

**SPECIAL EDITION  
ON HIV/AIDS**

**SCIENCE**

# **SAYANSI**

*All science information*

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## **Making HIV self-testing more effective in cutting new infections**



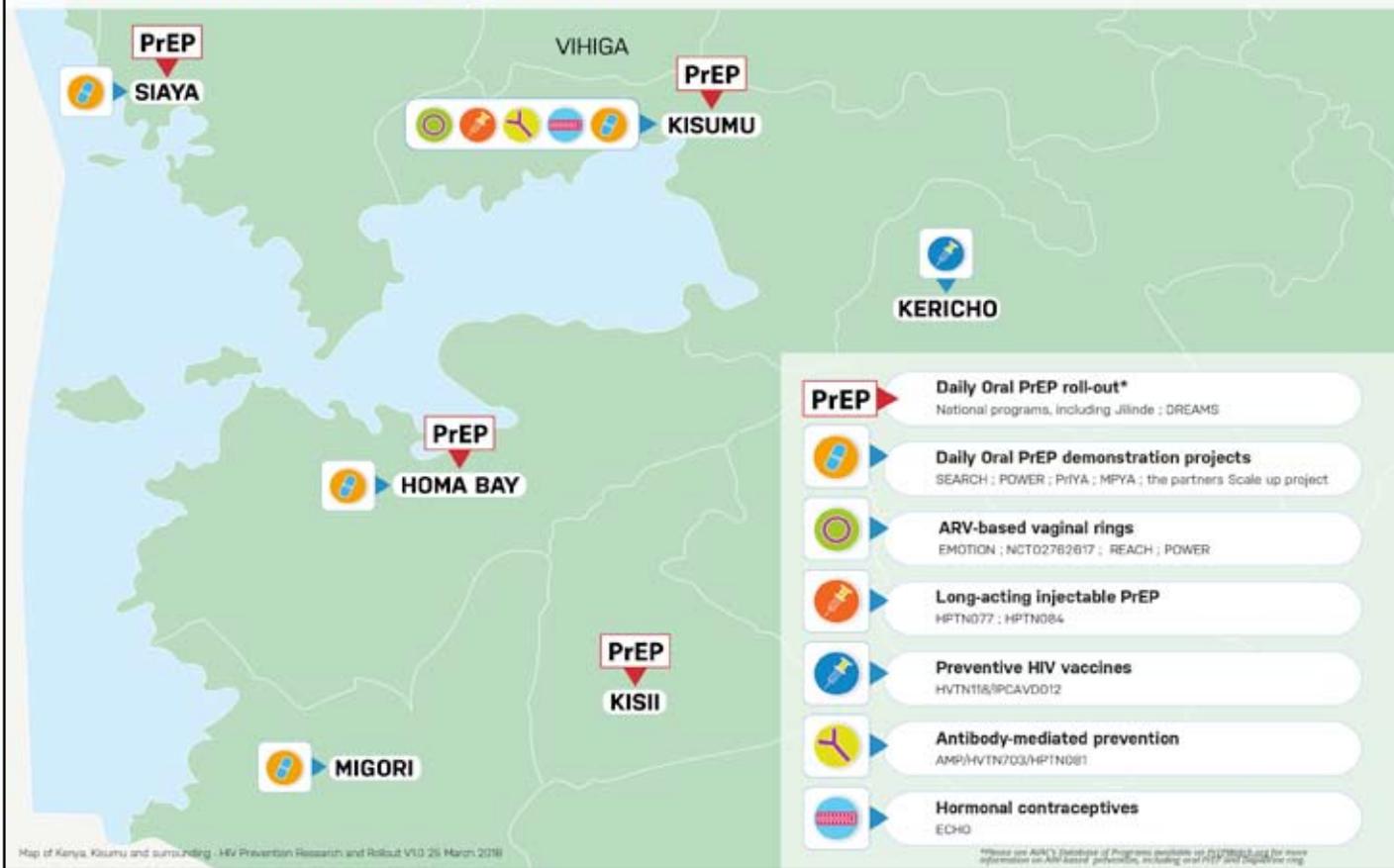
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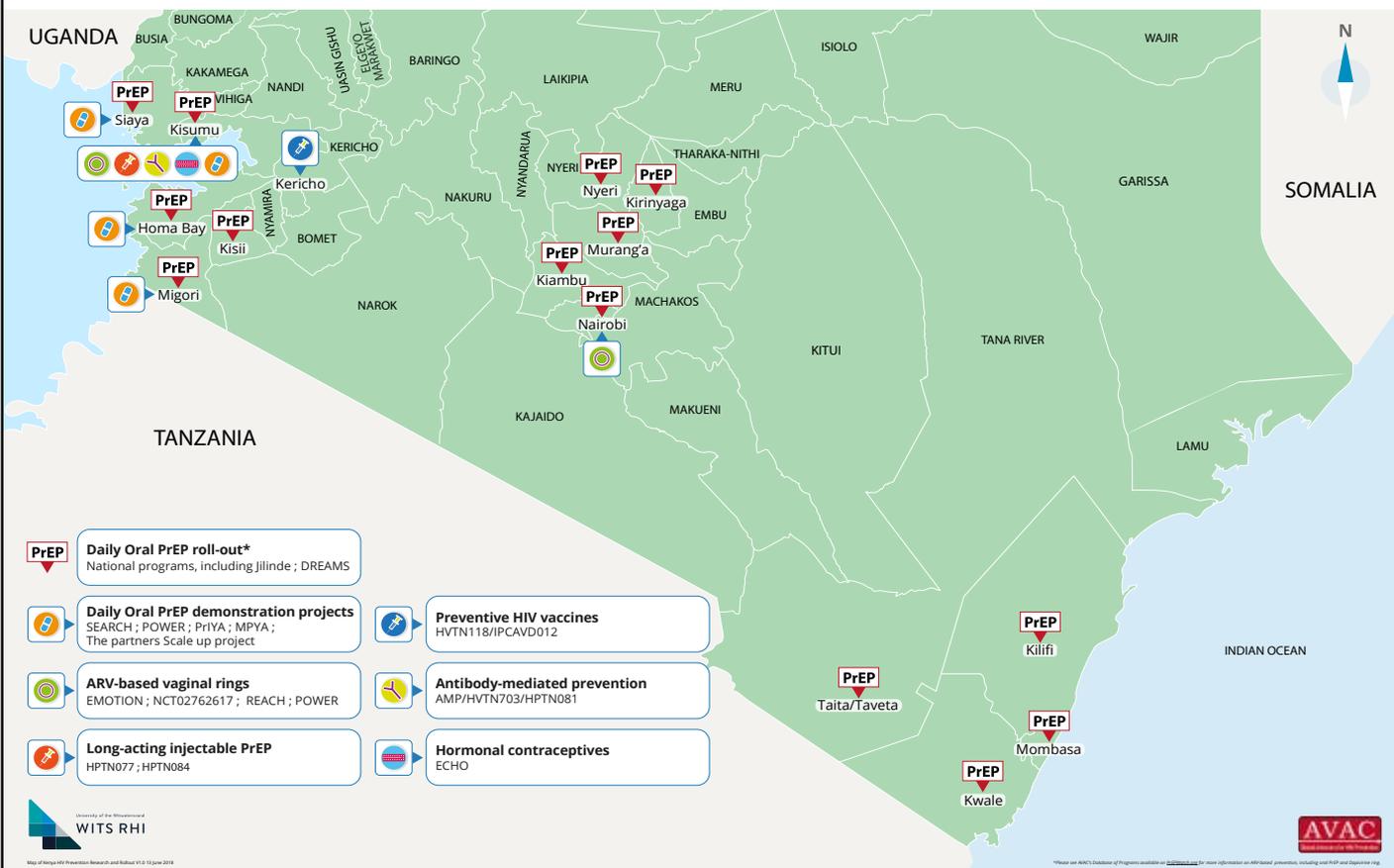
**Besides the vaccine, we still need  
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# KENYA HIV prevention research, demonstration and rollout sites

## Kisumu and Surrounding Areas



# Kenya HIV prevention research, demonstration and rollout sites



## Who we are

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

The association emphasises on rural journalism and communication.

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

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

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

## SAYANSI

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**Cover Photo:** Mr Peter Mogere AVAC Fellow 2017 displays a self-testing kit.

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# HIV Self testing calls for dialogue with health providers

By **Daisy Ouya** | [DOuya@avac.org](mailto:DOuya@avac.org)

Kenya's HIV self-testing program was launched in 2017 as part of efforts to make a dent on the country's new infections which increase at the rate of around 70,000 annually.

It is believed that if widely used, self-testing will complement clinic-based VCT services, and allow more of those testing positive to start on immediate anti-retroviral therapy. Those who test negative, will receive prevention services, including using pre-exposure prophylaxis (PrEP), a daily oral pill to prevent HIV acquisition among uninfected individuals.

Yet over a year into the launch, awareness and uptake of HIV self-testing in the country remains low and patchy.

A media science café hosted by the Media for Environment, Science, Health and Agriculture (MESHA) on January 23, and a civil society meeting on January 26 looked into the status of HIV self-testing in the country, and what can be done to promote awareness and uptake.

Two researchers who have been at the forefront of HIV self-testing and PrEP research spoke at the Café, showing results from their work among diverse populations at risk of HIV infection; results that overwhelmingly indicated that HIV self-testing can work in the country.

Dr Kawango Agot of Impact Research and Development Organization in Kisumu, and Dr Kenneth Ngure of the School of Public Health, Jomo Kenyatta University of Agriculture and Technology in Thika said many of the fears around self-testing—such as the risk of violence, suicide or self-harm following test results—did not stand up to the evidence from their research.

To the contrary participants reported finding the HIV self-test kits “empowering”, “easy to use”, and “exciting,” said Ngure. Both studies recorded zero incidence of suicide or self-harm following test results.

The privacy of self-testing allows people to side-step HIV stigma, a known deterrent for testing in traditional

HTS clinics. A mention of the subsidized costs with support from BMGF (I believe) would indicate we're current and also balance it. In a Partners Demonstration Project study among sero-discordant couples in Thika, 98% (222 out of 226) of the couples accepted HIV self-testing, said Dr Ngure.

The cost of the test kits was identified as a key barrier to uptake. According to Peter Mogere, 2017 AVAC Fellow and Chair of the Kenya Pharmaceutical Association, the two HIV self-test kits currently approved for use in Kenya—the oral fluid test 'Oraquick' and the blood test 'Insti'—are currently only available in around 30 private pharmacies in the major cities at between Ksh 800 and Ksh 1500. This cost puts them out of reach of most people, and they are inaccessible to those in more remote areas.

Advocates at the meeting urged the government to remove import taxes and levies on the kits immediately, to bring down their cost, with the ultimate aim of providing free HIV self-test kits in all parts of the country.

Other concerns raised both by journalists and civil society representatives were on correct messaging and accurate translation of kit instructions into local languages, sign language, and braille.

According to the 2012 Kenya AIDS Indicator Survey, KAIS, for every two HIV-infected persons aged 15 to 64 years, only one of them knew their status. This is why widespread uptake of HIV self-testing would dovetail nicely into the country's treatment and prevention programs, and make a difference to the face of HIV in Kenya.

**Advocates at the meeting urged the government to remove import taxes and levies on the kits immediately, to bring down their cost, with the ultimate aim of providing free HIV self-test kits in all parts of the country.**

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*Information about HIV self-testing in Kenya is available at <http://www.besure.co.ke>*

*Information about PrEP in Kenya is available at [www.nascop.or.ke](http://www.nascop.or.ke) and [www.prepwatch.org](http://www.prepwatch.org)*



# Magic numbers to halt spread of HIV/AIDS

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

**A**lthough HIV/AIDS has defied science by killing millions of people throughout the country in the last three decades, HIV experts now believe that they have found the magic numbers to end the public health threat by the year 2030.

The magic numbers are 90-90-90. They are targets for testing, treatment and viral suppression; and are informed by growing clinical evidence showing that HIV treatment equals prevention because putting people on antiretroviral therapy (ART) reduces new infections.

The new treatment targets believe that if 90 percent of people living with HIV get tested consequently leading to 90 percent of those diagnosed with HIV being put

on ART and becoming adherent, then it will be possible, then it will be possible to have 90 percent of people on ART achieve durable viral suppression.

The 90-90-90 plan unveiled by the Joint United Nations Programme on HIV/AIDS (UNAIDS), seeks to halt the spread of HIV by 2020 and to end the epidemic by 2030.

The strategy has led to the revision of other guidelines in the testing, treatment and management of HIV.

While this is the most ambitious strategy to eliminate HIV yet, experts such as Dr Kenneth Ngunjiri, a HIV prevention researcher and Senior Lecturer at the Jomo Kenyatta University of Agriculture and Technology, say that it can be done.

"Self-testing will help achieve the

first 90 target. Overall about 53.2 percent of HIV infected persons aged 15 to 64 years do not know they are HIV infected but this will change through innovative strategies for HIV testing," he said during the January 2018 media café by Media for Environment, Science, Health and Agriculture (MESH)."

He explained that many people have not been tested due to several challenges including stigma and challenges in accessing the traditional HIV testing options available.

This places significant obstacles on the path to achieving the second and the third 90 whose success is directly linked to the attainment of the first 90.

HIV self-testing will not only make it possible to expand access to testing services but Dr Kawango Agot, speaking at the same event emphasized that it will help reach key populations.

“Many of the undiagnosed are part of the underserved populations who are not using health services,” she expounds.

Adding that the provision of multiple self-tests to index persons such as women may be useful for enhancing access to HIV testing in sexual networks.

This means that working with women to increase their access to self-testing can also increase partner and couple testing.

In keeping with the 2013 World Health Organisation (WHO), Kenya will get closer to the 90-90-90 target as it now aims at testing and treating those those infected regardless of the CD4 count.

Quoting studies that have been done proving that self-testing was feasible, acceptable, safe and an effective strategy to achieve the first 90, Dr Agot explained that studies have proved that HIV self-testing “promotes partner and couple testing.”

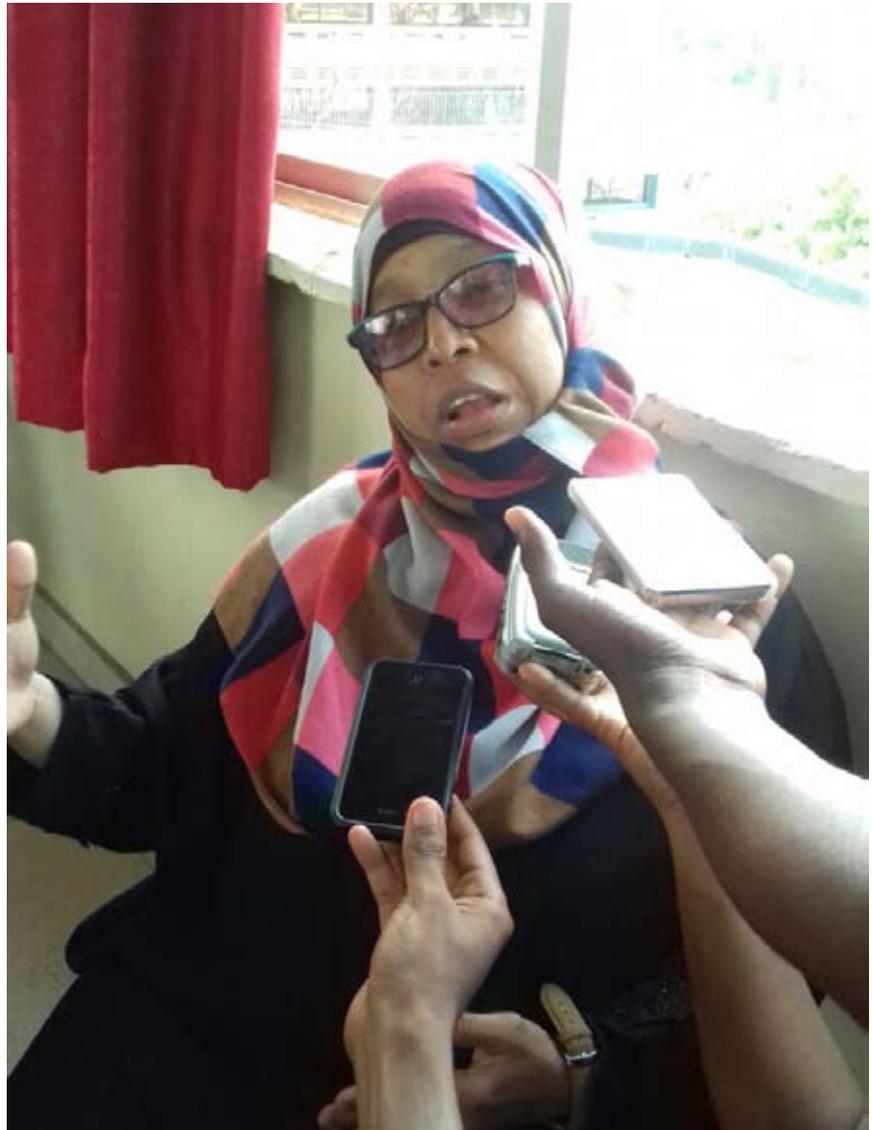
The experts said that increased testing will translate to more people who are HIV positive being put on ART sooner.

The second 90 and essentially the 2013 WHO guidelines on ART eligibility, build on the clinical benefits of starting ART earlier as patients are healthier and stay healthier, avoiding opportunistic infections including pneumonia, meningitis and TB. As the eligibility for ART becomes broader, the need for increased testing will become even more critical.

There is a great need to employ as many strategies as possible to encourage HIV testing.

Studies in Kenya and Uganda show that including HIV testing in multi-disease campaigns drove coverage up by 86 percent and 72 percent respectively.

But experts caution that the targets are more than simply putting loads of people on ART. Attaining viral suppression is key.



**Rahma Rashid, a government official fielding questions from the Media at one of science cafes in Mombasa**

Studies show that high viral suppression has been observed in countries such as Rwanda where about 83 percent of people receiving ART were found to be virally suppressed after 18 months of therapy.

Dr Ngure emphasized that if people know their status, they are more likely to be put on HIV care. If then they are on ART, experts say that they are consequently more likely to stay within the health system for follow up.

“HIV testing is therefore very important to HIV prevention. We are then not only talking about linkages to care but also

linkages to prevention including the provision of pre-exposure prophylaxis (PrEP) for those at greater risk of HIV infection and all other interventions available,” he said.

HIV self-testing is an effective screening tool, very simple to conduct, discrete and very convenient. Calling upon researchers, healthcare providers both in public & private facilities, civil societies and the HIV advocates to continue with the conversation on campaigns for HIV testing as it is the entry to either treatment or prevention for HIV.

Photo Credit: MESHA



### Sharing information - the public needs information about various interventions targetting HIV to curb incidences

The government would need to look into the price of the HIV self-test kits in the private sector and communicate on the kits permitted for use in the country for uniformity and for quality assurance. Prices for the kits in the private sector is prohibitive plus NASCOP hasn't released a circular to guide on which kits have been permitted for use in the country.

In September 2015, WHO strongly recommended the use of Pre-exposure prophylaxis (PrEP). This is the use of antiretroviral drugs to prevent acquisition of the HIV virus.

Kenya's Ministry of Health wasted no time when a few months later it released HIV treatment and prevention guidelines in support of the provision of immediate initiation of ART and PrEP use among the uninfected partners at high risk of HIV infection.

While there is sufficient evidence to show that there is greater acceptance of HIV self-testing, concerns have been raised over the cost benefit of this innovative strategy.

Critics have raised the alarm that self-testing can be counter-productive in the long run as it does not provide the crucial counselling element that is necessary to HIV testing.

Dr Agot while acknowledging that indeed this challenge exists, emphasized that preliminary research even in countries such as Malawi that have scaled up self-testing, has shown no evidence that self-testing could lead to issues such as suicide.

"Researchers are not under-playing counselling but we work with scientific evidence and so far we have not recorded any indications that the absence of counselling can lead to self-testing being counterproductive," she explained.

She said that cases of suicide were more common years ago because people felt there was little hope since there was no cure for HIV.

"But now treatment is available and people are aware that even if infected there is hope. They can be put on care and continue to lead normal and productive lives," she explained.

Nonetheless, other experts say that achieving 90-90-90 is not as simple as ensuring that as many people as possible are tested but it is a strategy that requires a combination of factors for it to work.

These factors include a robust health system, good laboratory capabilities, cheaper viral load testing and a strong health work force.

In spite of the uphill task ahead, many are optimistic that 90-90-90 will write the final chapter of the AIDS epidemic.

# Coming soon: new device to encourage taking of PrEP drugs



**Wise Pill is a device currently being tested**

**By Carol Otieno | lolwecarol@gmail.com**

**A** new device is being developed to encourage individuals at risk of contracting HIV to take their daily dosage of

Pre-exposure prophylaxis (PrEP).

Wise Pill was developed as an HIV prevention technique to help take control and take charge of new infections. The device is currently being tested.

To increase the uptake of PrEP among the youth, who are the largest consumers of technology, this invention has been incorporated with IT to help them take their drugs daily.

According to Wise Pill adherence study coordinator, Kamolo Kevin, the program is aimed at getting more young ladies to use the gadget but since it is still on

study, they are currently testing its efficacy among 175 girls within Kisumu county.

"This is a generation that studies done previously have shown have had difficulties to adhere to the uptake of PrEP," Kamollo said.

The device is under study by Kenya Medical Research Institute's Centre for Microbiology Research (KEMRI-CMR) and helps young adult women carry their prep wherever they go. The device has two compartments that carry 15 tablets each and a participant is supposed to take a tablet each day at a specific time of their choice.

Kamolo said participants using the device were trained before one was handed over to them to ensure they do not interfere with the kit.

"We train them how to open inside. And when she (participant) gets to open it, it sends a signal to our server," he said.

To certify whether the participant indeed took their tablets, they give a report each time they go back to the facility which is then counterchecked by the servers at KEMRI.

"We also conduct tests to confirm the amount of drug in the participant's blood. This will help confirm whether participant was taking the drug," Kamollo explained.

To ensure that the participant never misses to take the daily dosage, she can be prompted by an SMS from the server at the specific time she is supposed to take the drug.

"During registration, members request for the kind of sms to be sent to them as a prompt," Kamollo said.

With the device easy to conceal as a power bank, Kamollo said they hoped that the results of the study will help the community on HIV prevention and generally the uptake of drugs.

But in a separate interview, Dr. Elizabeth Irungu, KEMRI, stressed that PrEP was not meant for everybody.

"It is for people who are at risk of acquiring HIV and they just need to be identified or identify themselves and visit a facility to take the pill daily. If the risk is gone, stop. If the risk is back, start," Dr. Irungu said.

She added, "We need to be sure that you're HIV negative and not positive. HIV positive individuals should take ARVs not PrEP."

Other than United States of America, the study on the wise pill gadget is taking place in Kisumu and Thika in Kenya.

# Meet the discordant couple who promotes testing for HIV together

By Carol Otieno | lolwecarol@gmail.com

Photo Credit: CAROL OTIENO

**J**udith Auma Otieno was going about her daily life activities normally until it hit her that she was HIV positive.

The then expectant mother of three had gone for clinical check-up at Ramula Health Centre in Rachuonyo, Homa Bay County and was requested to get tested for HIV which she obliged.

But the news she got from this test done in the year 2008 would change her life forever. She was HIV positive. Still in disbelief, Judith went home and shared the news with her husband who thought it was a prank.

"My husband told me I look healthy. It seemed to be true because my body was not aching nor had I any headache," narrates a healthy looking 35-year-old Auma as she smiles wryly as she addressed a media training organised by the Media for Environment, Science, Health and Agriculture (MESHA) last March.

She had to go to two other health facilities to confirm that she was indeed infected with HIV.

"This is when I came home to convince my husband that I was indeed sick and we needed to look after ourselves well," Auma says.

For Auma and her husband Joshua Otieno Odago, anyone infected with HIV was very sick and weak and had to be covered in rashes all over their body.

This new reality disoriented the family as Otieno, by then a heavy drunkard began threatening her with divorce.

But through the help of community health volunteers who talked to Otieno, he later toned down and agreed to be tested.

**Mr and Mrs Joshua Otieno Odago during the interview with this writer in Kisumu**



"We then went for HIV testing together but he was found to be negative but I was positive. We did not panic," Auma says.

It was then that the clinician referred the couple to Lumumba in Kisumu where they were introduced to their the PrEP study programme.

The two, however, had to undergo a lot of counselling to help them fully accept and adapt to their new condition.

Auma and her 59-year-old husband, however, confess that despite one of them being HIV positive, they were very open about it.

"There was nothing to hide now but I had to accept my condition and live with it," Auma says.

What however kept them going was the programme they were introduced to while at Lumumba.

Auma said after she discovered that she was HIV positive, she was put on septrin and multi-vitamins for the next two years as well as ARVs as her husband was put on Truvada (both as an ARV but mostly as PrEP drug for preventing those not yet infected with HIV against acquiring the disease).

"I took ARVs while my husband was put on Truvada and for the next two and a half years the drugs managed to put the virus to sleep until when she was declared as 'clean'," said Auma.

Partners Scale Up project coordinator at Kenya Medical Research Institute (KEMRI) Josephine Odoyo said the couple was enrolled as participants in the HIV/AIDS prevention in the partnership PrEP study (2008-2013).

"As a case study they proved that PrEP is key in helping discordant couple love and protect each other," said Odoyo.

They were lucky to have three more children with all their children being HIV negative.

Otieno said their children are aware of their condition and continue to support them where necessary.

"They are fully aware and they sometimes remind us to take our pills whenever we forget to do so," Otieno said.

Otieno urged couples to get tested from time to time to help them know their HIV status which will help them plan for their lives and those of their children.

# Can PrEP deliver zero infection among key populations?

PHOTO CREDIT: AGHAN DANIEL



**A scientist at work in Botswana: In the past many people got infected because of lack of information on what scientists were doing to curb the spread of HIV**

By Doreen Mwasi | [doreenmaangachi@gmail.com](mailto:doreenmaangachi@gmail.com)

A report by Kenya's Ministry of Health in 2015 estimated that at least 1.5 million that are HIV positive. It further states that at least 70,000 new infections were reported that year. The high rate of new infections affects efforts towards zero infection by 2030.

Recently, I visited Korogocho, one of the slums in Nairobi which has a population of around 100,000 residents, 65% of them being the youth. Here I met Rosemary Awuor who is a tailor and has been living positively for over 19 years. "I discovered I was HIV positive when I was 19 years old in 1999. Back then,

there was very little information about the HIV virus", says Awuor. She has been on ARVs since then which she says has helped her to remain alive and healthy today.

A few kilometres from Korogocho, I meet Esther Wanjiku who lives in Eastleigh, a very busy neighbourhood in Nairobi with most businesses there being owned by Somalis. Like Korogocho, majority of the population is youthful which makes it a lucrative place for bars and night clubs to flourish. Wanjiku started having sexual relationships with boys and men at the age of 14 years.

"I did not really have a boyfriend but a middle age man who was our neighbor used to give me money then one day he told me to follow him in his house and he had sex with me without my consent". After that first encounter it became her lifestyle of sleeping with several men for money. "I didn't really care who I was sleeping with as long as they gave me money, I did not even bother to use protection. Unfortunately when you are a young girl men take advantage of you so you do what they want", notes Wanjiku. Unlike Awuor who got infected though she had only one partner, Wanjiku was still HIV negative even though she has no count of the number of partners she has had for four years.

In 2015, it was a turn around to Wanjiku who was spotted by Bar Hostesses Empowerment Program and Support Program [BHEPS], an organization that links key populations with reproductive health facilities. After being enrolled on their awareness program, she voluntarily enrolled to PrEP Pilot study in 2015 and later in 2017 when it was officially enrolled in Kenya she was one of the pioneer beneficiaries of the program. PrEP was introduced by the government to target those who have multiple partners, discordant couple, those who have sex partners they don't know their HIV status, those who have sex without using protection among others.

"PrEP stands for pre-exposure prophylaxis, a tablet a HIV negative person takes everyday to prevent contracting HIV virus. PrEP must be taken daily as long as one is at risk of getting infected,"

explains Rona Kavinya a counselor from BHEPS. Kavinya emphasizes that they train their clients to understand the importance of the drug and carry out follow ups to make sure they adhere to drugs. They also screen their clients every three months.

Another organization, Liverpool Voluntary Counselling and Testing (LVCT), also has a project on PrEP in Korogocho and according to Charity Mbugua who works with the organization, it has been a success. 'Since the project started two years ago we have over 100 clients and all of them are still negative.

This proves that PrEP works, because we have sex workers who are still in the business or even discordant couples whom we follow closely and have not been infected."

Ms Mbugua says they have also been very keen in creating awareness on behaviour change. She adds that some of their clients have left the program since they dropped the lifestyle of having multiple sex partners and settled down with one partner.

However the ministry recommends that those who are on PrEP should still use protection since it does not prevent STIs or pregnancy and according to Ms

Mbugua it has been proved to be safe for pregnant or lactating mothers.

Though Wanjiku is happy to have enrolled into the PrEP project, Awuor, on the other side wishes it was available in the 90s. "I wish PrEP was there before I got infected, I would be the first one to enroll. Let the youth get this information and start to use PrEP, if this happens I am sure no youth will be HIV positive by 2030".

If those who are negative have access to PrEP and those who are positive enroll on ART among other interventions then the government's goal to have zero infection by 2030 will be achieved, says Wanjiku as she ends the discussion.

## MESHA members star at the inaugural health media awards

### By MESHA Correspondent

Three MESHA members, Gardy Chacha of the Standard, Doreen Magak and Ms. Maryanne Waweru-Wanyama, Blogger- Mummy Tales and Maternal Health Advocate have been feted with various prizes at the just ended MERCK media awards for excellence in health journalism.

During the July 9 event held in Nairobi, the First Award from the Print Media Segment was received by Mr. Gardy Chacha, Senior Health and Science Reporter from Standard Newspaper, Kenya. He was selected for his soul-stirring story named 'Cecilia Wairimu: One woman, Three marriages, 11 years of Infertility'. He was rewarded with USD 1500.

The second award was given to Mr. Mashaka Bonifas Mgeta, Jambo Lee News, Tanzania for his story 'Infertility Promotes Violence against Women in Tarime'.

The First Award from the Online Media Segment was given to Ms. Molatelo Mainetje, News and Current Affairs Producer and Documentary Filmmaker

from South Africa for her short film called 'Womb Man'. She was rewarded with USD 1500.

The Second Award in this category was given to our own Ms. Maryanne Waweru-Wanyama, Blogger- Mummy Tales and Maternal Health Advocate for her story 'You Rather birth to a Mad Man, than Never having Given Birth at all'.

Ms. Asha Bakidusa, Journalist with Royal Media Services Limited, Under Bahari FM, Kenya was given the First Award for the Radio Segment for her program on 'How family men supporting their spouses in cases of Infertility'. She was rewarded with USD 1500.

The First Award from the Online Media Segment under the student's category was bagged by Ms. Lilian Kaivilu, Freelance Journalist and Founder of Impacthub Media, Linguistics Media and Communication Student at MOI University, Kenya, for her story 'The wrath of barrenness in Kamba culture'. She was rewarded with USD 1000.

The Second Award was given to Ms. Stephanie Odhiambo, Everest Media

Solution, Day Star University, Kenya for her story 'Merck Foundation CEO, Rasha Kelej on course to fight for 'infertile' women'.

The First Award from the Print Media Segment will be given to Mr. Sérgio Simão Raimundo from Eduardo Mondlane University, Mozambique. He was selected for his story named 'Infertility in the South of Mozambique'. He was rewarded with USD 1000.

Merck foundation announced the call for application for "Merck more than a Mother" Media Recognition Award 2018 at the end of the ceremony and encouraged all African media to be advocate for the campaign and apply for the competition.

The Award ceremony was followed by Merck Foundation's first 'Merck Health Media Training' to break stigma around infertility and improve awareness about male infertility. It aimed to train African journalists about the international standards and media ethics for reporting sensitive issues like infertility.

# Recombinants harsh to HIV vaccine development



**Dr. Francis Kiweewa, the head of research and scientific affairs at Makerere University Walter Reeds Project (MUWRP)**

**By Esther Nakkazi** | [estanakkazi@gmail.com](mailto:estanakkazi@gmail.com)

**F**or the first time in many years, four efficacy vaccine concepts are in phase III and could give us an HIV vaccine. But even if they do not find one, it is still a great leap forward.

"If they do not give us a vaccine they will at least give us information about how it works," said Dr. Francis Kiweewa, the head of research and scientific affairs at Makerere University Walter Reeds Project (MUWRP).

Kiweewa said we shall get to know this important information just two to three years from today in either 2020 and 2021 and that is not far off. He was speaking to journalists at their monthly science cafe organized by Health Journalists Network in Uganda, HEJNU.

But that notwithstanding you could ask do we still need an HIV vaccine anyway? In some circles, the debate is could HIV be the first epidemic to be eliminated without a vaccine.

I guess you have heard of all the interventions these days, the condom, the antiretroviral therapy for both treatment and prevention, the vaginal ring that showed promising results and more to

it, scientists are busy in their laboratories cooking up new HIV prevention and therapeutic tools every day.

Dr. Kiweewa says despite these efforts we still need an HIV vaccine. "The numbers of new infections remain incredibly high," he says. For instance in Uganda 500 youth get infected with HIV every week. In South Africa, 5000 young women are infected with HIV every week.

Also, the high cost of treatment is unsustainable and ultimately a vaccine would be cheaper, reach many more people and let us not forget that 'prevention is better than cure'.

Even if we get the HIV vaccine in the next two to three years, there is a possibility that it might not be suitable for us. And here is why an HIV vaccine might work elsewhere and not for Uganda or East Africans.

HIV has many sub-types, the East African region has two predominant subtypes A and D while southern Africa mostly has subtype C. The Uganda Virus Research Institute (UVRI) scientists did a research, sequencing the virus and found that 50% of the HIV virus in Uganda are recombinants of subtype A and D.

This means 50% of the estimated 1.3 million people who are infected with HIV in Uganda have a combination of subtype A and D or AD/DA. While it may not necessarily be more virulent, scientists say it progresses faster.

"A vaccine has that challenge," says Prof Pontiano Kaleebu, the director of MRC/UVRI and the London School of Tropical Medicine (LSHTM). It is for that reason and many others that the renowned professor thinks we are a forgotten lot.

"They are forgetting us here where we have recombinants in East Africa," said Kaleebu. In other words, the spread of recombinant forms of HIV could have implications for vaccines developed to guard against only certain sub-types and not others.

Opinion is divided whether enough research is being done in the region, as experts feel the governments are not investing enough money for scientists to develop a vaccine that is suitable for people in the region. They warn that people need to keep the optimism but also be mindful of the future that we could walk away empty handed in a region with the highest HIV burden.

PHOTO CREDIT: AGHAN DANIEL



# We Love the Jargon, We Hate the Jargon!

By **Angelo Kaggwa-Katumba** | Angelo@avac.org &  
**Kay Marshall** | kaymarshall@mac.com

Scientists spend most of their time in laboratories or classrooms, in clinics or at conferences, in front of computers or wherever their field of specialty takes them.

The two of us have worked in the biomedical HIV prevention field for more than three decades combined. Over the years, we've seen how so many scientists we know prefer to remain far from the spotlight—especially the media spotlight.

"They don't get it," one researcher said to us of journalists at a recent conference. "They always misrepresent my facts so I stay away from them," we heard from another.

For their part, journalists have shared their own complaints about dealing with scientists as sources.

"Scientists speak in tongues to sound smart. Why would anyone say 'end-user' when she can simply say 'someone who takes aspirin'?"

But journalists and scientists need each other if the public is going to understand the importance of research and support it. Opportunities are rare for them to meaningfully interact with each other.

To bridge the gap between scientists and the media, and to enhance knowledge and appreciation of each group's role in biomedical HIV prevention and rollout, we, along with other AVAC team members, have conducted workshops for editors, scientists and civil society. We have convened media trainings in Eastern and Southern Africa and at major conferences; provided support to global communications experts; and over the past four years, initiated the media science cafés program in key countries in Eastern and Southern Africa. These provide a less formal space for interactions among journalists, scientists, civil society and research communities.

## These programs are a crucial link

At a symposium in April, organized by AVAC and Internews in Gaborone, Botswana, we were reminded that advocates are instrumental to making these connections and helping them to thrive.

At the Avani Hotel on the outskirts of Gaborone, about 30 people gathered in the intimate dining room reserved for private dinners. Most of them were health journalists from one of seven Southern African countries where biomedical HIV prevention research or implementation is underway. Journalists were from Botswana, Malawi, Mozambique, South Africa, Tanzania, Zambia and Zimbabwe. Seasoned journalists from Kenya and Uganda also joined to share their experiences and expertise in covering the field. Also in attendance were a couple of scientists and policy makers, and a handful of HIV prevention advocates representing civil society organizations from these same countries.

The journalists were there to learn about the research taking place in their own backyard and how it was connected to sister studies across the region. It was also an opportunity for the journalists to interact with the scientists conducting the research and gain the kind of knowledge they need to share this amazing science in language that is clear and compelling to their audiences at home.

We know that failure to make these connections represents a risk in itself. If you asked us, we can't think of a time when there was more biomedical HIV prevention research in the region, or even globally, and each of these countries is deeply immersed in different aspects of it. More than 573,000 research participants in Africa (representing about 82 percent of the global total) are involved in research on HIV vaccines, microbicides, pre-exposure prophylaxis, HIV cure, HIV treatment, multipurpose prevention options, antibody-mediated prevention and hormonal contraceptives and HIV risk, among other areas. Far too often, local and national health journalists may not even know this research is underway, or their editors don't grasp the significance of these stories in their communities. The public cannot support this work if it doesn't know it exists. Even worse, poorly reported pieces may lead to fear and misjudgment, or, as we've seen in some places, stop important research from starting or continuing.

Educating journalists about the value of research through accessible, accurate stories, that inform and provide context, is vital.

A trip to Botswana Harvard Partnership is a case in point. Generally, access to the spaces where scientists work is restricted. In part, this is to protect the privacy of research participants. As part of the April symposium, researchers opened their doors to their world-class laboratory and clinical trial site. Some of the journalists had never visited a clinical-site laboratory, or any laboratory for that matter. Peering into a state-of-the-art industrial freezer holding 20,000 samples



**Ida Jooste: Journalists and scientists both love jargon and hate them at the same time**

of material such as blood, urine, tissue, cells, DNA and protein among others, at minus 100 degrees, the journalists learned about the scientific questions under investigation from the researchers working with these samples. Some of these questions included: whether a combination of HIV prevention measures could significantly reduce the number of new HIV infections within a community; whether antibody infusions are safe and could prevent HIV infection; and what is the burden of hepatitis B infection among pregnant women.

The journalists learned how this work will inform other studies going on throughout the region.

"It now makes sense," said Malawian journalist, Chimwemwe Padatha.

"For me, seeing this makes the science more credible, more real," added Botswana journalist Mmapula Molapong.

But those terms listed above—microbicide, pre-exposure prophylaxis and the like—they represent one of the challenges. It's both essential and difficult to break down the jargon. Journalists who understand the science, and the context around it, report more and better stories, deepening public trust and interest.

Photo Credit: AGHAN DANIEL



**A poster, at a research station in Botswana speaks for itself**

Gathered around several dining tables pushed together, notebooks out, PowerPoint slides up on the screen, the journalists struggled to follow one scientist as she gamely made a first attempt at explaining the basics of research on broadly neutralizing antibodies. Looking at the faces around the table, some distracted, some frowning, most curious, an advocate from Botswana, Kennedy Mupeli said, "Can I help?"

Mupeli had just completed his one-year AVAC Advocacy Fellowship and had also just been to the 2018 Conference on Retroviruses and Opportunistic Infections (CROI) in Boston in March, and steeped himself in this research.

"You or maybe your children have probably received fluids for dehydration via a syringe or IV, right? Now, imagine receiving the same IV but with fighter cells that protect your body from any sub-type of HIV."

That's the handy metaphor Mupeli used to make sense of a key prevention concept, which transformed a few frowns. The scientist nodded. She added a few details and continued to build off of Mupeli's contribution, adopting less technical language modeled by Mupeli. The journalists leaned in to learn more. Later in the week, a whole session on the agenda was dedicated to the use and misuse of jargon, hence the birth of the most famous phrase at the symposium, "We love jargon, we hate jargon!"

This phrase was born out of an eye opening presentation by Ida Jooste of Internews, herself an experienced health trainer.

Later in the session, a Zambian advocate, Chilufya Kasanda, showed how advocates hold a broad and deep level of knowledge about the context of research. She summarized the HIV prevention research ongoing in her home country. She could tell them the status of access to PrEP at trial sites in Zambia. She also explained the issue surrounding questions of standard of care at trial sites and why it's generating debate among advocates and the research community right now.

Researchers tend to focus on their own studies. It's not their job to maintain a bird's-eye view on the whole landscape of HIV prevention. But the advocates know the science, they know the scientists, and they know the community.

### **The policy makers, scientists and journalists in the room took notice**

As the meeting concluded, Mupeli found himself surrounded by a group of journalists from Botswana. They wanted to start a coalition of health reporters, inspired by their counterparts in Kenya, Uganda and Zambia. Through the media science cafés, these journalists meet with advocates and scientists to network, get updates on research and implementation and spur each other on to better reporting. They share sources, learn new scientific concepts and talk craft.

### **Could Mupeli help them get this launched, they wanted to know. "I'm all yours," said Mupeli.**

We've since learned that the group, with Mupeli's stewardship, had their second meeting early in June at the Botswana Harvard Partnership laboratory, a venue Mupeli secured through his links to them. A coalition has been formed and they are working on a plan to secure funding. Mupeli said, "But as we wait for the funds to come, we'll do what we can with the resources we have: ourselves."

**Angelo Kaggwa-Katumba is a Program Manager at AVAC and Kay Marshall is a Senior Communication Advisor.**

# Besides the vaccine, we still need a cure for HIV

**Professor Sharon Lewin wears many hats, among them being an infectious diseases physician and basic scientist working on the search for a cure for HIV. A professor of medicine at The University of Melbourne and a director at the Doherty Institute for Infection and Immunity, she also co-chairs the scientific advisory board of the International Aids Society (IAS) Towards a Cure Initiative.**

**She was recently in Uganda for the first African HIV Advocacy in Cure Academy held at Speke Resort Munyonyo. Our SAYANSI international correspondent, Esther Nakkazi, caught up with her for a chat and here are excerpts.**

**Q: How important is the CURE research?**

**A:** For the IAS, this is an incredibly important area for the HIV scientific community to focus on. It is a top priority globally to get people tested, put them on treatment and enhance access to prevention strategy. Sustaining treatment for the 37 million people globally, who are living with the virus indefinitely is an enormous global challenge. The only way for potentially sustaining that is by finding a way that people do not need long term treatment and that is why a cure is so important.

**Q: How do we prioritise a cure and a vaccine at the same time?**

**A:** The main role of a vaccine is to prevent new HIV infection. The cure is meant to allow people to self-restore on antiretroviral therapy so it is in the treatment arm. You might say that the same tension exists between PrEP and ART.



I think in any comprehensive response to something like HIV you need prevention treatment and care. The search for a vaccine is critically important in controlling new infections and the search for a cure is important to offer treatment for everyone. Both need to proceed in parallel; and interestingly, the vaccine work is relevant to cure work but the overall goal for a vaccine is prevention. But we are using some vaccination strategies in our cure strategies. So, the science is quite complementary.

**Q: What's new in the cure research?**

**A:** The advances are that we have a much better understanding of where the virus hides for people on treatment. Secondly, we know that remission is possible (remission means being able to stop ART and the virus stays under control at low levels).

We have been able to put the virus in remission in monkey models of HIV which is very exciting and recent.

We also have over 150 clinical trials globally that are testing interventions for cure. There are a lot of advances in the science; but having said all that we still don't have a cure for HIV. No clinical trials yet have shown that they can induce remission in people. Some of the strategies are however promising in monkeys.

**Q: Doesn't remission in monkeys give us hope for applying this on people?**

**A:** This is the big unknown question. We just don't know the answer to that question and the reason why it is taking so much time is because in a monkey model you can easily put different strategies together. We think that we will certainly need a combination strategy for cure.

When you test those strategies in people living with HIV we need to go more slowly and cautiously because people living with HIV are doing very well - living a normal life, they have a normal life expectancy.

We have a very low tolerance for toxicity. So, we are testing individual strategies first; and if they are safe we can put them together.

Well, as in a monkey models, we have been able to go straight into combination intervention. Some of those combination studies are beginning in people but it will be about two years before we have results. It is only then that we will know if monkey models are translatable to humans.

**Q: What cure studies are being done in Africa?**

**A:** A lot of studies now in Africa are either observational studies meaning understanding where the virus hides in different places in people infected with subtype C. So, there is a lot of important work understanding where the virus hides in people living in Africa and it may be a bit different to what we know in the West. A lot of HIV reservoirs in women again are very under studied in the US and Australia because most of the people who participate in our studies are gay men so there are very limited studies on women and yet they happen in Africa and they are very important to study.

Others studies happening here are intervention studies in babies. Unfortunately, there are still very many babies born with HIV in Africa. And although we know that early treatment is effective for babies, there are studies looking at whether early treatment together with antibodies could potentially play a role in a cure for babies. So those studies are happening in Africa.

**Q: How do you want the communities to participate in cure studies?**

**A:** There is a lot of education that is needed in any community before you start a cure study. Education about what the trial is trying to achieve, the unknowns of cure research, and that we are in very early phases of cure research. It is important for the communities to understand that the studies are not testing something that we know works. It is an experimental thing.

Also studies in people living with HIV are essential to progress the agenda because there is no perfect animal model. There is also no perfect model in the test tube for cure research that we can learn from but most of them are observational studies. I think we should be doing cure research in Africa where there are most people living with HIV and we need to start that process and engage the community.

**There is a lot of education that is needed in any community before you start a cure study. Education about what the trial is trying to achieve, the unknowns of cure research, and that we are in very early phases of cure research**

**Q: What challenges have you encountered in cure research so far?**

**A:** The cure research is difficult because it is hard to find the virus in people living with HIV. We know the virus is there but it is quite hard to find it so we often need to get large blood collections and lymph node tissue or tissue from the gut. We are checking interventions in people that are unlikely to be of benefit to the person taking part so it is very difficult from the early days of ARVs where participation in a trial meant that you would get access to life saving drugs. Here we do not know. It is very unlikely that participation will help the individual but mainly help in the advancement of science. So, the goal for participation in cure research in high income countries is largely ultraism, which is not uncommon in research but traditionally for HIV it has not been a major driver for participation.

**Q: What relationship should scientists working on cure research have with governments?**

**A:** Cure research really needs advocacy because a lot of governments think we have solved HIV with one tablet a day and people live normal lives. We are just going to get the tablets to people that need them. But there is more than just giving a person a tablet daily forever so we need to convince the governments why we need research into a cure and why it is all our responsibility. At the moment the US is the major funder of cure research. But we need all governments to share the responsibility. I see it as investment in the future. We may take a while to get a cure but it means we are not locked in life long treatment for everyone forever.

**Q: When do we expect to get a cure?**

**A:** We are many years away with a lot of work yet to be done. One thing that we need to understand is the way we understand and communicate cure in the different languages and also in English, particularly the meaning of cure and remission. Many people do not have a word for cure and remission in the local language but only the treatment of HIV. So, there may be a lot of confusion once you start writing or communicating this in other languages.

**Q: What do we need to communicate on the HIV cure?**

**A:** We need to communicate this well and simply. Treatment is lifelong for HIV and even when the viral load is undetectable the virus is still there and as soon as you stop treatment the virus will come back. What I always tell my patients is a cure is finding a way to stop treatment without the virus coming back.

**Editor's Note:** *The IAS has prioritised the cure as a top area of advocacy and training and a part of that strategy is the 'Towards a cure' initiative it has been running since 2010 and has a high level scientific advisory board that was originally cochaired by the scientist who discovered HIV (2008 Nobel Prize for Physiology, Françoise BarréSinoussi)*



## Why we need HIV vaccines like yesterday

By Inviolata Mmbwavi | [inviom@yahoo.com](mailto:inviom@yahoo.com)

**M**ore than 20 years ago, just after I had completed my secondary education, I was diagnosed with HIV. At that time, I thought I now had full self responsibility to my life. I had dreams, just like any other young person. This was the worst news I heard at that moment. My life came to a standstill for awhile. Everything around me was now dictated by my diagnosis. My education, my career and family dreams were shattered and my parents and siblings were affected even more than myself. Ever since then, life has never

been normal, It is not normal, It will never be normal for me even if a cure is found.

I have been to hell and back because of HIV on all fronts. Most notable and physical was my onset of treatment. Twice, I have reacted very badly to medication to the point of almost losing my life. At one point, I thought death would be more relieving than the pain and discomfort I was feeling. I am alive today mainly for having had access to competent, quick medical attention and strong family support at that time. In my more than 20 years work in the HIV field, I do not know of any HIV positive individual who has

had it easy both socially and medically. I know some that have even died due to drug reactions, stigma and late diagnosis and lack of access to care and support. We must act a lot; because that is what society wants to see or wants us to portray.

### Why am I saying all this?

I want to repeat, it is not normal. I do not wish this to happen to our children who have dreams and a full life ahead of them. I would not wish HIV infection to happen even to my worst enemy. It is for these reasons I am joining the prevention advocates. I will do whatever it takes within my ability to speak out and support prevention efforts to stop any single HIV infection where I can. I will support the HIV vaccines initiative because if it succeeds, it will be one of the biggest breakthroughs in the fight against HIV.

It is no longer about me

People spoke for us; I am alive today because of the many voices that stood up for us – people living positively with HIV (PLWHIV). My immediate family takes the biggest credit. They read anything and everything they could come across that would enable them to help me and understand me. But it still has never been normal and it will never be for me. As an existential fact, we are alone. Many a times I am alone, pain, drugs swallowing, loss of appetite....I am alone. This can, and could have been prevented. I am going to spend the remaining part of my life, advocating for all forms of prevention.... but education and vaccines are going to take centre stage of my advocacy work. For we all know, PREVENTION IS BETTER THAN CURE.

The face of HIV today is young people. As a mother, and as a person who got infected at that tender age, the news about new HIV infections among young people churns my stomach.

I look forward to seeing how advocates are going to be engaged in the HIV vaccine initiatives and I am more than happy and willing to take on this assignment very seriously to let communities know and understand the importance of HIV vaccine and prevention.

*Inviolata Mwali Mmbwavi is the National Coordinator International Community of Women Living with HIV Kenya Chapter (ICW-K)*

# PMTCT: CHRISTINE MOSE'S "TALKING WALL"

**At Sio Port Subcounty Hospital Christine Mose and her colleagues are using the talking wall to stay on top of their PMTCT targets**

**C**hristine Mose is an early riser. By 7:30 a.m., she is ready to start her day at the prevention of mother-to-child transmission (PMTCT) clinic at Sio Port Subcounty Hospital in Western Kenya region. However, before she settles down to attend to the queue of mothers already building up outside the room, she spends 15 minutes going through the information on the PMTCT chart on the wall behind her desk. This has been her routine since October 2017, when she was transferred to Sio Port. Christine calls it "my talking wall."

Christine's talking wall contains information on all 99 PMTCT mothers at the clinic. She leads the team charged with ensuring that no child on the PMTCT program at the facility contracts HIV.

The team includes herself as the nurse, a clinician, a laboratory technologist, a peer educator, an adherence counselor, and a mentor mother. From this wall, the team is able to know the day's priority and focus all their efforts to give the necessary services.

From the wall, one is able to know PMTCT: CHRISTINE MOSE'S "TALKING WALL"

when a mother is due for a viral load test and those that are virally suppressed and those that are not. The wall also alerts the team about HIV-exposed infants due for testing at 6, 9, and 18 months respectively. Also important is information on those mothers that have kept their clinic appointments and those that have not and require to be traced.

Asked how helpful the wall has been, Christine says,

"There are many patients and many processes to be done. I read this wall and coordinate with other departments, including the laboratory, the clinician, and the pharmacist for services my clients are due for."



**Christine Mose is a nurse at Sio Port Subcounty Hospital. Photo: PATH/Peter Abwao**

She added: "It also helps me link with the community for tracing back clients that may have missed their appointments and for mothers whose babies have turned positive for ART initiation." Each PMTCT process is indicated with a unique color. Christine has created a separate key chart for reference. For example, yellow indicates that the mother kept her appointment, while red is assigned to those who missed the appointments.

Once Christine has gone through her the wall, her priorities for the day become clear. The peer educator pulls out the specific patient files and arranges them according to what action is required. There will be files for mothers coming for their antenatal clinic on the day, files for those who missed their appointment, and for those who are due for any lab action.

Christine says since the PMTCT clinic started using the chart, they are managing the clinic better. "Few mothers are missing their appointments because we remind them promptly," she said. "We are also able to know who missed their appointments so that they are traced back."

The peer educator is responsible for calling and reminding mothers about their pending appointments at least 48 hours before the due date.

Because of these efforts, only 4 out of the 99 mothers at the unit are not virally suppressed, while all the 82 HIV-exposed infants remain HIV free after tests at the various stages, and Christine is confident that they will all remain so at the final test at 18 months. It is a trend that Christine wants to maintain and ensure that when these mothers are discharged from PMTCT, they go home happy to have HIV-free babies.

With an estimated HIV prevalence of more than 6.7%, Busia County is one of the counties in Kenya with an HIV prevalence higher than the 5.6% national average. More women (8.1%) are infected with HIV than men (5.1%), and there was a PMTCT rate of more than 4% in 2016.

Eradicating vertical transmission of HIV remains a key goal toward ending new HIV infections in the county.

In 2011, Kenya and other countries most affected by HIV signed onto the Global Plan Towards Elimination of New HIV Infections Among Children by 2015 and Keeping Their Mothers Alive.

With such innovative approaches adopted by Christine Mose and her team at Sio Port Subcounty Hospital, Kenya will soon join Cuba on the list of countries to have successfully eliminated mother-to-child transmission of HIV.

*Source: Insights: A Newsletter of the APHIAplus Western Kenya Project – June 2018*



Health scientists at work - Uganda scientists prioritise HIV research

# How health scientists in Uganda are advancing search for HIV/AIDS cure

By **Lominda Afedraru** | [lominda25@gmail.com](mailto:lominda25@gmail.com)

**T**he HIV virus responsible for AIDS provides a tough challenge to researchers who want to understand and minimize its effects.

However new tools and technologies are making it easier for scientific teams in the world to progress in developing effective vaccine for the virus.

Despite the rapid spread of HIV, several countries have achieved significant success in curbing its transmission.

The extraordinary potential of HIV prevention is exemplified by such diverse efforts with Uganda's remarkable decrease in HIV prevalence due to open sensitization mechanisms and the community-based syndromic management of sexually transmitted infections (STIs) in Mwanza, Tanzania among others.

In a report released by Uganda's Ministry of Health last year, it is stated that in 2016 the prevalence reduced from 7.3 percent in previous years to 6.1 percent.

In the 2016 UNAIDS report it is indicated that HIV continues to be a major global public health issue. In the same year, an estimated 36.7 million people were living with HIV including 1.8 million children with a global HIV prevalence of 0.8 percent among adults.

Around 30 percent of these 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 with the 2016 death rate being 1 million.

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 percent of new HIV infection rate globally in 2016.

## Treatment

Despite challenges, the report indicated that new global efforts have meant that the number of people receiving HIV treatment has increased in recent years, particularly in resource poor countries.

A major milestone was achieved in 2016 where for the first time it was found that more than half of all people living with HIV (53 percent) now have access to life saving treatment.

In 2016, 19.5 million people living with HIV were receiving antiretroviral treatment (ART) up from 17million in June 2006 and 7.5 million in 2010.

If this level of treatment scale up continues, it is estimated that the world will meet its global target of 30 million people on treatment by 2020.

The report states that health experts involved in research in the fight against the virus met the 2015 target of 15 million people on treatment and they are on track to double that number to 30 million and meet the 2020 target.

Research initiatives by health workers in Uganda is contributing towards the fight.

In an exclusive interview, Prof. Pontiano Kaleebu, the Director of the Uganda Virus Research Institute (UVRI) and Medical Research Centre (MRC) Uganda Research Unit in Entebbe notes that research initiative in HIV/Aids in Uganda is now focused on finding cure for the virus.

This is because the current Anti-Retroviral drugs are meant to extend the life of the person infected with the virus.

“What health scientists in Uganda, East Africa and the entire globe are doing is conduct research in finding Anti-Retroviral drugs containing enzymes and proteins including integris receptor to prevent the virus from entering human cells. Scientists are trying to find out a vaccine that can induce immune system in the body. They are doing this by studying how the virus is contracted by human beings,” he explained.

### Background

Giving the background of HIV/Aids research work in Uganda he explains that initial studies to understand the epidemic started in 1988. Scientists were studying the risk factors and how it is contracted. When they discovered it was mainly through sexual transmission, this helped in controlling spread of virus.

They went ahead to study the social behaviour of people and that is when they teamed up with Pharmaceutical Industries to manufacture drugs to prolong people’s lives.



**Lenah Bogwasi, a journalist intern at the department of broadcasting, Botswana Television poses next to a poster calling for participants in a HIV research study known as AMP**

This was mainly to treat sicknesses arising from weak immune systems such as Meningitis, Malaria, Tuberculosis and Pneumonia among others.

Scientists went into researching on vaccine, studying how infected people were responding to the preliminary vaccine. Some were responding positively and others were not depending on the cell make up.

He notes that people react differently from taking Antiretroviral drugs with some contracting noncommunicable diseases while others react to toxicity of the drugs.

In Uganda most of the people who are prone to the virus are the fishing communities living in fish landing sites, sex workers and discordant couples.

Tuberculosis remains the leading cause of death among people living with HIV, accounting for around one in three AIDS-related deaths.

However some progress had been made with tuberculosis-related deaths among people living with HIV declining by one third since 2007.

### Laboratory tests

Prof Kaleebu who heads the HIV/Aids research initiative at UVRI explains that in the Laboratory scientists carry out diagnosis using Elizer.

Scientists in Uganda with their partners in East Africa and elsewhere usually combine efforts and different scientists specialize in different research work. Others are studying characteristics of the virus which keeps changing.

“The virus has different strains namely A, B, C, D, F, G, H, J, and K. The genetic variability can be divided into two major types namely HIV type 1 (HIV-1) and HIV type 2 (HIV-2).

HIV-1 is related to viruses found in chimpanzees and gorillas living in Western Africa, while HIV-2 viruses are related to viruses found in the endangered West African primate sooty mangabey.

Once scientists identify this, they go ahead to study the immunology (the branch of medicine and biology concerned with immunity which refers the organs and processes of the body that provide resistance to infection and toxins) to establish how the virus escapes from the immune system to cause infection.

This leads scientists to design an appropriate vaccine which must cater for other diseases that may arise due to weak immune system. It is the reason to date scientists are still researching to come up with the right vaccine."

Prof Kaleebu further explains that scientists globally have done efficacy trials where they studied the DNA of people infected in order to come up with a recombinant vaccine.

This has been tested on animals such as monkeys, gorillas and mice for toxicity and the immune system to determine whether the response is positive.

There are different phases of the vaccine trials namely phase I which is to establish safety, Phase II for safety and immune system. This was arrived at last year though scientists in developed countries have advanced to Phase III to obtain definitive information about the efficacy of the vaccine.

At the moment Dr Kaleebu and his team recommend Pharmaceutical Industries to manufacture Ant Retroviral drugs with minimum toxicity.

In Uganda, the scientists are collaborating with pharmaceuticals industries such as Quality Chemicals in ensuring that they deliver retroviral drugs with minimum toxicity and minimum laboratory testing. International companies such as Johnson and Johnson are good at delivering quality drugs and scientists ensure children are well catered for.



**Dr Maureen Kimani of Nascop giving a scientific talk during the January science media café in Nairobi**

**Funding initiative for scientists in East Africa**

Health scientists in East Africa are privileged to be part of a collaborative global fund initiative under the European & Developing Countries Clinical Trials Partnership (EDCTP).

Dr Michael Makanga, the executive director of EDCTP while explaining at the launch of the funding initiative for East Africa second phase at UVRI, noted that EDCTP is an innovative public-public partnership through which countries in Europe and sub-Saharan Africa are working together to alleviate the health and economic burden of infectious diseases in Africa HIV /Aids being key.

Scientists in East Africa will benefit from allocation of Euros 30m meant for participating African countries in combating diseases such as HIV/Aids, Malaria, Tuberculosis and emerging diseases of Ebola and Marburg among others.

The total grand for the entire project including phase one is Euros 1.9 billion. The EDCTP phase II is a ten-year programme with funding worth Euros 683M meant for EU and African participating countries.

Health institutions in the concerned countries are supposed to compete for grants. East African countries access the funds through UVRI.

Makanga explained that numerous trials were conducted in the first phase by scientists in member states with significant impact on the diagnosis, treatment and prevention in major diseases with special focus on HIV/Aids.

The programme funds all phases of clinical trials from phase I-IV with a particular focus on phase II and phase III studies on HIV/Aids.

**Global Funding initiative**

The plateau in Global funding resource availability towards HIV and AIDS response continued for its third consecutive year in 2016, with US\$ 19 billion invested among low and middle income countries.

The United Nations General Assembly maintains its commitment projections that \$23.9 billion will be required for the response to the epidemic in 2020, with \$23.9 billion required in 2030.

# Experts: Not all TB infections come with a cough

By Christine Ochogo |christawine@gmail.com

**B**eryl Atieno, a middle-aged TB survivor who hails from Rarieda in Siaya County, had no idea that she had contracted the infectious disease when she started ailing in March 2017.

Atieno was not coughing and therefore had no reason to suspect she had tuberculosis even though she had other signs and symptoms like high fever, loss of appetite, loss of weight among others for one week.

To her surprise, she was diagnosed with TB when she went for screening at the local Madiany Hospital and immediately put on treatment for 6 months under close surveillance until she was cured completely.

"As a TB survivor at first I thought it was normal ailment and I had no reason to imagine that I had contracted it. However after my diagnosis I followed my prescriptions to the letter until now that I am well," Atieno says.

Just like Atieno, there are a number of people who suffer in silence because of ignorance about tuberculosis, an airborne infectious disease.

There are two types of clinical manifestation of tuberculosis, the most common one being the pulmonary TB which affects the lungs and the second type being extra pulmonary TB which affects all the body organs apart from hair and nails.

TB still remains in the top 10 causes of death worldwide according to World Health Organization.

In Siaya County, Western Kenya, the high TB burden has been attributed to poor health seeking habits among



**Dr Martin Sirengo, former head of Nascop, listens attentively to Jane Njoki as she narrated how doctors helped her manage a TB attack**

residents who are prone to contracting the infectious disease.

According to the county Tuberculosis and Leprosy Coordinator, Mrs. Mary Wambura, the County records about 2,000 to 2,500 TB patients yearly, placing it among top ten most heavily burdened by the disease in Kenya.

She says that Siaya is also ranked position three in the number of TB patients who have developed Multi-Drug Resistant (MDR) TB. She adds that since 2012 the county has recorded 82 of such patients.

"This high incidence of TB related disease is unacceptable and the society need to have a positive behaviour change in curbing the spread of the airborne disease," the coordinator advised.

Wambura mentioned that it is very costly to treat MDR TB and revealed that the Kenya spends up to Ksh 2.1 million treating one MDR TB patient

"Patients who have contracted TB should adhere to normal TB treatment to avoid escalating to other stage which become expensive and difficult to treat," she advises.

In the fight to end TB, the coordinator announced that the county health facilities are currently administering one anti-TB drug called Isoniazid to children under five years who stay with TB patients as a measure to prevent them from contracting the disease.

However, she regrets that some parents and guardians still fail to bring their young ones to get the drug hence putting them at high risk of infection.

“Once infected, children get subjected to traditional medicine and other non-medical means and in the long run they end up dying without being treated for TB,” she regretted.

The health department has also innovated a TB active case finding stamp that helps in identifying and screening TB patients who visit health facilities in the county.

According to the Centre for Health Solutions Technical Adviser on TB in Siaya, Mr. Duncan Barkebo, the TB stamp contain four questions that will be used to screen all patients who seek medical attention in the health facilities.

Barkebo mentioned that the TB active case finding stamps have been distributed to all health facilities within the county so that all the patients get to be screened for the disease.

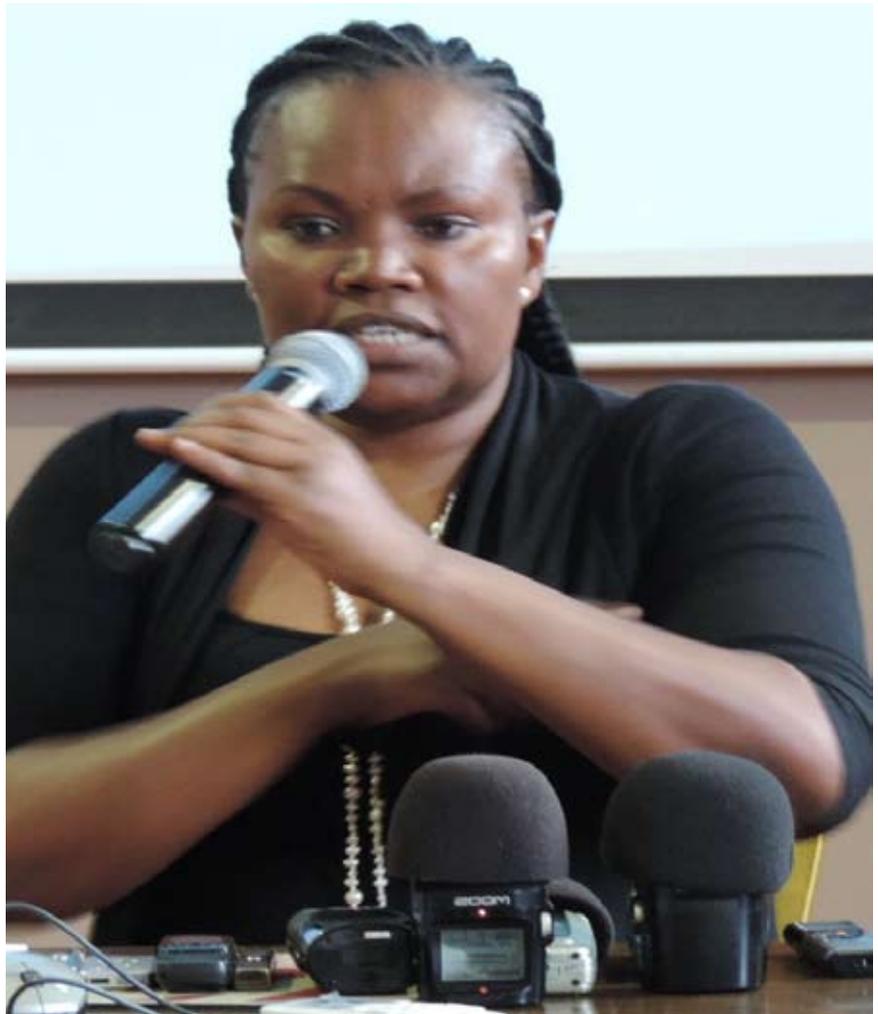
He regretted that Siaya County has been losing 10 per cent of TB patients every year due to late diagnosis and by the time they start treatment, their immune system is usually very low to respond to the treatment being administered to them.

“This stamp innovation is one of its kind in Kenya and this will ensure no patient is left out in TB screening since the stamp contains four crucial question that will guide clinicians in identifying patients who have contracted the disease early enough for treatment,” Barkebo added.

In 2017 the county recorded 1,700 patients with TB, unfortunately 170 people out of the number died due to late diagnosis.

This, Mr. Barkebo says is unacceptable since it is way beyond the National TB program’s acceptable percentage of less than 5 percent mortality on TB.

TB coordinator Wambura further revealed that the county has 155 TB centres spread across the six sub-counties where individuals diagnosed with TB can get treatment.



**Ms Rose Kaberia, a survivor of MDR TB strain, addresses MESHA journalists during a past media training on infectious diseases**

There are effective machines to detect TB by use of sputum and they can be found at Siaya County Referral Hospital, Madiany, Bondo, Matibabu in Ukwala, Ambira and Yala sub county hospitals.

Wambura mentions, “With the machines in place in major health facilities within the six sub counties, locals can seek services closer to them unlike in the past where they had to travel long distances.”

Many people still think that patients who have TB are automatically infected with HIV/AIDS, a notion Mrs. Wambura is discarding saying its false and further advised residents to seek TB testing early as a preventive measure to avoid developing MDR TB.

“The stigma on TB is still high since most patients fear going for testing thinking that they are going to be associated with HIV/AIDS and other customary which are faults,” she mentioned.

Kenya is among countries with the highest TB burden in the world with a prevalence rate of 291 cases per 100, 000 people. This has greatly been contributed by the high poverty levels in the country estimated at 45.2 per cent through poor nutrition, overcrowding, alcohol and substance abuse and poor access to health care services.

# Solar powering maternal health in Western Kenya



Solar Panel

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

It is almost noon at Mechimeru Dispensary in Kanduyi constituency – Bungoma County in western Kenya, approximately 400 kilometres west of Nairobi.

The scorching sun forces the patients to seek refuge at the cool shade cast by the main building's verandah. As is common in health centres in this area, mothers and their babies are the majority. The facility is within a sugarcane plantation, two kilometres from Nzoia Sugar factory, in the remote Mechimeru village, 20 kilometres from Bungoma town.

On arriving at the small trading centre near the dispensary, a visitor immediately notices 13 poles of solar powered street

lights which stand out like sore thumbs. The poles are well placed on either side of the road extending to the gate of the facility from the market.

Mechimeru Dispensary has three main buildings. On top of these buildings, are solar panels and solar water heater strategically positioned to tap every single ray from the sun. This initiative has seen the number of deliveries rise averagely to 80 births per month from 50 births before the installation of the heaters two years ago, according to Wilson Ongwea, the nursing officer in charge.

“Before the solar heaters were installed, we relied on kerosene lamps for lighting during blackouts which is

very common here, and we had a challenge in providing quality services to our new mothers and powering our electric appliances,” he said.

This meant that the nurse conducting delivery had to have an assistant to help hold the insufficiently lit lamp besides putting the newborns at the risk of respiratory infections. Many babies died during blackouts due to lack of power to supply oxygen from the cylinder.

According to new data by the UN-led Action Group for Child Mortality 2017, for every 1,000 babies born in Kenya, 23 die before the end of their first month.



**Water heater installation**

With preterm birth complications leading with 35 per cent followed by intra partum related deaths at 24 per cent, Bungoma is among six counties with the worst new-born mortality indicators at 32 deaths in 1000 live births.

Christine Barasa, 34, and a mother of six who stays hardly two kilometres from Mechimeru dispensary lost her baby soon after delivery at the facility due to a blackout.

"I started to labour at around 8pm, and went to Mechimeru at noon the following day but immediately after delivery, my baby developed breathing complications. Quickly, the nurse in charge, Mr Ongwea, put me on oxygen, but soon power went off and I lost the baby," she said.

This was her eighth delivery and the second baby she lost. From then on, she switched to family planning.

To end such miseries of mothers losing babies, a total of 57.5kw solar power system has been installed by Maternal and New Born Improvement [MANI] project in 33 facilities across Bungoma County. The largest system which boasts of 7.5kw has been installed in sub county facilities to fend off rampant power blackouts. Smaller facilities - clinics and dispensaries have been fitted with systems ranging from 3kw, 1kw, 1.5kw, 0.5kw depending on their capacity.

Gladys Ng'eno, the deputy team leader for MANI project in Bungoma

County, which is funded by UK Aid, said they selected facilities based on the role they play in providing maternal healthcare to locals.

"The world is turning to renewable energy and reducing aspects of climate change, so this is one of the projects to show the relationship between renewable energy and health as defined by World Health Organisation, especially focusing on maternal and new born health with the 3 Social Development Goals indicators," explains Ng'eno.

Mechimeru dispensary, a beneficiary of the project, has stepped up its services to the locals. The solar power unit is able to heat water for new mothers, provide lighting in all six rooms of the maternity wing and runs the fridge which stores the vaccines, powers the incubator, oxygen cylinder, and a television set. Electricity bills have been reduced by half.

# Africa needs more automated weather stations

Sifelani Tsiko | sifelani11@gmail.com

**A**frican countries need to invest more in the installation of automated weather stations and radar to help improve the continent's seasonal and longer-term climatic predictions, a top Indian environmental expert has said.

Centre for Science and Environment director-general Sunita Narain told African journalists who attended a two-day media briefing on climate change in Ungunja, the main island of Zanzibar, a semi-autonomous archipelago in the Indian Ocean off Tanzania, that with adequate funding weather forecasting could be scaled.

"Climate change is real, it's happening now and not in the future. It's causing untold hardships among the poor who are not responsible for the stock of emission in the atmosphere," she said.

"We need data to say what is extreme, we need data to say what is small. Qualification of small requires data. You are beginning to see drought in a period of floods. This is a new normal and we need to invest more in weather forecasting technologies that can help us to predict these extreme weather events."

CSE (India) and the Media for Environment, Science, Health and Agriculture (MESHA) organised the media briefing on "Climate Change in Africa – Impacts, Challenges and Opportunities".

This briefing brought together some key climate change experts from Africa and CSE to discuss with journalists how African nations are being impacted by climate change and how they are coping with it.

Narain said African countries need to scale up their weather



**Sunita Narain, Centre for Science and Environment director-general**

forecasting systems to help improve the provision of high quality and reliable climate information services.

"Mapping of climate change risk is ideal. It's important in the understanding of climate change issues," she said.

"We should be worried about climate change. We need to be afraid of it. Africa is facing the same dangerous trend India is facing. Because of the increasing cost of disasters, countries are losing that development dividend because of climate change risks.

"Our countries cannot afford such disasters any more. Every disaster pushes development back. It cripples people and makes them poorer."

She expressed concern that poor countries were now spending more on disaster relief than they should on development because of the increasing frequency of climate change related disasters.

"Most developing countries are spending more on disaster relief than what they need to spend on development," said Narain.

"They are spending more, providing basic services to people hard hit by disasters. The costs are big and there is a big open question: who will meet them? Climate change vulnerability is leading to greater food insecurity in our countries."

Africa climate scientists complain that investing in meteorological equipment was not a priority for many countries in the region.

They say rich industrialised nations are taking climate science seriously and are pouring billions of dollars to upgrade their climate science technologies.

"We are not doing much to invest in our systems. The whole region is not doing enough and we need to change our mindset when it comes to climate science. We remain very vulnerable as a region and we need to take climate science more seriously," said a Zimbabwean climate change scientist.



**Automated weather station**

In 2016, SADC Climate Services Centre representative, Bradwell Garanganga, told delegates at a Southern Africa Regional Climate Outlook Forum (SARCOF) that was held in the Zimbabwean capital, Harare, that the region needed to improve its human skills and climate technologies to provide accurate weather forecast and reduce the vulnerability of local communities to natural disasters.

To address some of the constraints, Garanganga said NMHS and climate service centres in the region needed to actively participate in regional and international programmes.

Only South Africa has adequate equipment to forecast accurate weather conditions while most other SADC countries are operating using archaic equipment.

Africa and most other developing countries are among the hardest hit regions, in terms of the impact of climate change.

Extreme weather events such as droughts, floods, tropical cyclones and other weather phenomena have devastated the livelihoods of many people in these countries.

It has caused severe social and economic disruption including loss of life, destruction of property, infrastructure, crops and livestock, and increased poverty.

The 2015-2016 El Nino-induced drought left up to 16 million people in need of food assistance across the SADC region.

Zimbabwe was one of the worst affected countries by the driest year in decades facing Southern Africa - including Malawi, Zambia, Lesotho, Swaziland and South Africa.

The UN's World Food Programme estimated that about 16 million people in Southern Africa faced hunger due to poor harvests in 2015, caused by El Nino weather conditions.

In this period, SADC appealed for US\$2,8 billion in aid for seven drought stricken countries in Southern Africa.

Zimbabwe, Malawi and Mozambique were among the hardest hit, but South Africa and Botswana too, felt the impact.

"Humankind cannot have weather and climate of their choice," said Garanganga, adding,

"When we have advance knowledge of the season ahead and plan with that knowledge, the communities can take mitigatory measures to minimise the negative impact of extremes in climate variation."

Some of the major barriers facing the Africa and most of its regions when it comes to advancing climate information services is a digital divide related to lack of adequate ICT infrastructure, poor funding and investment in this critical sector.

Climate experts say IT infrastructure is critical for generating robust climate information, efficient communication platforms which are essential for dissemination and knowledge of how to package up the information for users.

Climate experts say the delivery of climate information and services depends heavily on e-infrastructure consisting of High Performance Computing, data, data analytic tools, observing networks and networks of institutions.

"This infrastructure is now extremely cost - effective and much more widely available, these systems are low - hanging fruit ready for Africa to take advantage of," notes one expert.

The Meteorological Services Department in Zimbabwe estimates that it needs up to US\$20 million to install automated weather stations and radars across the country's 59 districts to help improve weather forecasting.

It says, about US\$12 million is required for radars to help cover areas where there are no rain gauges or other weather instruments.

The country is still unable to know how much rainfall is received in some parts of the country due to lack of weather stations.

An automated weather station cost between US\$30 000 and US\$45 000. And to install 150 units, Zimbabwe will need between US\$4,5 million and US\$6,8 million.

The SADC Climate Services Centre needs US\$2 million a year to strengthen its capacity to produce robust climate information and service that can enhance the region's response to climate change-related problems.



The Grand Ethiopia Renaissance Dam is one the biggest mega projects Ethiopia is building

## The Nile: Let's talk conservation and trade, not war drums

By Otula Owuor I [ootulah@yahoo.com](mailto:ootulah@yahoo.com)

**H**ardly a week passes without one reading or listening to mass media stories about the pending Nile water wars between Egypt and Ethiopia. The worst disaster that can haunt the African continent is the unacceptable and shortsighted wars between Egypt and Ethiopia.

In this era of climate change, there is need for extra caution in selectively using vague and biased scientific, technical and policy perspectives to beat war drums that fuel the simmering conflict between Egypt and Ethiopia. These two countries are currently most powerful African nations with rich and unique history including entrenched military skills.

To begin with there is need to constantly remind the two nations and others in the Nile Basin that this mighty

river should be used sustainably to foster peace, increased trade, conservation of the environment and overall regional socio-economic development driven by credible science, technology and innovation. War should not be an option. Other Nile Basin countries which must pay extra-attention to curbing the simmering conflict include Rwanda, Burundi, DR Congo, Kenya, South Sudan, The Sudan, Tanzania and Uganda.

Even more, all the Nile Basin countries have major roles to play in protecting and conserving their national and transboundary water resources that form the intricate web constituting the River Nile whose ancient roots once extended to Lake Tanganyika but the northwards journey was later blocked when Virunga Volcanoes in Rwanda exploded.

At the centre of the conflict is Africa's largest hydro-electric plant, The Grand Ethiopian Renaissance Dam,

initiated along the Blue Nile near The Sudan border in 2011. Egypt claims the dam will reduce the amount of water reaching its population and that the country's survival is at stake. Ethiopia vehemently denies this. The simmering conflict has led to what seems like selective and biased use of scientific data and facts.

In Egypt, the minister for water resources and irrigation, Mohamed Abdel Aty, once said that reducing Nile water by two percent would result in about 200,000 acres of land being lost. However, Ethiopia asserts that hydroelectric power stations do not consume water and all depends on how fast Ethiopia fills the huge dam.

A former prime minister of Ethiopia, the late Meles Zenawi always stressed that the dam would never interfere with water availability in Egypt.



Ethiopia explains that it may even take a decade and half to fill the dam meaning that the normal rate of Nile flow will be maintained. In Sudan there are experts who say the dam will help regulate overflooding of irrigation projects by helping create a much needed steady flow.

However, Egypt constantly needs endless practical reassurances that no Nile Basin nation is plotting to use Nile waters to cause death, destruction, starvation and unlimited economic sabotage.

It is notable that the current regime realizes that Egypt as one of the continent's big brothers should take a more progressive approach emphasizing socio-economic progress and integration driven by home grown science technology and innovation.

This was clearly emphasized in February 2018 when Egypt hosted the Third Africa Science, Technology and Innovation Forum in Cairo. The Minister for Higher Education and Scientific Research, Khaled Abdel Ghaffar, pledged Egypt's willingness to build a continent driven by knowledge and innovation.

He told delegates that Egypt would continue to support young African researchers and increase scholarship

opportunities for students from other African countries. During the Forum, Egyptian Government and the African Development Bank championed a new push for African nations to work together towards building a new Africa driven by innovation, technology and commercialization of research outputs.

### Technical Aspects

When Egypt completed building Aswan High Dam in 1970 it reduced annual flooding that benefitted some farmers while the availability of the fertile alluvial soil that increased farm yields declined drastically. There were fears that the dam would cause widespread flooding especially in Sudan because it slowed the flow of the Nile.

Still some experts say that much of the Nile water is actually lost in Egypt due to intense evaporation in the hot arid desert environment. Thus some experts in Sudan and Ethiopia say that the dam could directly or indirectly help curb the loss. However, currently there is no effective technological package that can be developed quickly to manage such massive evaporation process that has been going on for thousands or millions of years in Egypt's sunbaked environment.

However, may be out of fear or distrust, Egypt is raising its claim of "Nile water flow" to 90 percent from the original 66 percent as major precautionary or bargaining measure. Although in this era of climate change excessive floods in the Nile Basin may briefly meet the demand, there is need to continuously focus more broadly on science and innovation for sustainable solutions.

This includes various practical aspects of environmental conservation and protection. It includes protection and rejuvenation of water towers or water catchment areas and indigenous forests, especially the vanishing Equatorial Forests of the Congo Basin.

Although overlooked, Nile Basin countries face major negative environment impacts linked to the massive destruction of Equatorial Rainforests by some Western and now Asian timber companies. Rainfall in western Kenya, Uganda, Rwanda, Burundi and western Tanzania depend on winds picking moisture from the once dense Equatorial Rain Forests.

Nile Basin still has abundant water resources and adequate rainfall that seem deficient because of poor distribution and unbelievable unwillingness to conserve excess rainfall causing floods currently haunting most of East African nations. African experts are needed to deal with various aspects of water conservation, food production, increasing pollution, climate change, forestry and environment conservation, and other related skills.

With conservative and anti-Third World regimes re-emerging in the West, Egypt with a relatively strong technological and business base, should be at the forefront of innovatively promoting trade and tourism along the Nile apart from giving prompt attention to pollution of the river. It should take hint from Turkey which is aggressively pushing socio-economic aspects actively in Africa.



**The Grand Ethiopia Renaissance Dam**

Above all, the source of Nile is not only Ethiopia's Blue Nile although it currently provides the bulk of water reaching Egypt. There is also the White Nile emerging from a spring in Lake Victoria. However, there is need to pay practical attention to all rivers and tributaries linked directly and indirectly into the Nile including Kagera that has tributaries in both Rwanda and Burundi.

Kenya and Tanzania, for example, should be encouraged to conserve water from the often flooding major rivers that drain into the Indian Ocean. This will ease the pressure to exploit those that flow into Lake Victoria. The currently flooded River Tana, for example, can clearly accommodate more huge dams. This is more so when Nairobi is one of world's ten cities that are currently predicted to face dry taps soon.

There have been efforts to improve Nile water flow. There is need to recognize Sudan's efforts to build canals to by-pass the Sudd- floating vegetation obstructing the White Nile.

With the alleged UN predictions that Egypt will suffer water shortages soon, there are whispers that Egypt should also go for another huge dam to trap more water that empty into the Mediterranean Sea.

However, close analysis easily shows that are many other options for sustainable use of Nile waters. Egypt's potential for solar and wind power from the hot desert is unlimited. There are experts who say the country should prepare to export power to Europe apart from using the unlimited renewable energy for desalination of the Mediterranean Sea.

The world now has capacity to grow "water efficient" crops thus helping reduce the need for large scale irrigation projects that turn landscapes into shallow lakes that also spread diseases. There is also drip irrigation which is becoming more popular and Egypt should exploit its technological prowess to manufacture and market products linked to drip irrigation, especially now that Africa is on the path to a free trade zone.

Nile Basin countries, for example, need to intensify research on New Rice for Africa (NERICA),

which does not need large scale irrigated or flooded farmlands. However, such important projects linked to water conservation are overwhelmingly left to donors. Still, the region has a pool of skilled scientists who are well placed to help entrench sustainable water conserving technologies.

Ethiopia may not be the only nation going for major hydro-electric projects. The need for energy remains unlimited in Africa. The continent has much of the world's hydro-electric power potential with claims that Congo DRC alone has a quarter of the global potential. It has to be noted that the emerging era of solar and wind power may also reduce the need for hydroelectric projects.

Finally it has to be noted that our planet has its own highly devastating and immensely disruptive activities that could in a twinkle of an eye reorganize or reshape its physical and biological features. Peaceful use of Nile waters for sustainable development is the only way forward.

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