Joseph Kienzle from UN FAO.

From page 17

Reversing the tide of progress: Burkina Faso's cotton story

Farmers like Seidu are not happy, saying, they would have made a different choice if they had the power. "Farmers liked the GMO but did not have a choice than to give it up because the company (SOFITEX) gives you seeds, chemicals and fertilizers as loans. So, if they decide to withdraw it, the farmers don't have a choice," he says. The Burkina Faso government has majority shares in SOFITEX, the nation's main cotton company, which controls everything in the sector from production to processing to marketing.

Seidu is also worried about the return of the days of increased pesticide use. "Last year was even better. But this year, the situation will be terrible. I have invested 100,000 CFA (US\$200) to buy extra chemicals. I have sprayed 10 times but no yield. Meanwhile, I need to pay back 2 million CFA (US\$4,000) as loans. I will struggle to pay back," he laments.

He is also worried for his children. "This year, if I am unable to buy bicycle for the children because I have lost money, they will all go into illegal mining activities to

get it. If the authorities have our interest at heart, they should bring back GM cotton," he adds.

Soro Mahmoud, a father of seven is one of those farmers who is convinced they have been given a raw deal by the cotton trading company. He has a six-hectare cotton farm at Tugankura in the Dandee District of Burkina Faso. From this field, he would usually get 12 tonnes of cotton. But this year he is expecting only 3 tonnes because of the high pest pressure. He is also worried for his health now that they spray their fields more frequently.

"The conventional, you spray six times. And then by the time you finish, you have a lot of problems with your chest," he laments. "The pesticides are poisonous. I have been experiencing intoxication. After spraying, I have skin irritation, then high fever, then cold and breathing problems."

At Kiere, in the Hounde District, Bazoume Edith Bienaure, a cotton farmer and mother of two, echoes the concerns about health and safety. They usually grow food crops, including corn, sorghum and millet, close to the cotton fields. She says the foods also get contaminated

when the fields are sprayed with pesticides. "Once we use the pesticide on the cotton fields each week till we harvest, the pesticides contaminate the food on the field. When we eat the food, it causes stomach ache, headache, diarrhea, and other diseases," she explains.

At a time when other countries are making a lot of progress with the cultivation of Bt cotton, Burkina Faso appears to be on a reverse gear. In South Africa today, almost 100 percent of the cotton produced is Bt, while in Australia, the figure is 97 percent. In the USA, it's 80 percent, and 42 percent in Brazil.

But Burkina Faso now grows zero Bt cotton, and the farmers are not happy. The days of reduced pesticide use on Burkina Faso's cotton farms are gone; the higher income for farmers is no more; and the clean, healthy environment in and around cotton fields has become polluted, threatening the lives of many.

Though the shift may boost cotton company profits, it represents a clear reversal of the tide of progress for those who grow and harvest the crop.



Farmers from Kitui County in Kenya captured in their green grams farms. Between Nov 2013 and Nov 2016, FARM AFRICA, an international NGO, reached out to 7000 households in the region to boost green gram farming. In the last year, Kenya Red Cross and the county government stepped in to provide 200,000 farmers to access green gram seeds

Farmers in Eastern Kenya to earn USD40m from exports of green grams

By Kitavi Mutua | kitavimutua@gmail.com

The locals here call it ndegu. Globally it is simply green grams. This crop, especially in Kenya, has had its own share of setbacks.

For a very long time, farmers have been complaining of the rapid reduction in green grams yields. But now, farmers in Eastern Kenya's Kitui County, will soon be smiling all the way to the bank, due to a timely intervention by the Kenya Red Cross Society.

Most parts of Kitui County are favorable for growing green grams which thrive best at an altitude of 0 -1600m above sea level well adapted to sandy loam and clay soils at pH range of 5.5 -7.5. They are drought tolerant with rain fall requirement range between 350 - 700mm per annum. Heavy rain fall results to increased vegetative growth with reduced pod setting and development.

Indigenous green grams have small seeds with the plants maturing at different times. Most of the time they mature late. Consumers complain that such varieties have a lot of stony seeds, which makes a green gram meal difficult to eat.

In an effort to make farming of ndegu more profitable, the Kenya Red Cross Society (KRCS) has embarked on an ambitious intervention that will see the county export all its produce to international markets. All this will be realized through a partnership with the county government that is expected to fetch a whopping Sh4 billion (USD40m) for local farmers a season.

The strategy of this intervention is seen as a major boost to plans by the country government to increase agricultural productivity through promotion of uptake of planting green grams, a drought tolerant crop.

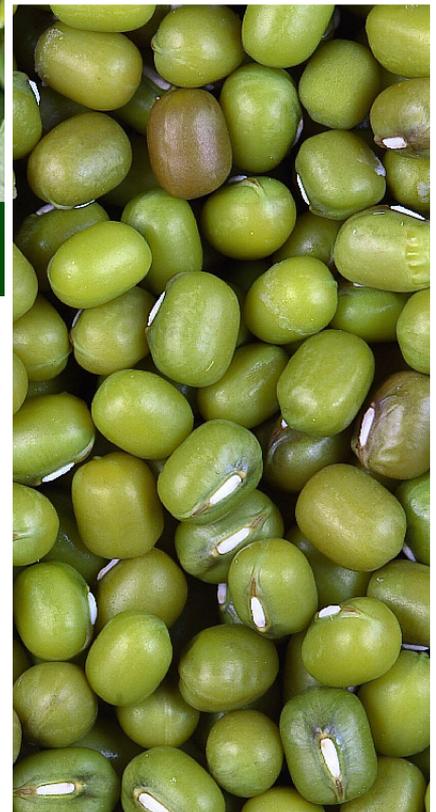
Last month, the humanitarian agency donated the first consignment of 200 tons of certified green gram seeds which appropriate for Kitui County, an area with erratic rainfall and poor market access worth Sh50 million (USD5m) for distribution to 200,000 households with the county.

Speaking at Mutomo market in Kitui South Constituency during a ceremony to distribute the seeds, Secretary General Dr Abass Gulet said the agency had set aside Sh500 million (USD5m) to buy the produce from local farmers to shield them from exploitation by middle men.

Dr Gulet who was accompanied by Kitui Governor, Charity Ngilu said the demand for Kenyan green grams in Asian countries including India, China, Japan, Saudi Arabia, and Pakistan among others was inexhaustible and that farmers should strive to produce more of the crop.



A photo showing fresh green gram leaves while on the right are green gram seeds: Kitui Governor, Charity Ngilu says the county has the best soils for growing the crop



“We’ll walk with Kitui people in this journey of actualizing the Ndegũ revolution and we are willing to give more financial support in providing linkages with better paying international markets,” said Dr Gulet who believes the initiative is real and achievable because the county is endowed with plenty of arable land with very good soils and terrain.

In the partnership, the Kenya Red Cross and the county government have pooled 400 tons of seeds worth Sh108 million (USD108,000) for distribution to farmers in the county.

Mrs Ngilu said the targeted households will each get 2kg of free seeds as part of the startup investment. This will be an addition to what the farmers will buy depending on their farm sizes. “If each kilo of seeds yields a bare minimum of 100 kilo produce, this will give our county 40,000 tons of green grams,” Mrs Ngilu said adding that if the harvest was sold at a conservative price of Sh100 (USD10) per kilo it will earn the county an estimated Sh4 billion (USD40m) in one season.

The Governor urged the county assembly to enact strict legislation to protect farmers from brokers who exploit them with poor prices saying

her administration had secured good overseas market for the anticipated harvest.

Mrs Ngilu said her government mooted the Ndegũ revolution because the county has the best soils for growing the crop which does not require a lot of rainfall. She believes the initiative will eradicate perennial hunger in the county as well as improve livelihoods of residents and reduce poverty. “Never before in the history of our county have we seen so many Red Cross trucks, not bringing relief food but seeds for planting. Today, we declare the days of government relief food over,” she said.

The Governor urged other partners and donors to support the revolution by giving farmers more seeds, farm equipment, technologies on water harvesting and training of farmers on post harvest management.

She said whereas the seeds would have cost a farmer Sh500 (USD5), the county government will subsidize the cost by paying Sh250 (USD2.5) for each farmer while KRCS will top up the balance of the other Sh250 (USD2.5).

Besides the seed support, the county government will assist farmers to access agricultural extension services and technical advice from agricultural experts.

The partnership will further see KRC rehabilitate 20 boreholes, water pipeline and water points as part of the emergency interventions to enable communities in Kitui to access water as they wait for recharge of surface water sources in the short rains.

Green grams are said to have health benefits which are they fight breast cancer, weight control, diabetic friendly, protein source, controls blood pressure and they are also a source of protein.

In Kenya, seeds can be obtained from Kenya Seed Company, Dry Land Seed Ltd, Kenya Agricultural Research and Livestock Organization (KALRO) Katumani and KALRO Kitale.



A beach along Lake Victoria: Serious consequences are expected with increase in levels of lake waters

Rising temperatures spelling doom for Lake Victoria

By Maureen Odiwuor | mauryndi@gmail.com

A lot of efforts are being put towards ensuring that global temperature rise is kept below two degrees Celsius above pre-industrial levels, and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.

But two years after the Paris Agreement was reached, it is ironical that gap between the reductions needed and the national pledges made in Paris are disturbingly high. Before carbon emissions between 2014 and 2016 were somewhat flat and this sent false hopes to the world.

In fact, a United Nations (UN) Environment Synthesis report on the Emission Gap 2017 states that the years 2013 to 2017 are likely to be the hottest five-year period on record.

There are predictions that 2017 might be among three warmest years on record, yet there were no El Nino weather events, and that emission levels are also likely to increase, hence upsetting the towards global temperature reduction.

Before, El Nino was used to explain the rising temperatures, yet the new finding indicates that there is a rapid global warming of climate even without El Nino.

The World Meteorological Organisation (WMO) has revealed that the average global temperature from January to September 2017 was 1.1C above the pre-industrial era.

Before, 2016 and 2015 were recorded to have been the hottest years.

WMO secretary-general Petteri Taalas says the past three years have had hottest temperature records which are part of a long term warming trend.

“We have witnessed extraordinary weather, including temperatures topping 50C (122F) in Asia, record-breaking hurricanes in rapid succession in the Caribbean and Atlantic reaching as far as Ireland, devastating monsoon flooding affecting many millions of people and a relentless drought in East Africa,” he says.

In East Africa, for countries depending on Lake Victoria, the increased warming could be a message of looming doom if not addressed.

Lake Victoria Basin Commission (LVBC) Executive Secretary Dr. Ali Said-Matano says the lake basin is one of the most vulnerable resources due to climate change.

This is because the lake is all about water balance from the inflow and outflow, whereby the inflow from rivers comprises between 22-24 per cent of the waters.

“Eighty per cent of the lake waters are formed through precipitation, hence unprecedented rain patterns as a result of climate change are expected to affect water levels,” Matano says.

He adds, “With climate change we expect big variations due to extreme floods or drought. In 1986 there was severe drought and the water levels went down to about three meters”.

Matano says increase in levels of lake waters are expected with the current climatic conditions, which can lead to serious water rise.

“Last year, the lake began to rise and everyone was worried, yet that was a negligible rise. Lake flooding can subdue a whole city since it is a shallow basin with a depth of between 40-80 meters. We should expect immense backlash of water to the rivers. An increase of about five meters will lead to a significant rise of the lake, and the effects will be felt as far as Cairo in Egypt,” he said.

Increase in rainfalls or drought is expected to affect people’s health with expected increase in diseases. This will also affect food security, transport and communication system among others.

"Long term solutions require a lot of commitments to reverse the increasing carbon dioxide levels. The first strategy should be to create carbon sinks by planting more trees to absorb them. Another one is to practice climate smart agriculture," he suggests.

He adds, "We should move from talking to actions. The financing for climate change is there but there are too many conditions given".

His concerns come in two years after a study done by the North Carolina State University's Department of Marine, Earth and Atmosphere Sciences in the US revealed that water levels in Lake Victoria will rise in the next 10-15 years due to changes in weather patterns as a result of global warming.

The study by North Carolina State University's Professor and Director of Climate Fredrick Semazzi revealed that East Africa is on the verge of facing a climate shift, since there is a likelihood of the lake replenishing its waters at an almost unprecedented rate, which will result in its rise. Semazzi believes that the unexpected resurgence will lead to destruction of property.

He too states that the waters will also have important implications for economic development especially in climate sensitive sectors including power generation, road network general construction and businesses along the Lake.

"It is vital that we are able to quantify exactly how climate projections will evolve in the coming decades. Currently many countries are using the global climate model which is important for making analyses in the global sphere. The interaction between the lake and the general climate is extremely important, hence we need to build technical capabilities of climate models able to capture the regional factors and how they interact with global phenomenal." He says.

WMO's State of Greenhouse Gases in the Atmosphere Based on Global Observations through 2016 indicates that the rate of increase of atmospheric carbon



Fisherfolk: Increase in rainfalls will affect people's health, food security, transport and communication system according to a new report

dioxide (CO₂) over the past 70 years is nearly 100 times larger than at the end of the last ice age.

The WMO Global Atmosphere Watch (GAW) Programme tracks the changing levels of Green House Gases (GHGs) and serves as an early warning system by detecting changes in these key atmospheric drivers of climate change.

"Growing population intensified agricultural practices, increases in land use and deforestation, industrialization and associated energy use from fossil fuel sources have all contributed to increases in GHG atmospheric abundances since the industrial era, beginning in 1750. Emissions of carbon dioxide from human activities were again at record levels in 2016," the report indicates.

The steady increase in GHG concentrations in the atmosphere over the observation period from 1970 until present is consistent with the observed increase of global average temperatures in the same period with a record measured in 2016, as reported in the WMO statement on the state of the global climate.

According to the Emissions Gap Report 2017, the carbon dioxide release gap needs to be closed by 2030. If the globe still maintains the goal of holding global

warming to well two degrees Celsius.

"Even if the current NDCs are fully implemented, the carbon budget for limiting global warming to below two degrees Celsius will be about 80 percent depleted by 2030. Given currently available carbon budget estimates, the available global carbon budget for 1.5 degrees Celsius will already be well depleted by 2030," the report reveals.

SIDE BAR

During the just ended COP23 that took place in November at Bonn, Germany, several issues emerged, some among them being;

The issue of climate financing, whereby Article 9.5 of the Paris Agreement asks the developed countries to report their flows of climate fiancé to developing countries. The issue was not discussed and will be sorted during intercessional meetings to be held before COP 24 expected to take place in December 2018, Poland.

Syria announced its intentions to sign the Paris Agreement, leaving the US as the only country in the world that is not positive on honouring the deal.

Developing countries raised concern that developed countries were not doing enough to meet their commitments made for the period up to 2020.

Government reigns on unscrupulous fruit traders and misleading advert

By Leopold Obi | leopoldobby@gmail.com

The Ministry of Health has drawn public attention to two nutritional safety matters that threaten to undermine consumers' rights and health.

The two issues include the re-emergence of use of the poisonous calcium carbide in hastening fruit ripening, and a biscuit advertisement which carries a misleading nutritional message.

Public health director Dr Kephas Ombacho cautioned members of the public to be on the lookout when buying fruits such as mangoes and bananas since some unscrupulous traders have embarked on using the poisonous chemical to fasten ripening of the fruits.

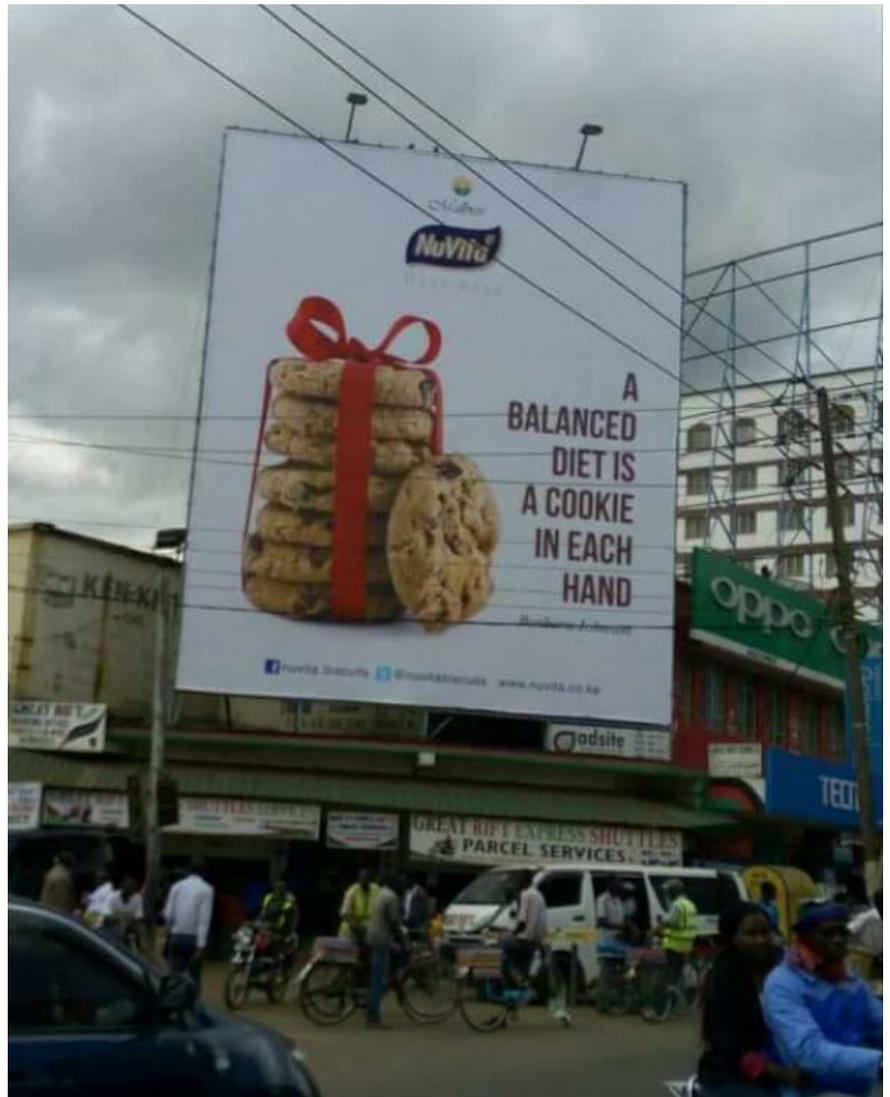
"Calcium carbide causes serious health hazard including cancer among other illnesses," Dr Ombacho noted in a press release, "it poses health risks to both the consumers of the fruits and workers who are in direct contact with it."

The expert also ordered the crooked traders to immediately stop the practice of artificial fruit ripening and instead follow proper practice of inspecting, examining and controlling the harvesting, ripening and marketing of fruits.

The ministry also instructed Nuvita Biscuits to pull down an advertisement for biscuits following a public outcry on the social media.

The billboard which has a picture of cookies wrapped in a ribbon with the message "A balanced diet is a cookie in each hand" elicited hot debates online forcing the government to reign in.

"You cannot put balanced diet and cookies in the same sentence ... Bring down this billboard," wrote one Facebook user.



Controversy: Members of the public have been told to be wary of misleading advertisements on nutrition

"Even if the cookies have all the nutrients, it still does not qualify to be a balanced diet because balanced diet is about choosing food from different food groups, combining them and eating them thrice a day to get all the necessary nutritional values," said Ms Gladys Mugambi, who heads the Kenya Nutrition and Dietetics Unit.

"This claim - a balanced diet is a cookie in each hand -has not been cleared for advertisement and, therefore, such advert must be brought down immediately and legal action taken against the owners," noted Dr Ombacho.

The African Seed Trade Association (AFSTA) Congress 2018

27th Feb - 1st March 2018

at Conrad Hotel,
Cairo, Egypt

Don't Miss!!

REGISTRATION INFORMATION

The registration fees for the congress 2018 are as follows :

	AFSTA Members	Non-AFSTA Members
For delegates:		
• Before 31 st Jan. 2018	US\$600	US\$875
• After 31 st Jan. 2018	US\$650	US\$950
For accompanying persons:		
• Before 31 st Jan. 2018	US\$200	US\$275
• After 31 st Jan. 2018	US\$250	US\$325
3. For Egyptian civil servants:		
• Registration fee	US\$ 325	

Onsite registration will attract an additional fee of 30% of the registration fee for all categories of delegates and accompanying persons as below:

AFSTA Members	US\$ 845
Accompanying person (member)	US\$ 325
Non Members	US\$ 1,235
Accompanying person (non-member)	US\$ 420

Register online by visiting the AFSTA website www.afsta.org for more details.



For more information contact:

AFSTA Secretariat
E-mail: afsta@afsta.org
Tel: +254 20 242 9017
Website: www.afsta.org



Kenya launches new body to regulate veterinary medicines

By Xhinua Reporter

Kenya has launched a new body that will oversee the regulation of all veterinary medicinal products in the country. Andrew Tuimur, principal secretary at the State Department of Livestock, said the Veterinary Medicines Directorate (VMD) will oversee the manufacture, importation, exportation, registration, distribution, prescription and dispensing of veterinary medicines.

“Efficient livestock production and animal welfare can only be enhanced with proper regulation of veterinary medicinal products,” Tuimur said during the launch in Nairobi.

He noted that the new body will protect farmer’s interests, guarantee food safety and animal welfare while ensuring the livestock industry supports economic growth and family livelihoods.

Tuimur told members of the council and management of the new body to engage with all stakeholders to ensure that its objective is met.

VMD’s role previously was handled by the Pharmacy and Poisons Board and the Pest Control Products Board.

In recent past, it has been widely reported that arid and semi-arid lands in Kenya, home to 80 percent of livestock, suffer from veterinary drug misuse which affects the health and well-being of their animals and hurts the livestock trade both in local and international markets.

The body will enable Kenya to export livestock products to European and other international markets with ease as it will help address requirements by the international market regulators.

It would greatly support both the dairy and poultry industries whose products are often banned for export due to unacceptable drug and chemical residues arising from misuse and mishandling of veterinary medicines.

Since their discovery in the early 20th century, antibiotics and related medicinal drugs have substantially reduced the threat posed by infectious diseases.

However, according to Tuimur, their misuse and mishandling exacerbated by weak legislation and lack of enforcement of the Pharmacy and Poisons Act has actually disadvantaged livestock farmers.



Milking time: A new body to oversee the regulation of all veterinary medicinal products in the country has been formed

Report: Salt not major cause of hypertension

The 2017 Global Nutrition Report has listed Kenya as one of the countries where salt consumption falls within desirable amounts, while the rest of the world is said to be consuming 'too much salt', a key cause of hypertension

By Graham Kajilwa and Lucas Ngasike

High salt intake is not among the major causes of hypertension in Kenya. Instead, a new report says most of causes are non-dietary considering the 'safe' amount of salt Kenyans consume.

The 2017 Global Nutrition Report has listed Kenya as one of the countries where salt consumption falls within desirable amounts, while the rest of the world is said to be consuming 'too much salt', a key cause of hypertension.

"The world consumes too much salt. Intake varies by region but no region had intakes within the World Health Organisation (WHO) recommended limits of two grams of sodium a day," the report said.

Asia had the highest intake of salt at 4.3g a day followed by Europe with 4.0g. "At national level, only seven countries

(Burundi, Comoros, Gabon, Jamaica, Kenya, Malawi and Rwanda) have sodium intakes within desirable limits."

But the report did not reveal if the type of salt used contributes to increased chances of hypertension. Major role Salt intake, the study noted, plays a major role in hypertension and related illnesses such as stroke and cardiovascular disease.

However, hypertension is also strongly determined by non-dietary factors such as genetics, ageing, smoking, stress and physical inactivity. "An intake of greater than two grams a day of sodium (or one teaspoon of table salt) contributes to raised blood pressure, and is the maximum daily intake recommended by the WHO," the report read.

"Reducing sodium intake across populations is also a 'best buy' for targeting non communicable diseases – a cost-effective, high-impact intervention

that can be feasibly implemented even in resource-constrained settings."

According to the 2017 Economic Survey by Kenya National Bureau of Statistics, at least 5,000 people (5,799 in 2015 and 5,353 in 2016) die every year from heart-related diseases. It is estimated one in every five Kenyans has hypertension.

The report is surveying nutrition strides and gaps in countries subscribed to the Sustainable Development Goals. And while Agriculture Cabinet Secretary Willy Bett has announced an allocation of Sh5 billion towards nutrition programmes, the report notes many countries were not investing enough, leading to a surge in hunger statistics.

Source: <https://www.standardmedia.co.ke/health/article/2001261407/report-rules-out-salt-as-a-major-cause-of-hypertension-in-kenya>

Premature babies: Letting them thrive

By Precious Uwagbai | priestprecious@gmail.com

Photo Credit: DUKE GLOBAL HEALTH INSTITUTE

We always hear about premature babies, sometimes called preemies. But what exactly are these babies?

Infants born before the 37th week of pregnancy are considered as premature babies. A healthy pregnancy should last 39 weeks, or just under 10 months.

Preterm birth occurs in approximately 10% of all births worldwide accounting to more than 15 million babies. Preterm birth is the leading cause of death among babies in Africa and the leading cause of death among children under age 5 globally.

Africa has much worse rates of infant mortality, preterm birth and low birth weight babies than other continents of the World.

Research has shown that 30 to 40% of preterm births may be caused by genetics, so the researchers did what is called a genome-wide association study, looking at the entire DNA maps of their volunteers.

Mutations were found in six genes that determine whether a woman is likely to have a preterm baby or not. These findings will definitely lead to ways to test women and perhaps intervene to help keep the developing baby safe in the mother's womb for as long as possible, the researchers reported in the *New England Journal of Medicine*.

This discovery is expected to lead to the development of new treatments to prevent pregnant women from going into labour too soon and to give more babies a healthy start in life,

So how and why are so many babies born too early?

"Not only did the study reveal several genes linked to preterm birth, it also identified a simple, low-cost solution



Pregnancy: Preterm births may be caused by genetics according to experts

— selenium supplements for expectant mothers — that, if confirmed, could save thousands of lives," said Dr Trevor Mundel of the Bill and Melinda Gates Foundation.

Supplements including folic acid have been shown to greatly reduce birth defects and work so well that foods are fortified with it in many countries.

A premature baby is born more susceptible to illness due to their weakened immune system and inability to fully develop in some areas. Premature babies are born so small that they are weighed in grams rather than ounces.

Newborn babies who need intensive

medical attention are often admitted into a special area of the hospital called the Neonatal Intensive Care Unit (NICU).

The NICU combines advanced technology and trained health care professionals to provide specialized care for infants. Temperature regulation is one of the biggest challenges for premature babies. Incubators are standard treatments used to heat the baby, who has little fat for insulation.

As the world marked the first ever World Preemies Day on Saturday, November 18, 2017,

Turn to page 30

Time to keep the HIV story alive

MESHA and AVAC launch a year long project on science media cafes

By Dino Vangu

One of the most difficult topics to pitch on currently to many editors is HIV and AIDS.

Health journalists today have to repeatedly answer the question from their editors whenever they say they are going to a HIV and AIDS event – what is new? HIV is a tired story! Stop flogging a dead horse!

But then, even if the HIV story is a tired one, isn't the world still ravaging from the impact of HIV and AIDS even today?

Amidst the debate on whether HIV and AIDS stories are worth any airtime or space, journalists have a substantial influence on the public's attitudes about HIV and AIDS. The emphasis the media often places on breaking news and reporting from law enforcement officials can give people a skewed or enlightened view of any matter sometimes leading to misperceptions or even discrimination or even rejection and acceptance.

Take the case of pre-exposure prophylaxis (PrEP). Some of the would be beneficiaries, unpublished survey proclaims, are said to be shying away from using the drug because its blue colour is misconstrued to be a sex enhancement drug.

It is the journalist who needs to tell the story over and over again, sometimes at the risk of not being read, for only then will the scourge remain in the conversation as we reach out to people to change their behaviour, be tested and secure treatment pronto.

In an effort to keep the HIV story alive in the newsrooms in Kenya, the Media for Environment, Science, Health and Agriculture (MESHA) in conjunction with AVAC and Internews have initiated a year long program that aims at building relationships between journalists and scientists. Initial focus is to provide a



Photo credit: Aghan Daniel, MESHA

Participants follow keenly proceedings of the first science media cafe held in Nairobi in December 2017

platform for scientists in HIV research and journalists to interact and explore ways to tell HIV research stories through monthly meetings dubbed media science cafes. Overall, the project seeks to boost quality of HIV research journalism and create societal impact and to demystify the fact the HIV is not a tired story. The forum seeks to bring to journalists very unique and fresh angles of telling the story to journalists in Kenya.

The monthly foras will be held in Nairobi, Kisumu, Busia, Homa Bay and Mombasa, with Nairobi taking the lion's share.

"While we have made great strides in responding to HIV, there's still much to do. Journalists in Kenya have played an important role in keeping the public informed and in playing the role of watchdog for the public to ensure that the programs and research are conducted ethically. Just as researches, programs implementers and policy makers have more work to do, so do journalists. We are on in this road together," said Dr Christine Ogolla, the Elizabeth Glaser Pediatric Aids Foundation programme director, said during the launch of the platform.

Science cafes are informal gatherings bringing together health journalists with key researchers, implementers and/or policy makers and informed advocates to discuss important issues and information around HIV prevention research and implementation and the larger HIV response.

According to Violet Otindo, the project's Liaison Officer and the Chairperson of MESHA journalists may have a little bit more work to do than the rest of the stakeholders.

"Not many African science journalists have the capacity to write good articles and constantly keep abreast with HIV research, hence they require hand-holding and "point" to where the stories are," added Ms Otindo.

The project will focus on one of MESHA's key strategic areas, health. Journalists will be mentored in science reporting by senior science journalists to refine and improve their pitches, help them build and mine stories and eventually report credible articles.

Aghan Daniel, the project lead and MESHA's secretary, believes this informal kind of set up will help reduce pressure to

write stories often put on journalists after being trained or facilitated to do stories by some organizations.

“The many journalists I have spoken to feel HIV is a “tired” story. They feel, there are many HIV related forums happening but there’s nothing new coming out. With the informal set up of our discussions, where everyone, from journalists to scientists to editors sit down and brainstorm, we hope, HIV stories will no longer be termed tired. This will then contribute to the quality of science reporting in Kenya and Africa at large, hence creating an impact to the society and increase awareness for more funding,” he added.

A sentiment also shared Dr. Kigen Bartiloi, Head NASCOP, “We think it’s a great time to have this ongoing conversation among journalists, researchers, implementers, policy makers and civil society with so much exciting research happening as well as expanding PrEP rollout and other new interventions potentially available in the next few years.”

According to AVAC, Kenya has always been an important country having built strong partnerships with civil society and researchers in Kenya.

We’ve worked with journalists as well but never on an ongoing project. We know MESHSA will help ensure that journalists

are informed and that through them the Kenyan public is kept abreast of all the exciting things happening in HIV response in Kenya,” says AVAC’s Kay Marshall who is based in New York.

The Kenya Media Science Café Program joins the Uganda and Zambia ones supported by AVAC in partnership with USAID through the Coalition to Accelerate and Support Prevention Research (CASPR).

“This initiative comes in handy, when health reporters are thirsty for new stories to keep up with politics,” said Thomas Bwire, a health reporter from Habari Kibra based in Nairobi.

From page 28

Premature babies: Letting them thrive

the voices of preemies mothers came out with a plea to the medical world to let them thrive in reference to various ways in which measures can be taken to enhance the survival rates of the preemies.

To help our readers understand more about the tribulations of preemie mothers in Africa, we sought to hear the story of a real experience from Ms Glenna Nyamwaya.

And this is her story;

It all started in April 2016 when I had gone to visit my grandmother together with my family. As soon as we got to the compound and alit from the car, I felt a cold sensation going down my leg. I lifted my maxi skirt up to reveal my worst fear. My water had broken prematurely, in a remote village of Kisii, a 45 minute drive away from Kisii town. Unfortunately I was the only driver in tow, so I had to bravely get back on the driver’s seat and get myself to hospital, all the while tears rolling down my face.

To cut the long story short, I got to the hospital and since they could not deal with my case, I was evacuated and driven through the night to Aga Khan Hospital, Nairobi, nearly 400km

away arriving at 3 am. My obstetrician received me and tried the best he could to keep the pregnancy as I was only 26 weeks pregnant.

But two days later, I went into labour and delivered a 780grams baby boy. As fate would have it, Junior passed on 7 days after staying in the NICU due to complications and infections he had suffered. I refused to let this situation bring me down and conceived again in June that year. This time round the doctor established that a small cyst on my cervix had triggered the premature labour and carried out a MacDonald stitch procedure to secure the pregnancy for a longer term.

But the scenario would play out yet again as on my 27th week, two days before my doctor’s appointment, I was awoken at 4 a.m. by a gash of amniotic fluid. I was scared and sneaked out to go to the hospital fearing for the worst, without letting anyone in the house know.

I drove to hospital and admitted myself having called my doctor who agreed to meet me there. I was monitored and put on bed rest and on the evening of the following day, the

doctor made the call to remove the MacDonald stitch and trigger labour as most of the amniotic fluid had leaked and the baby was at risk of contracting infections.

On the same night at about 1am, my angel Samantha Malaika came into this world weighing 1.1kg. Although my fears and wounds from the previous experience were still fresh, the glow in her little eyes gave me optimism. She would later lose weight to weigh 850gms before she started the upward trend.

I got a scare one day after her doctor prescribed sodium injections to counter her deficiency. She reacted to the sodium badly and even had to be resuscitated at some point when her tiny body gave in. Fortunately the medical team managed to get her lungs back to work and she was put on oxygen for three days. Other than that, Samantha had minimal complications and was discharged after 45 days in hospital. The greatest challenge however was raising money to cater for the two hefty medical bills in one year. To date, her progress is impressive and her milestones just slightly delayed.

County ranked first in toilet use

By Kitavi Mutua I kitavimutua@gmail.com

A sustained campaign by public health authorities in Kitui to educate households on toilet use has seen the county ranked the best performing countrywide in improved sanitation.

89 per cent of the county's 4930 villages were declared open defecation free, in a benchmarking report done by the Ministry of Health, Unicef and the World Bank as Kenya marked the World Toilet Day.

Siaya and Nakuru counties are ranked second and third respectively, having taken significant measures to eradicate open defecation and achieve the highest number of households using toilets.

County public health officer Johnson Muinde said the campaign door to door visits in the village to assess sanitation standards at homes and advise people on the best practices of human waste disposal.

"Our Community Led Total Sanitation over the last three years has yielded positive results and so far 4387 villages in Kitui County have been declared open defecation free" Mr Muinde explained.

He said in 2014, Kitui was ranked number 9 countrywide and that the health campaign will be sustained until the remaining 11 per cent households in the county are reached and educated on the benefits of toilet use.



Issues toilet - November 1 is marked as the World Toilet Day

"Open defecation is directly linked to diarrhoea, cholera, stunting and respiratory diseases such as pneumonia thereby affecting physical and mental development" Mr Muinde said.

An economic study carried out in Kenya by the World Bank in 2012 showed that poor sanitation and hygiene cost the economy more than Sh27 billion per year, equivalent of 0.9percent of annual Gross Domestic Product (GDP).

Similarly, Open defecation costs the country Sh9 billion per year through loss of productivity due to illness yet eradicating the practice requires constructing less than 1.2 million latrines for use in rural communities.

HIV Infection Remains High in Burundi

By Lorraine Josiane Manishatse

Out of over 700,000 people screened from January to June 2017, over 700 people tested HIV positive, reads the report conducted by the National Program for the Fight against AIDS (PNLS).

Raphael Nshimirimana, Head of Prevention and Social Mobilization service at the PNLS, says the number of people living with AIDS is enormous. "If nothing is done in the immediate future, the spread of HIV risks being great," he says.

PNLS Deputy Director, Richard Manirakiza says HIV/AIDS is a major public health problem for the entire sub-

Saharan Africa region in general and more particularly for Burundi. "HIV infection is still very high," he says.

Mr Nshimirimana warns anyone who neglects this disease that AIDS is no longer a public health issue. Rather he calls on everyone to contribute by raising the awareness on the fight against it.

To better deal with this problem, the Ministry of Health has set up a health program that closely follows the trends of HIV/AIDS infection in Burundi.

The 2017 UNAIDS data show that an estimated 36.7 million people were living with HIV (including 1.8 million children) - with a global HIV prevalence of 0.8% among

adults in 2016. Around 30% of these same people do not know that they have the virus.

Since the start of the epidemic, an estimated 78 million people have become infected with HIV and 35 million people have died of AIDS-related illnesses. In 2016, 1 million people died of AIDS-related illnesses.

The vast majority of people living with HIV are located in low- and middle-income countries, with an estimated 25.5 million living in sub-Saharan Africa. Among this group 19.4 million are living in East and Southern Africa which saw 44% of new HIV infections globally in 2016.

Source: <http://allafrica.com>



NGONG HILLS HOTEL



SUPERIOR

The thoughtful designed superior room is decorated with warm wooden furnishings overlooking the city centre. Seeped in luxury, they offer the finest decor with aesthetic artefacts, thoughtful amenities and innovative use of space.



FULL DAY CONFERENCE PACKAGE

- Free use of conference rooms
- Free use of projector and LCD screen with VGA & HDMI connectivity CPA System
- Morning and afternoon tea/coffee with pastries and snacks
- Extensive buffet lunch with a soft drink (fresh juice/soda) or water

- 1 bottle of water morning and afternoon session
- Mint sweets
- Stationary, writing pads and pen
- White board, flip charts and marker pens
- complimentary high speed wireless and cabled internet
- Free parking

HALF DAY CONFERENCE PACKAGE

- Free use of conference rooms
- Free use of projector and LCD screen with VGA & HDMI connectivity
- PA System
- Morning tea/coffee with pastries and snacks
- Extensive buffet lunch with a soft drink (fresh juice/soda) or water
- 1 bottle of water morning and afternoon session
- Mint sweets
- Stationary, writing pads and pen
- White board, flip charts and marker pens
- complimentary high speed wireless and cabled internet
- Free parking

CONFERENCE PACKAGE TARRIF

FULL DAY PACKAGE PP	KSHS. 3,000
HALF DAY PACKAGE PP	KSHS. 2,500

Tel: +254 729 476 072

Email: reservations@ngonghillshotel.com