

# SAYANSI

*All science information*

Issue No. 2

February 2015



## Embracing family farming as harvests dwindle

### **In this issue**

Non-communicable diseases to add to Africa's woes

Wellcome Trust investment in Ebola research tops £10 million

Celebrating the place of family farming in a food insecure continent



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## Who we are

**T**he Media for Environment, Science, Health and Agriculture (MESHA) was founded in November 2005 in Nairobi, Kenya and is an organization 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 and scientists among other stakeholders in Kenya.

The association emphasizes on rural journalism and communication.

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

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

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

## SAYANSI

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# Science journalists must step forward and set the agenda

In the world today, science journalism contributes significantly to public understanding and knowledge on varied areas of science.

Traditionally and for a long time, the work of science journalists has been to publish their stories in the mainstream media and leave it at that with the assumption being that the rest of the processes will take place within their media house up to a point where the readers, listeners and viewers get and possibly use the information.

At MESHA, through this magazine, now in its second edition, we are determined to reverse that line of thought. We are saying that science journalists must now, do everything by themselves. Better still, they must go ahead and ensure the news reaches their intended audience using their own structures, not dictated to them by media owners and investors. Key decisions must now be made by scientists and that really matters in being seen as the agenda setters in propagating science information.

This basically means that they have to collect the information, collate it, supervise its production and distribution and ensure that they do critical follow ups to ensure their items are read and used for the good of the general population. In the end, every writer contributing an article is tasked with the onus of ensuring that the sources get to read their own story in print or electronic form.

We are oriented to take this position given that science journalism is increasingly gaining traction in Africa but remains disadvantaged compared to other fields of journalism like politics and business which receive more prominence and coverage in newsrooms.

There's a growing number of minorities practicing science writing in Africa but many of them feel, in their own words, disconnected from the broader community due to sensational journalism from their fellow writers in the sector. Indeed, it's upon a journalist who has scientific orientation to pass on to other journalists as much accurate information as he/she can, as quickly as possible whenever science hits the news agenda so that the public can get consistent information from varied sources. For now, we must stand tall by going a step further than our colleagues in the other fields so that our impact is felt not only in the newsrooms but all over the continent in all manner of platforms.

In Africa, the last decade has seen increased interaction between scientists and journalists. However a gap still exists with regard to science being effectively communicated to policymakers and the community. Recognizing the fact that although policymakers are the driving force behind decisions that govern science, they often do not have the information they need to factor in the views and needs of the public; which is where journalists play a role.

**Aghan Daniel**



**At MESHA, through this magazine, now its second edition, science journalists must now, do everything by themselves. Better still, they can ensure the news reach their intended audience using their own structures, not dictated to them by media owners and investors. Key decisions must now be made by scientists as they seek to set the science agenda.**

# When Muscular Dystrophy is personal – and global



**By Fred Thys**  
Guest Contributor

Every once in a while, I'm grateful I live in such a medically-minded town, with many deep thinkers trying to figure out treatments and cures for some very tough diseases.

I felt this way over the summer, at a conference in Boston on Facioscapulohumeral Muscular Dystrophy, a genetic disorder that

affects 1 in 8,333 people and has no treatment. I did not attend the meeting due to some theoretical interest in the topic; for me, it's personal.

My mother and grandmother suffered from the condition, and so does my brother. It causes gradual loss of muscle function, notably in the face, and in the muscles that mobilize the shoulder blades and the upper arm, but also in the legs.

My brother first developed symptoms when he was 15, and found that he could no longer run as fast as his high school soccer teammates. Since the age of 43, he has been confined to a wheelchair or scooter, unable to walk or stand.

But at the conference in August, I also realized that this illness with such a profound impact on my family, also has a global reach. Indeed, in regions like Africa, the condition is only just beginning to be acknowledged.

## Enter: Chris Chege

I first saw Chege sitting on a tall stool at the back of the room with his wife. Their presence proved that the condition affects Africans, too, something that isn't widely acknowledged. Chege and his wife had traveled to Boston from their home in Thika, in central Kenya, 30 miles Northeast of Nairobi. An interview with Chege pointed to one possible reason that conference room was full,

mainly, of white people: most people with the condition in Africa may not have been diagnosed with it yet.

But Chege said he sees others with FSHD in Kenya. He said he can tell. "By the way they walk," he said. "I see them on national television when journalists go to their homes to interview them."

The television journalists, Chege says, report that the families he sees on television with the symptoms of FSHD are bewitched. "The way they walk I can tell that's muscular dystrophy," he said.

His own condition was a mystery to him for nearly twenty years.

When he was a teenager, he first realized that he could not keep up with other people. "Back home, my father was a farmer," Chege said. "We used to pick coffee berries from our farm. Once we pick the coffee berries, we have to take them to a processing machine, and you take what you pick."

Chege would have to carry 45 lbs of coffee berries at a time. One day, he found that he was unable to carry so many berries. "I used to receive a lot of beatings from my father and my mother because they thought I was just lazy," he said.

Chege decided on his own to see a doctor, who gave him medication that produced "a lot" of side effects on him, he said. There are no medications approved anywhere for the treatment of FSHD.

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People protest outside a hospital as Liberia President Ellen Johnson Sirleaf visits the area after Ebola deaths in Monrovia on June 17.

# Ebola and the Evolving Media Coverage



Sierra Leone Minister for Information and Communication Alhaji Alpha Kanu has called on the Sierra Leone film Council to take the lead to sensitize the people on the outbreak of the Ebola disease in the country

By Maina Waruru

After months of sustained criticism of the way governments in West Africa had handled media communication on ebola outbreak, Sierra Leone's government took a bold step last month and made good use of technology, hosting a well-attended online press conference.

The country's Information and Communication minister Alhaji Alpha Kanu made history of sorts when he held the first ever live press conference on the disease, in what was widely hailed as a step in the right direction, in trying to talk a worldwide audience on the raging outbreak.

The minister's decision was in response to criticisms of disjointed communication available to the media on status of the outbreak particularly in Sierra Leone, where the disease is said to be still spreading. The situation is said to have stabilised in Liberia and almost brought under control in Guinea.

In the conference arranged by the Pan African media body African Press Organisation (APO), Kanu reckoned that ebola had killed more than 1,500 people in his country out of the more than 5,000 recorded cases.

"There have been many survivors, and no new cases have appeared in the areas where the outbreak first started in the east of the country", the minister assured.

**1,500**  
The number of people killed by Ebola in Sierra Leone

His ministry assured the minister was working on various outreach programmes to be broadcast on radio and others to be taught in schools, in an attempt disseminate as much information on the disease as possible.

All major international news outlets, including Reuters, the BBC, the Bloomberg, the Guardian a Wall Street Journal "attended" the media briefing, an indication of how proper use of technology can ensure reach of millions of people around the world.

The minister perhaps impressed by how his maiden use of modern technology can have a huge impact, was categorical that the November live event was not going to be his last, and would be using it to reach communicate concerns and issues surrounding the worst recorded outbreak of the viral disease.

Isolation wards for suspected patients, the minister said, were being put up across his country in a bid to tame spread of the virulent disease that has also infected more than 70 health workers across the region.

Some international public and commercial media have designed programmes dedicated to sharing public information on the disease with the BBC seemingly leading the way with a weekly programme-BBC Ebola that goes live on the broadcaster's Focus on Africa at 20.30 GMT.

While the media in West Africa has criticized authorities for failing to release adequate information on the outbreak, media watchers have themselves faulted newsmen for failing to deliver well-tailored factual news to the ordinary populace, to avoid misinformation that marked the initial days of the outbreak.

# Wellcome Trust investment in Ebola research tops £10 million



Medical staff in protective clothes

The Wellcome Trust has now committed more than £10 million as part of an emergency package of research funding to tackle the ongoing Ebola epidemic in West Africa. The news comes as researchers in Oxford report successful trials of an experimental Ebola vaccine, which is well-tolerated and generates an immune response in healthy volunteers.

Research funded by the Wellcome Trust, in partnership with national and international governments, funding

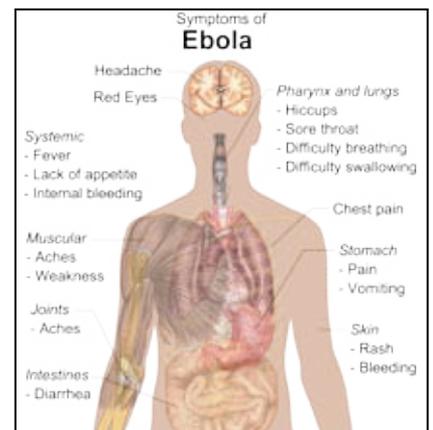
agencies, pharmaceutical companies and aid organisations, is finding new approaches to treating, preventing and containing the disease during the current epidemic in West Africa. It is hoped this research will also inform the way in which future epidemics of Ebola and other infectious diseases are handled.

Around a dozen individual grants have been awarded so far across the breadth of science, from developing and testing new treatments and vaccines, to monitoring and predicting the spread of the disease, and considering the social

and behavioural challenges associated with an epidemic of this scale.

Dr Jeremy Farrar, Director of the Wellcome Trust, said: "The magnitude of the Ebola crisis in West Africa is unparalleled and has evoked a response from the global community the like of which we've never seen before. Our emergency funding package is helping to tackle the outbreak on multiple fronts, with evaluations of public health measures, new drugs and vaccines taking place in parallel with wider societal research to gain a deeper understanding of how best to engage with the affected communities."

"We're extremely proud to have supported such a broad package of research, which we hope will make an important contribution towards bringing the present outbreak to an end. The outcomes will also be invaluable for shaping our response to future outbreaks of Ebola and other infectious diseases. None of this would have been possible without co-operation between many countries in West Africa, WHO, UK and international governments, academia, funding agencies, pharma firms, NGOs and of course the dedicated scientists, doctors and volunteers working in West Africa."





The size of the e-health industry is difficult to determine as it touches the whole of healthcare, but there is little doubt that it is growing fast

## E-health tipped to increase access to health services

By Maina Waruru

Innovative use of e-Health (use of ICTs to deliver health services) applications can increase access to health services and achieve equity in distributing benefits to socially and economically vulnerable groups including the poor, the marginalised, the elderly, women and children.

The use of the of e-Health, could be up-scaled to achieve equity in access to health, ensuring that segments of population that are often left uncovered by existing health delivery systems are reached, a session at the African Conference of Science Journalists (ACSJ) in Nairobi was told.

In Kenya for example a variety of e-Health and m-Health (mobile health) programmes were being used by the government and NGOs to extend geographical access to health care and in improving data management and health information sharing.

It was also being deployed in provision of health education to health workers and in facilitating communication between patients, nurses and doctors as well as in improving diagnosis and treatment,

Sue Godt, a programme officer with Canada's International Development Research Centre (IDRC) told participants at the event.

However to use of this increasingly popular mode of health services delivery in isolation could be problematic, and may not guarantee access for vulnerable groups thus the need to ensure that the entire health system was functioning properly, she said in her presentation titled: Addressing health inequities is e-Health the answer?.

"How helpful is electronic medical record system if people can't get to the clinics can't afford transport due poor roads; how helpful is supply chain management if the drugs are counterfeit?" posed the official.

While most of the efforts in solving health problems have gone to how use Information and Communication Technologies (ICTs) can help, the time had come for promoters to move beyond the "the how to stage" and address the question of how to apply e-Health in overcoming the myriad challenges facing the health sector in Africa. "We are all very aware that most of the efforts on ICTs and health have gone into 'how to do eHealth', but

we have to move beyond considerations of how to do", Godt opined.

It was also critical for players in the health sector carry out research to determine among other things, how e-Health had so far impacted on delivery of services, the challenges experienced as well as find out which interventions were most suited to various segments of target groups, said Godt.

Such research she said, would inform areas in this emerging form of health services provision that needed to be strengthened, and which ones needed to be integrated in traditional health to boost attainment of equity especially for the marginalised sections of society.

Citing a case of Botswana where research was done to establish why traditional HIV/AIDS prevention programmes were failing, especially for young women, the official said the findings concluded that an integrated approach, blending e-Health with traditional approaches achieved better results cutting infections in study group by nearly 12 percent.

Governments across Africa she concluded needed to develop vibrant evidenced based interventions in solving structural health access problems incorporating modern and approaches with age-old, tried and tested interventions, including boosting literacy levels and fighting poverty.

IDRC, Godt disclosed, advocated use of research in determining best approaches to solving challenges in health systems including understanding issues of access and attainment of equity.



**An integrated e-health system to facilitate citizens' access to quality services and processing and exchange of medical information.**

# Non-communicable diseases to add to Africa's Woes

By Kiprotich Koros

Africa will have the highest burden of non-communicable diseases associated with the wealthy by 2030 despite being the poorest continent. Nearly half the population in the continent live below the poverty line and statistics of preventable diseases are the highest in the world.

It is projected that Africa will have about 1.6 million cases of cancer in 2030 with about 1.2 million deaths annually according to the World Health Organization.

The situation is set to roll down recent development gains as many people go abroad to seek treatment. Africa is experiencing unprecedented growth with six countries in the continent ranked among the top ten fastest growing economies.

"Africa and indeed Kenya is experiencing a surge in the prevalence of non-communicable diseases such as diabetes, coronary heart disease and diverse kinds of cancers," Mr James Macharia, Cabinet Secretary for Health says. This is affecting all the socio-economic groups, he adds.

"Non-communicable diseases have created a new burden to the already weakened health systems that have been making tremendous progress towards reducing the deaths from preventable and curable communicable diseases. The cost of managing these diseases is pushing our populations further below the poverty line, said Mr Macharia adding that prevention on NCDs is part of Kenya's Health Strategic Plan.

It is estimated that Kenyans spend in excess of USD 30 million each year seeking treatment mainly in India and South Africa for diseases such as diabetes and cancer.



Mr James Macharia, Cabinet Secretary for Health

"Depending on which data you look at 50-60% of any hospital budget cost is towards diseases that are not communicable according to Dr Moses Aloba, Medical Director, Africa and Developing Countries, GlaxoSmithKline, Kenya.

Yet despite the growing burden, Africa's participation in research in the area is "very low" says Dr Aloba. The change in prevalence is not restricted to urban or wealthy populations meaning that many victims will not afford the high cost of treatment. Dr. Aloba made these remarks in Nairobi last October while addressing journalists from 25 countries attending the second African Conference of Science Journalists

hosted by the Media for Environment, Science, Health and Agriculture (MESHHA).

Kenya spends 4.7-5.2 per cent of its GDP on health equivalent to about 29 per cent of total expenditure on health. A further 39 per cent comes from private and 31 per cent from donors.

Cancer contributes to about 7 per cent of mortality annually with over 30,000 cases diagnosed annually and about 22,000 fatalities. 60 per cent of deaths are premature depriving countries of much needed workforce. Lifestyle diseases are now appearing earlier and earlier in life, says Dr Aloba. Most cases are not diagnosed and the burden is thought to be much higher.

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# Securing pollination for food security



**By Zeynab Wandati**

**P**ollination is one of those natural processes that we hardly pay attention to. Probably because it is barely noticeable, and what we end up seeing are its results. For this reason, scientists say, farmers assume that pollination will happen regardless of the conditions under which a crop is grown. This scenario is causing many farmers to engage in practices that hinder pollination, a situation scientists warn is likely to send the country deeper into food insecurity in the next few years.

“At flowering time, farmers spray a lot of pesticides principally to reduce flower abortion caused by pests,” says Dr. Muo Kasina, a research officer at the Kenya Agricultural and Livestock Research Organisation (KALRO).

If there is one thing that a farmer does not like to see on his crop is a pest of any kind, and once a pest is visible the farmer would start spraying a pesticide to kill the pest. Due to this,

scientists are now warning that this habit of spraying is not necessarily a good one, because by doing so, the farmer ends up killing all pests including useful pests such as bees which are necessary for pollination to happen. Take for example a crop like the watermelon, which produces the male and female flowers separately, but on the same plant; such a crop cannot pollinate and produce fruit without a bee.

According to Dr. Kasina, sunflower oil manufacturers are complaining that the quality of Kenya’s sunflower seed is bad, thus producing little oil. “When we did the analysis we found that these seeds had not been pollinated and that is why the oil content is so low.”

Pest control is now slowly turning into the greatest threat to pollinators, especially honeybees. These bees are responsible for at least 80% of all pollination, but are now rapidly losing access to food crop flowers, most horticultural crops mostly. In Kenya for instance, farmers are using agro nets to cover the crop and keep out all

pests. Ideally this method of pest control is widely recommended because it is chemical free. But because it is highly effective in keeping out pests, crops in the pumpkin family end up with no fruit.

“The very sensitive thing about this crop is that they only flower once per day. And they only open for 8hrs a day then it closes completely. So if pollination doesn’t happen within that time, then the flower dies and no fruit develops,” says Eric Muthama, safe manager KALRO pollination Project, Kilimambogo.

“Looking at the watermelon, only 10% of all the flowers are female. The other 90% are male flowers. The male is even more brightly coloured to attract the pollinators. The female flower on the other hand is dull, and the amount of pollen deposited by bees in the flower will determine the size of the fruit and even the taste. The more the pollen, the bigger the fruit.”

KALRO is now running a project with at least 600 farmers across the country, intended to sensitize the farmers on the importance of allowing

insect pollinators access to the flowers, in order to increase food production, through pollination. This is based on the evidence that pollination increases the quality and taste of food.

"Most legumes require at least 40% pollination," explains Dr. Kasina. "And on those that meet this requirement you'll find that the pods are filled better; they have more seeds inside."

David Musau is a farmer in Kilimambogo, and part of the group that is going through the KALRO pollination training. "Now we have

learnt to control our spraying by timing it well, such that we only spray in the evenings when the bees have already retired to their hives," he says.

Georgina Nzioka has also received the pollination training, and although she hasn't had a chance to put it to practice, she says she now knows what she needs to do to improve her harvest. "We are going into a planting season. I want to compare my yields before and after the season. Currently I'm tilling 1.5 acres, and production is 10 bags and 2 bags of beans and maize

respectively. Now I want to see if there will be a change after the new season."

According to an article published in the Guardian early this year, the United Kingdom has 13 million honeybees less today required to pollinate all food produced in the UK. This means that UK is headed to a food security crisis, unless the bees are saved. This crisis, local scientists say, needs to be prevented here, even though there have been no studies done yet to determine if local bee colonies are collapsing and to what extent.

# When Muscular Dystrophy Is Personal – and Global

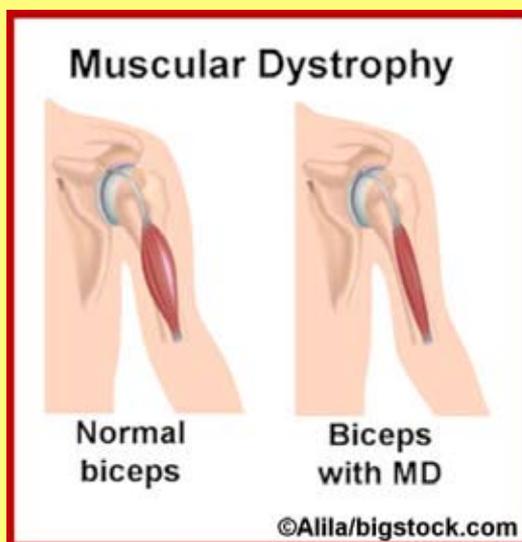
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It was not until the year 2000, at the age of 34, that he was diagnosed with muscular dystrophy.

"Life is very harsh having a muscular dystrophy condition, because in my town, it's very hilly, so walking around is quite difficult, and if I have to walk around, I have to have somebody to help me, and you see, almost everybody is busy," he said. So most of the time, Chege said, he sits at home. "It's actually very, very harsh in Africa," he said.

Chege and his wife have two boys, 16 and 10. "The way they behave during their daily activities, she senses they may be affected also," he said Chege found out about the FSH Society's biannual conferences that bring together patients, their families, and researchers.

Peter Jones was one of the researchers at the conference who met with Chege. Jones is conducting research at the University of Massachusetts Medical School. The genetic sequence that causes FSHD, known as 4q35 D4Z4, is present in healthy people as well as people affected by the disorder. In healthy people, the sequence is suppressed.



For some reason, in people affected by FSHD, the suppression mechanism doesn't work. Jones is trying to figure out why.

"I decided to come to this conference in Boston to meet other patients who have the same condition and also to learn more about this condition and also to meet the scientists, the doctors and to gather more information so that I can be able to educate others back home," Chege said.

But the trip to Boston was expensive. He had to sell some of his land in order to travel to the conference.

"Most of my friends, family members, thought I was mad," he said. "To me, knowledge is more than those properties." He was not able to afford bringing the entire family, so the boys stayed in Kenya.

Chege said because his wife was able to attend the conference, she has gained understanding into his condition. "I don't regret disposing some of my properties to come here," he said.

At the conference, he said, researchers offered to test him.

He had a discussion with a physiotherapist who taught him what he could do on his own at home.

Before coming to Boston, Chege said he was not aware that any research on FSHD was being done in Africa; in fact, research is currently underway in South Africa.

But Chege would like to return to the U.S. in two years to attend the next conference on FSHD, only next time, he hopes to bring his sons along as well.



## Keeping the focus on African small-scale farmers as International Year of Family Farming closes

By Laurent Thomas\* and Alberta Mascaretti\*\*

The UN declared 2014 as the International Year of Family Farming to highlight the crucial role family farmers – often women – play in fighting poverty and hunger worldwide. Family farmers produce 80 percent of the world's food and manage more than 500 million of the world's estimated 570 million farms.

It is an important way of life that provides employment to two billion people. It also helps protect the environment, manage land and water resources for future generations and preserve local cultural heritage. It contributes to sustainable development, especially in rural areas where the majority of the world's poor live.

In sub-Saharan Africa, most people rely on agriculture for their food and income. The food produced by African family farmers helps feed 900 million people on the continent every day. Yet, paradoxically, African farmers and their families are often the ones suffering most from poverty, hunger and malnutrition.

The proportion of undernourished people in Africa dropped from 33.3 percent in 1990/92 to 23.8 percent in 2012/14, yet the absolute number of hungry people for the same period rose from 176 million to 214 million. And malnutrition rates are high, leading to stunting in children and anaemia in pregnant women.

Nearly two-thirds of sub-Saharan Africans are under the age of 24. Poverty and the lack of decent employment force many young people to migrate to crowded cities or abroad in search of a job, often putting themselves in danger. When rural infrastructure and services, like health care and education, are inadequate and farming less than lucrative, what incentives do they have to stay?

### Challenges farmers face

- If we are to address the challenges of poverty, hunger, malnutrition and sustainable food production in Africa, we need to focus on the needs of African family farmers. We need to make farming an economically attractive and viable option, especially for rural youth.

- This means ensuring small-scale farmers benefit from modern technologies, equipment, agricultural research and extension services. Many farmers in Africa grow food on small plots of land, usually one to two hectares. Often they use only hand tools. There are fewer than 28 000 tractors in all of sub-Saharan Africa compared with 20 million in just the United States, Europe, Canada and New Zealand alone. Agricultural productivity in Africa is generally low.

- Ensuring small-scale farmers have better access to agricultural knowledge and innovation systems, credit and markets, both domestic and international, is also important. Despite Africa's rich agricultural resource base, its share in international trade on food commodities is small. The continent contributes only 3 percent to the global trade in rice and about 2 percent in maize. It leads global production of cassava, producing nearly half of all cassava worldwide, but exports only about 0.2 percent. In fact, many countries in sub-Saharan Africa rely on imports for basic food commodities.

### Investing in family farmers

- Finding solutions to the challenges small-scale farmers face requires more – and better-targeted – investments. It also involves addressing the root causes of poverty and hunger and replicating and scaling up good practices that have achieved sustainable results.

- Through the Comprehensive Africa Agriculture Development Programme (CAADP), launched under the New Partnership for Africa's Development (NEPAD), there is growing commitment from governments

and resource partners to increase investments in agriculture and rural development throughout the continent. What is required is to invest in:

- social safety nets solutions linked with family food production to eradicate hunger by 2025;
- sustainable food production;
- family farming to at least double current levels of productivity per worker by 2025;
- inclusive food systems from the farm to consumers, and reducing food waste and losses, which account for up to 30 percent of food produced;
- rural youth to help them access the future they deserve and reduce rural poverty;
- climate-smart agriculture and resilient agro-ecological systems to ensure that development gains are not wiped out by climate change and disasters; and
- farmer organizations and cooperatives to allow farmers to use their collective strength.

This has also been reflected in high-level international political commitments, such as the Zero Hunger Challenge, launched by the UN Secretary-General at the Rio Climate Conference in 2012. More recently, African heads of states quantified targets for the transformation of African agriculture in their declaration from the 2014 African Union Summit held in Malabo, Equatorial Guinea.

There is also rising interest among the private sector to invest in agriculture in Africa, and recognition that Africa has the potential not only to feed itself but the rest of the world. It is important to support African farmers and entrepreneurs, particularly young farmers and small and medium scale entrepreneurs, in capturing this emerging market opportunity.

In addition to innovation in agriculture, the sharing of best practices is essential. A good way is through South-South cooperation, in which countries in the global south share development solutions – knowledge, experiences, policies, technologies and resources.

### Investing in the future

FAO, under the leadership of Director-General Jose Graziano da Silva, has worked to transform its strategic directions and way of working to contribute more effectively to agricultural priorities in Africa. This is being done in partnership with government

institutions, the private sector, civil society and academia, at all levels.

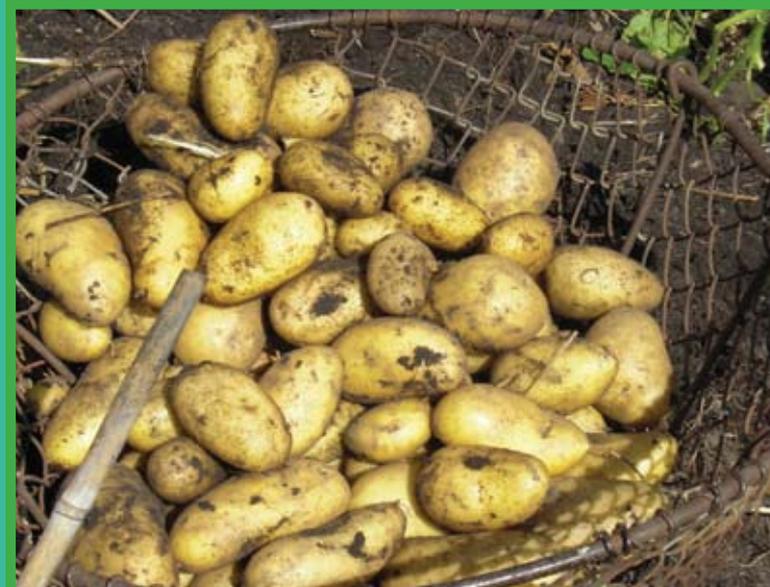
Countries like Brazil that have consistently invested in their agriculture sectors have had success in fighting poverty and hunger. Brazil's Fome Zero (Zero Hunger) Programme, spearheaded by Graziano da Silva, reduced poverty in the country from 24.3 percent in 2001 to 8.4 percent in 2012. Brazil also cut the number of undernourished people from 22.5 million in 1990/92 to 3.4 million in 2012/14.

The International Year of Family Farming succeeded in raising awareness on the role family farming can play in providing innovative solutions to poverty, food insecurity and malnutrition. It also galvanized political commitment. Now that the year has drawn to a close, it is important to keep that momentum going.

We, in FAO, firmly believe that by ensuring a favourable policy environment and investing in African family farmers and their organizations, as well as small and medium-scale food enterprises, African agriculture has a bright future – a future where food and agriculture contribute to the well being of all on the continent, especially youth.

*\*The writer is the Assistant Director-General of Technical Cooperation of the Food and Agriculture Organization of the United Nations (FAO)*

*\*\*The writer is the Chief Africa Service, FAO Investment Centre*





Harvesting time: Sugarcane farmers in their farm

The report resulting from a study by Agricultural Science and Technology Indicators (ASTI), a consortium led by the International Food Policy Research Institute (IFPRI), also finds that besides low investment in R&D, staff turn-over in many research institutions remained very high, while most of the research produced relied heavily on fluctuating donor funding.

## Low investment in research stifles development in Africa

By Maina Waruru

Investment in Research and Development (R&D) in agriculture throughout the Sub-Saharan African remains low, despite countries in the region being signatories to various international conventions and treaties, binding them to raise investment to at least 1 percent of their Gross Domestic Product (GDP).

Many countries continue to invest a paltry 0.5 percent of their GDP in R&D worsening the food security situation, a report Taking Stock of National Agricultural R&D Capacity in Africa South of the Sahara reveals.

The report resulting from a study by Agricultural Science and Technology Indicators (ASTI), a consortium led by the International Food Policy Research Institute (IFPRI), also finds that besides low investment in R&D, staff turn-over in many research institutions remained very high, while most of the research produced relied heavily on fluctuating donor funding.

“High population growth, deteriorating soils, climate change, and volatile food prices are major factors affecting food security in SSA. To respond effectively to these challenges, agricultural productivity in the region needs to be accelerated without delay”, observes the report.

## || Agriculture ||

“Many countries are still struggling with inadequate research systems, funding, and human resource capacity,” concludes the report authored by Nienke Beintema and Gert-Jan Stads.

While acknowledging that there has been a modest increase in funding for R&D and a boost in numbers of research staff, the same remains insufficient to meet the food needs of a growing population.

The report launched in November during an event to mark the 15 years of Forum for Agriculture Researchers in Africa (FARA), is however quick to observe that the overall increase in research staff is attributable to only a few countries with majority doing little to boost their human resource capacity.

“Across countries, the region’s public agricultural research capacity increased by 50 percent during the period 2000–2011 to an estimated 14,500”, the study found.

It is however quick to note that this increase is attributable to Kenya, Nigeria and Ethiopia which jointly hired about 5,000 research staff out of the 14,500 cited.

In analysing the figures the authors found that Nigeria employed 2,688 staff, Ethiopia 1,877, while Kenya hired 1,151 agricultural workers over the 10 years to 2011.

Majority of staff recruited by the 38 countries studied were “junior” workers with bachelors of Science degree, deemed not enough in undertaking agriculture research.

While the number of female researchers increased, women are still under-represented in agricultural research in many countries.

Loss of well qualified and competent staff, aging and dilapidated infrastructure in research institutions did not help matters, with little upgrade of facilities thanks to inadequate funding.

But even as spending remained below the required levels (1 percent of GDP) an increase was noted during the years under focus-2000-2011, with amounts spent growing from \$ 1.2 - \$1.7 billion.



**Mr. Simon Ndirangu, the manager of Oserian Tissue Culture bananas (TC) laboratory in Naivasha**

However about half of these investments were made in just three countries of Nigeria (\$394 million), South Africa (\$237 million), and Kenya (\$188 million).

# 5,000

**Number of staff hired for research from Kenya, Nigeria and Ethiopia**

Smaller countries and those in Francophone Africa come in for criticism for under-performing in all spheres of investment in agriculture, with many recording negative growth in their spending in the sector.

The report calls for increased autonomy for National Research Institutions (NARIs), to enable them source for own funding, attract and retain high calibre staff.

“Research agencies in many countries are restricted in offering competitive salary levels due to civil service staffing classifications, but with semi-autonomous status institutes can set their own pay scales outside the public service system” note the authors.

In conclusion the study calls for more action to ensure dissemination of research findings, to ensure that farmers benefit from knowledge generated.

“Ensuring the dissemination and uptake of new technologies is another key area requiring attention. Governments must take action to see that newly released varieties and technologies reach farmers. This involves strengthening of extension agencies, more clearly delineating the roles of research agencies and extension services, and promoting active cooperation between the two functions”, it concludes.

# Lime: The gold that changed my life



By Sophie Mbugua

**A**bout 30kms north of the equator in western Kenya rests Kakamega County, the home to Kakamega Rain Forest the only tropical rain forest in Kenya.

Looking at the area with your bare eyes, you would be forgiven to think, it's the most fertile region in the country. The area has vast green vegetation cover and the rain pours almost every afternoon.

In the tiny village of Emuveri, Mumias sub-county, Benjamin Wangumba inspects some tree species.

"This is Calliandra tree which we are integrating with maize. It's important in fixing nitrogen into the soil," he explains.

Wangumba is among over 20,000 small holder farmers involved in the integrated soil management fertility (ISMF) project.

The project aims to improve small holder maize productivity and adaptation against climate change in

western Kenya.

"The soil in this area is very acidic due to its parental material and leaching from flooding due to the ocean water," Wangumba tells me. "The acidic soil is reducing the plant growth by hindering the intake of major plant nutrients such as nitrogen, phosphorus and potassium," he adds.

Traditionally, farmers in the area commercially produce sugarcane, a plant that remains in the soil for 3-4 years and require UREA fertilizer, therefore contributing to soil acidity.

"Rains have been very unpredictable affecting our planting season. One has to use a lot of fertilizer to get some yield if any. Heavy rains contribute to leaf rust in beans," says Wangumba but he is quick to add that the new improved sorghum varieties SB24 and SB 25 that take 90-120 days to mature are more stable than other varieties.

Wangumba is not the only one involved in the project, Joyce Otieno, a mother of 5, lives in the neighboring

Ugenya County. She is also a member of Umoja farmers group formed as a result of the ISMF Project. "I have one acre piece of land that I used to plant potatoes, maize and beans. It had striga weed, was acidic and I didn't know all this, some of us even thought our land was bewitched. Can you imagine, for a whole acre I would harvest only 10-15tins of beans and only one a bag of maize?" She exclaims.

"It's until I started collaborating with the Kenya Agricultural & Livestock Organization (KALRO) that they did soil testing and I realized where the problem was," she adds

Although, agriculture is the main stay of the economy in western Kenya, more than 50% of the households are experiencing food insecurity in the region.

The Integrated Soil Fertility Management program, is working with farmers on adopting technologies that will help increase the production and reduce emission of the green house

gases into the atmosphere through carbon sequestration.

"We are using legumes such as soya beans and fodder crops such as calliandra to intercrop with maize as they fix nitrogen from the atmosphere for improved soil fertility which reduces the amount of nitrous oxide from the atmosphere," explains Dr Martin Odendo principal research scientist at KALRO Kakamega and the ISMF Project Coordinator.

The program funded by the Alliance for a Green Revolution in Africa is integrating early maturing variety legumes such as soya beans that help in carbon sequestration and using of lime to increase land cover to mitigate against soil erosion and increase yield.

This helps the plants grow well and give maximum yield as it utilizes the carbon dioxide and store it in the soil, hence increase the cover and the crops.

"3 years ago I would harvest 2bags of maize in an acre but now I am harvesting 6bags," he explains. "At USD 4 for a 50kg bag, lime is economically cheaper compared to DAP this costs USD 45 and has to be used every planting season as opposed to lime applied once in 3-4years," he explains.

# 20,000

## Number of small-holder farmers involved in the integrated soil management fertility project

Low and declining soil fertility challenges in Africa account for the continent's low agricultural productivity and hunger among millions of rural poor populations, particularly smallholder farmers.

"We are using the agricultural lime as it helps neutralize the pH of acidic soil, provides a source of calcium and magnesium for plants, permits improved water penetration for acidic soils and improves the uptake of major plant nutrients such as nitrogen, phosphorus, and potassium of plants growing on acid soils. At the end this helps to increase land cover," explains Mr. David Mbakaya, a soil scientist at KALRO, Kakamega.

"Lime has become gold to me!" says Joyce joyfully. "They gave me 10bags of lime for half an acre, I used to harvest 10-15tins of beans in my one acre {but} now I harvest 60tins and 7bags of maize. It has brought me out of hunger," she concludes.

The project started with 50 farmers as a demonstration group, but through training and field visits, it has spilled over to 20,000 farmers.

"This project has helped my family. My wife no longer cuts down indigenous trees in search of firewood as we use the dry calliandra trees, the soil is healthy and so is the harvest. Last season I harvested 10bags of maize in an acre," concludes Wangumba.

## Dr. Moses Rugut appointed NACOSTI CEO



By Kiprotich Koros

The search for a new chief executive officer of the National Commission for Science, Technology and Innovation ended in December with the appointment of Dr Moses Rugut. A long-serving research scientist with over 20 years experience, Dr Rugut will be charged with steering the mandate of NACOSTI, an advisory government institution on science, technology and research. The Commission also regulates scientific research in Kenya. He is a professional veterinarian specializing in helminth epidemiology and has published widely on the subject.

He has worked previously with Kenya Agricultural Research Institute (now Kenya Agricultural and Livestock Research Organization (KALRO) where he rose to become Principal Research Scientist. He received a state commendation in 2008 in recognition of his service to the country as a scientist.

He served as Chief Research Officer at the Directorate of Research Management and Development (DRMD) in the Ministry of Higher Education, Science and Technology and later got promoted to Deputy Director of Research, Collaborations and Partnership before being appointed the Deputy Commission Secretary at NACOSTI.

Born in 1956, Dr Rugut has an outstanding academic background having obtained his Bachelor of Medicine degree from the University of Nairobi, an M.Sc.in Tropical veterinary science from the University of Edinburgh, and a PhD from University of Glasgow.

# Economics of salt-induced land degradation explained



**Salt-Induced Land Degradation: the world has a major cause to worry about the increasing cases of soils turning saline**

By Zeynab Wandati

**A**t least 20% of the world's total irrigated land has turned saline in the last 20 years, translating into yield losses of about 30 billion dollars per year. This is according to a study by soil scientists at the United Nations University, published in the Natural Resources Forum. What this means is that the world will not be able to sufficiently feed itself if the salinity is left unchecked.

Every day, the world loses 2,000 hectares of farm soil due to saturation of salt in the soil. Today, a total of 62 million hectares of irrigated farmland across the world has become too salty, becoming unfit for food production, representing a 38% increase since the early 90s.

The study, Economics of Salt-Induced Land Degradation and Restoration, indicates that the world has a major cause to worry about the increasing cases of soils turning saline, especially when many countries are struggling to feed their populations.

This salinisation has resulted from improper irrigation practices in arid and semi arid lands, mostly by small-scale farmers. These regions are susceptible because they have little vegetation to keep the salt below the surface. In Africa, at least

some form of soil degradation affects 28% of the total farm area, with salinisation being responsible for 15 million hectares. This might look like a small area against the continent's over 400 million-hectare land mass. But considering that only about 7% of the total farmland is irrigated, 15 million hectares is a lot to lose annually.

Most parts of Africa have naturally salty soils, which are usually harmless to crop growth. But the more the salt accumulates, the more harmful it is to crops. At least 10 countries, including Kenya, Egypt, Tunisia, Somalia, Libya and parts of West and Southern Africa, are affected by salinisation, with countries in North Africa most affected. This is because most of Africa's total irrigation activities are found in the North.

Elevated soil salt content limits the agricultural potential of the affected land, and the Qadir et al Economics of Salt-Induced Land Degradation study says if not corrected, there will be very little land left for food production. The salt causes harm to plant life and affects soil fertility, leading to reduced yields.

The study however suggests ways in which the world can save its soil resources, such as using water to flush the salt from the soil and irrigating land only in the morning or evening when evaporation is low.

Degradation is the greatest threat to Africa's soils, with erosion and loss of organic matter topping the list.

Water erosion is by far the most widespread, affecting 227 million hectares of land – which is about 8% of the continent's land. Wind erosion is concentrated mostly in the deserts. According to the most recent edition of the Soil Atlas of Africa, climate change is slowly turning out to be the greatest threat Africa's soil, and it is therefore important for Africa to adopt climate friendly land use practices.



# Non-communicable diseases to add to Africa's Woes

From page 9

More than 60% of world's total new annual cases occur in Africa, Asia and Central and South America. These regions account for 70% of the world's cancer deaths according the World Health Organization. Annual cancer cases stood at 12 million worldwide in 2012 but this is set to rise to about 22 million cases each year in the next two decades.

The largest increases in NCD prevalence will occur in Africa by 2020 with recent data unearthing diseases like asthma, Chronic obstructive pulmonary disease (COPD) diabetes, hypertension, cancer and chronic kidney disease in many communities previously thought to be low, adds Dr Aloba.

A session of chemotherapy costs between KES. 6000 and KES 600,000 depending on the regimen. Patients usually undergo several sessions over extended periods depending on the severity of the condition.

NCDs generally classified as chronic diseases can cause a serious dent in household budgets with an indirect potential to increase poverty due to continued hospital visits, high drug costs among other interventions. While high end care and expertise is available in Kenya, it is expensive and many people

are increasingly going abroad to seek cheaper treatment. For most, the cost is too prohibitive and many die at home.

Patients stand to benefit the most from the proposed National Social Health Insurance Scheme.

While screening programmes, registries, capacity building and operational research are done by many players and the government, coordination to reap maximum benefit is needed says Dr. Aloba.

## Patients stand to benefit the most from the proposed National Social Health Insurance Scheme

Risk factors include unhealthy diet, physical inactivity, tobacco and alcohol use. Unfortunately, some of these bad habits are considered signs of affluence in many communities.

Chronic diseases like diabetes and cancer are usually dreaded, but there is light at the end of the tunnel going by recent advances in research. Personalised

care is here, says Dr Aloba. Medication or procedures can now be prescribed to an individual patient based on genomics and or their expression of genes that are related to disease in the body, he says.

Breast tissue can now be removed if one expresses certain genes related to breast cancer even when one does not have cancer. Certain medications are prescribed to patients with certain gene expressions.

GSK recently opened the Africa NCD Open Lab set to "create an innovative research network that will see GSK scientists collaborate with researchers across Africa on high quality epidemiological, genetic and interventional research, from its hub at GSK's Stevenage R&D facility in the UK.

"The aim is that this will help build local expertise, create a new generation of African NCD experts, while instilling a deep vein of "African thinking" within GSK's own research and development organization. The first call for proposals for a 4million pound funding opened on 14th November," Dr Moses Aloba says.

Commentators think African NCDs have different risk factors, presentation and ferocity and therefore require different management from NCDs elsewhere.



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