MAZINGIRA yetu

•KNOWLEDGE •SKILL •ATTITUDE •TRENDS

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Bats... the flying mammal

13th issue


Give me
one
moment
in time
and
Understand
me

ContentS

Editorial Team

PUBLISHER
Ideal Community Empowerment
P.O Box 67 Kisumu
community.ideal@gmail.com

BOARD MEMBERS
John Jagero
Gaudence Auma

EDITOR
Michael Othili
mikeothili@gmail.com

DESIGN
Michael Othili

CONTENT DEVELOPMENT
Sam Dindi

PHOTOGRAPHY
Dr. Esther Ngumbi
Zaweria Gicheru
Jan MartinMc Guire
Anthony Muwasu (Squirrel Photo)

ADVERTISING INQUIRIES
Mazingira Yetu Magazine
info.mazingira@gmail.com

SUBSCRIPTION
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info.mazingira@gmail.com

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MAZINGIRA

Ideal Community Empowerment
P.O Box 67 Daraja Mbili
Kisumu

info.mazingira@gmail.com

+254 720968480
+254 725898975

ESTHER MORAA

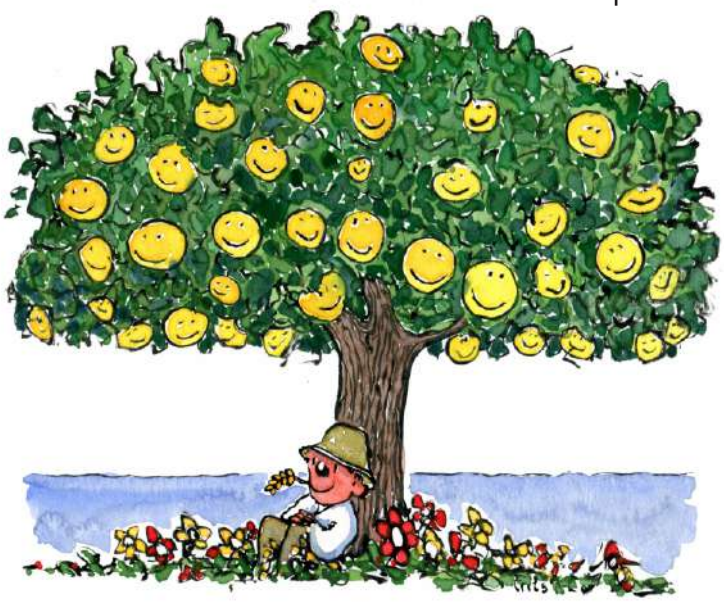
Find comfort in nature

As I wake up in the morning,I saw the sunshine in the window. As I go in the garden, I saw the flowers as they grow and felt what a scenery and beauty.
The trees in the mountain gives us fresh air to inhale, It gives us water everyday, and fulfill life every way.
How beautiful surroundings that we have, Its a gift from up above. May we be thankful of what you have, and share the blessings from loving God.

Sometimes we wake up in the morning, and before our feet hit the floor, we know the day is careening downhill fast. Life pummels us with disappointments, challenges, and heartache, or maybe there's no obvious reason — our mood just shifts from light-hearted to heavy-laden.

When I'm having a no good, very bad day, my first reaction is to push through and ignore my feelings. I don't want to feel bad, so I think if I just keep moving, I'll shake it off. This works on occasion, but other times it feels like moving through quicksand. I have no motivation or desire to do anything. This is the time when I need some encouraging words and inspiration and a walk in the part, or lye under a tree. I need some momentum to pull myself out of the doldrums and reframe my thoughts. As I replace negative thoughts with inspiring words and ideas, I find my feelings often follow.

I share this with you to encourage you that when we feel low, look at nature and find comfort in the flowers, rivers, animals, and trees. And let us not allow destruction of the surrounding as it helps me and others in many ways you cant imagine.



LILIAN OLOO lilianoloo76@gmail.com

Reader' views

1. This is wonderful piece of work.!!-Dr Dennis Makau BVM, BVEE (University of Nairobi)

2. Great work. Highly appreciated-Brian Olewe

3. Great. This is a good piece that should find itself in shelves. Keep at it. Thank you for sharing with us-Emmanuel Oriendo

4. This is a nice magazine...thanks for the info!-John Nyakangi

5. Thanks. let me know how I can be contributing-George Mike

According to CDC an estimated 801,000 children younger than 5 years of age die due to diarrhea each year in developing countries as a result of unsafe drinking water, inadequate availability of water for hygiene and lack of access to sanitation. These facts greatly disturbed me and I felt I needed to do something to address this sad reality afflicting our children.

Water, Sanitation and Hygiene (WASH) was one of the activities that came into my 2015 class and I had in depth discussion with the pupils on how the problem could be addressed, it was a eureka moment for me since it gave birth to an initiative coined from the three realms of sustainability: environment, society and economy. Water, a natural resource and basic need remains a source of conflict between some communities in our country, sometimes leading to deaths. In my opinion as an early childhood teacher, young children are instrumental in the advocacy for environment conservation and natural resources.

After a year testing the idea, creating awareness on the need for children to wash their hands with soap under running water the project culminated with its launch on United Nations World Water Day on March 22nd 2016.It showed how children can learn through self-directed and exploratory free-flow, play and how teacher directed structured play and focused learning activities can be used to 'seed' this free play and support progression in each child's learning development.

My water conservation project was selected for the 2016 Education for Sustainable Development travel scholarship and award from the World Organization for Early Childhood Education (OMEP). I presented my project at the conference in Seoul, Korea in July 2016 and my work was included in OMEP's contribution to UNESCO's Global Action Program on Education for Sustainable Development.

On my way to S. Korea I had a stopover in UK. Townsend Montessori Nursery had installed a tippy tap in their play area and parents promised to install them in their compounds too. I also contributed to a document titled Rating ESD in Early Years that was presented at the Teacher Education for Equity and Sustainability (TEESNet) conference in Liverpool in 2016 and has been accepted for a journal publication in the UK.

Absence of ESD in the School Curriculum makes it difficult for practitioners to understand, embrace and practice it. Including ESD in the Education curricula would mean teaching for sustainability. It is necessary that teachers are trained in this line.

In networking with practitioners and professionals in various countries, a Memorandum of Understanding was signed with Norway in an effort to promote ESD in ECCE in Kenya is in progress. My partnership with Greece enables teachers in both countries to exchange ideas on a social platform, with plans of future exchange visits. We will be exploring the economic realm of ESD with the children.

My parting shot is that college or university education is not enough for anyone who is looking to impact the life of a child. Education only opens one's mind for further development and I would encourage everyone to network and do more research in order to come up with the best practices. There is plenty of information out there to learn from including the very children that we teach, we can learn a lot from them even as we enrich their classroom environment with external knowledge.

NEWS ROUND UP MICHAEL OTHILI

CHINA TO BAN DOMESTIC IVORY TRADE BY THE END OF 2017

China will ban all domestic ivory trade and processing by the end of 2017, state media reported on Friday, in a move hailed by activists as a game changer for Africa's elephants.

African ivory is highly sought after in China where it is seen as a status symbol and prices for a kilo (2.2 pounds) can reach as much as $1,100 (£890).

"China will gradually stop the processing and sales of ivories for commercial purposes by the end of 2017," the official Xinhua news agency said, citing a government statement.

The announcement follows Beijing's move in March to widen a ban on imports of all ivory and ivory products acquired before 1975 after pressure to restrict a trade that sees thousands of elephants slaughtered every year.

Xinhua said the complete ban would affect "34 processing enterprises and 143 designated trading venues, with dozens to be closed by the end of March 2017" (The guardian)

KENYA TOPS LIST OF COUNTRIES WITH THE CLEANEST AIR

Kenya has been named the world's least toxic country, topping a list that takes account of air pollution, energy consumption and renewable energy production.

Data obtained from the International Energy Agency and World Health Organization (WHO) was used by renewable energy firm The Eco Expert in order to rank the most toxic countries in the world.

WILD ELEPHANTS ARE INSOMANIAC

A research conducted by the UCLA Center for Sleep Research and the nonprofit research group Elephants Without Borders revealed that wild African elephants (Loxodonta Africana) do not need much sleep in a day.

For the study, the team observed two female wild African elephants in Chobe National Park in northern Botswana for a month. Their movements were tracked using "actiwatches," a device attached to their trunks.

KENYA TO MANUFACTURE OIL FROM WASTE PLASTIC

Kenya has begun test runs of Africa's first plant that converts plastic waste into commercial synthetic fuel oil.

The plant, based in Kiambu County in central Kenya, uses a conversion technology that involves heating the waste under controlled conditions to produce oil, similar to industrial diesel oil (IDO) and heavy fuel oil (HFO) used in power plants, industrial furnaces and boilers. (Xinhua)

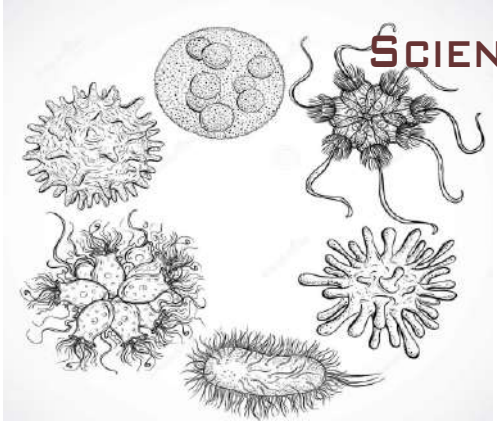
DEEPEST OCEAN TRENCHES ARE HEAVILY POLLUTED WITH PCB'S.

Scientists have discovered the presence of chemical pollutants in some of the ocean's deepest trenches, previously thought to be nearly untouched by human influence. In fact, they've found levels of contamination in some marine organisms living there that rival some of the most polluted waterways on the planet.

For the new study, the researchers checked for the presence of polychlorinated biphenyls, or PCBs, and polybrominated diphenyl ethers, or PBDEs, in two of the world's deepest ocean trenches. The Mariana trench in the Western Pacific, near the Mariana Islands, and the Kermadec trench north of New Zealand. (The journal Nature Ecology and Evolution)

SCIENTISTS DISCOVER A VAST PEAT LAND IN THE CONGO BASIN.

The new study found that the Cuvette Centrale peat lands in the central Congo Basin, which were unknown to exist five years ago, cover 145,500 square kilometres -- an area larger than England. They lock in 30 billion tonnes of carbon making the region one of the most carbon-rich ecosystems on Earth. The UK-Congolese research team spent three years exploring remote tropical swamp forests to find samples of peat for laboratory analysis. Their research, published today in Nature, combined the peat analysis with satellite data to estimate that the Congo Basin peat lands store the equivalent of three years of the world's total fossil fuel emissions. (Science daily)



SCIENTISTS REVIVE 10,000 YEAR OLD MICROBES

Scientists have extracted long-dormant microbes from inside the famous giant crystals of the Naica mountain caves in Mexico - and revived them.

The organisms were likely to have been encased in the striking shafts of gypsum at least 10,000 years ago, and possibly up to 50,000 years ago. The environment is hot (40-60C), humid and acidic. With no light at depth, any life form must chemosynthesise to survive. That is, it must derive the energy needed to sustain itself by processing rock minerals.

Researchers had identified microbes living in the walls of the caves, but isolating them from inside the metres-long crystals is a surprise. (Astrobiology institute-NASA).

MOUNTAIN BONGO

E-WASTE

knowledge SAM DINDI

The growth and development of electronic and electrical gadgets has been at a breath neck speed in terms of production and consumption. The convenience that these electronic gadgets bring to our lives is what we all cherish but no sooner we start enjoying them than they become obsolete and they end up in landfills making it the fastest growing waste stream at about 4% per year.

In most urban areas in Kenya, it is not strange to come across electronic circuit boards of every sought of equipment in landfills, road side and homes. The Organisation for Economic Co-operation and Development (OECD) defines e-waste as “any appliance using an electric power supply that has reached its end-of-life” (UNEP, DTIE, 2007a). The most widely accepted definition of e-waste is as per European Commission Directive 2002/96/EC: “electrical or electronic equipment, which is waste including all components, subassemblies and consumables, which are part of the product at the time of discarding” (European Commission, n.d.(a)).

The amount global e-waste generated reached 41.8 million tonnes in 2014 according to a United Nations University report titled, The Global E-waste Monitor 2014: Quantities, flows and Resources. The report goes on to state the bulk of global e-waste in 2014 (almost 60%) was discarded kitchen, laundry and bathroom equipments. Personal Information and communication technology (ICT) devices such as mobile phones, personal computers and printers accounted for 7% of e-waste. The situation is made worse by reduced cost of production of this electronics from Asia, short shelf life, aggressive marketing, increase in internet use and availability of disposal income by the general population to purchase.

UNEP estimates annual e-waste generation in Kenya annually includes 11,400 tonnes of old fridges, 2800 tonnes of TV's, 2500 tonnes of personal computers, 500 tonnes of printers and 150 tonnes of mobile phones totaling to nearly 17,000 tonnes or an equivalent to 130 million mobile phones.

E-waste is a complex mixture of hazardous and non hazardous waste which consists of items of economic value. Some of the hazardous materials include: Heavy metals these are dense metals noted for their potential toxicity especially in environmental context (cadmium, mercury, lead and arsenic), Persistence Organic pollutants are organic chemical substances that are carbon based and are resistant to environmental degradation (Chlordane, Polychlronated biphenyls (PCB), Flame retardants are substances applied to fabric or any other material to make them resistant to catching fire (aluminium hydroxide, Organohalogen compounds and Organophosphorous compounds)

Many substances found in e-wastes can be reclaimed and re-used again and this can be achieved through recycling. Electronic board Circuits of most electronic equipment contain precious metals such as gold, silver, platinum and base metals such as copper and iron. This in the long run helps conserve earth's resources by reducing mining activities which contribute to emission of green house gases and pollution of ground water.

A study commissioned by UN Environment Programme in 2007 titled Environmental Pollution and impacts on Public Health; Implications of the Dandora Municipal Dumping Site In Nairobi sampled 328 children aged 2-18 years living around the Dandora waste dump site and its health implications. The study also compared soil samples from the site with another location just outside Nairobi. The children were found to have been exposed to pollutants such as heavy metals and toxic substances through soil, water and air (Smoke from waste burning). Half of the children tested had concentrations of lead in their blood exceeding internationally accepted levels, while 42 percent of soil samples recorded lead levels almost 10 times higher than what is considered un polluted soil (over 400 parts per million) ppm compared to 50 ppm.

Most importantly is E-waste has the potential of combating poverty and generation of green jobs through recycling, collection and processing of e-waste through implementation smart policies like the Guidelines for E-Waste Management in Kenya 2010 drafted by the National Environment Authority (NEMA) which has the following specific objectives;

·To enhance environmental protection from e-waste.

·To establish a basis for a policy and regulatory frameworks on e-waste management.

·To raise public awareness on sustainable management of e-waste in Kenya.

Lastly our love for electronic gadgets has created a huge challenge for humanity with deadly consequences and it's up to each one of us to be more responsible on how we dispose our electronic gadgets after their shelf life in order to protect our environment and lets embrace innovation in handling e-waste since it could be one of the sure ticket out of the chronic un-employment facing Kenya today.

smdindi@gmail.com
Twitter: @mazingirayetu

BEES AND ELEPHANTS Sam dindi (smdindi@gmail.com) and Kylie Butler Phd Student (kylie1@yahoo.com)

BEES A NOUVEAU METHOD OF ADDRESSING HUMAN ELEPHANT CONFLICT

Human animal interactions can be described as effects that the organisms in a community have on each other, or a kind of action that occurs as two or more subjects have an impact upon one another.

These interactions can often bring beneficial or positive outcomes. For example, interacting populations of wildlife and humans can help one another by humans protecting and conserving wildlife, hence ensuring their posterity, while wildlife helps humans by balancing the ecosystem and generating income through tourism - a mainstay of many African nations. For example, in tourism in Uganda contributed 9.9% to Uganda's GDP in the financial year 2014/2015 amounting to approximately USD 2.68 billion.

Negative interactions however, often result in a conflict, best described as human wildlife conflict. Conflict is when the actions of wildlife negatively impact the lives of humans, or when the actions of I generally use a definition such as 'human-wildlife humans negatively impact the lives of wildlife. Human-wildlife conflict is a major conservation concern, threatening the future viability of many species including elephants. Negative impacts on humans are also severe, with people's livelihoods and safety often threatened According to the Ministry of Environment and Natural resources Kenya needed USD 9,900,990 to compensate victims of wildlife attacks since 2013 to 2016.

Mega herbivores, in particular elephants, have been reported to cause a lot of havoc in both Africa and Asia. In Taita-Taveta County,Kenya human-elephant conflict has resulted in death and injuries to both humans and elephants, and major crop destruction. In December 2016, The Daily Nation reported that more than 600 residents from Sagalla in Taita Taveta County blocked the Nairobi-Mombasa highway to protest against increased cases of human-wildlife conflict in the area, and in a bid to make the Kenyan Government come to their rescue.

In January 2017 Uganda, NTV reported farmers around Lake Katwe in Kasese district can hardly sleep because they have to stay awake to guard their crops against marauding elephants that cross from Queen Elizabeth National Park. Whenever the elephants cross in search for pasture, heavy losses are inflicted on farmers as large areas of crops can be eaten and trampled in just one crop-raiding event..

Many villages in Asia, particularly India and Sri Lanka experience similar problems. As elephants leave protected areas in search of food and water, they enter villages destroying crops and homes, and endangering people's lives. In retaliation, people chase, scare and injure elephants.

Several methods have been used to chase elephants away from human habitation, with varying levels of success. Common methods used by farmers include bon fires, digging trenches, night patrols or guarding from tree huts, and making loud noise by banging metal pans. Unfortunately elephants seem to get used to these methods over time. For example, t was reported in farms around Lake Katwe in Uganda, that elephants were observed covering trenches with soil to make it easier to cross to the farms.

As elephants habituate to these methods, desperate farmers use more and more violent methods to chase the elephants away, including use of snares and shotguns. Injuring elephants appears to make them more aggressive towards humans, and a cycle of human-elephant conflict continues, making the situation more dangerous for all involved.

This highlights the need for new and innovative ways of mitigating human-elephant conflict. One such method is an emerging micro mitigation method, combining passive and active deterrent characteristics by establishing beehive fences around the outer boundary of small-scale farms (King 2010; King et al. 2011). Elephants are wary of foraging near African honey bees (Apis mellifera scutellata) (Vollrath & Douglas- Hamilton 2002) and will run away from both the sound of (King et al. 2007) and the threat of being stung by a swarm of honey bees (King 2010).

Bee hive fences differ from other community-based deterrents, as the bees provide a physical negative consequence when they sting the elephants, making it less likely that elephants will habituate to this method over time. Although elephants have thick skin, bees can sting sensitive areas, such as the ears, eyes, mouth, and trunk. Farmers can also benefit from beekeeping, by selling honey and other bee products as an additional source of income.

Beehive fencing is currently being utilized and trialed in several African countries, including Kenya, Uganda, Tanzania, Botswana and Mozambique.

Dr. King, head of the Elephants and Bees Team, with Save the Elephants, designed the beehive fence concept and began the first beehive fence research site in 2009 with the Sagalla community in Taita-Taveta County, Kenya. Here, beehive fencing has been shown to deter elephants 80% of the time, increasing crop security, and helping farmers feel safer in their homes at night. A honey processing centre has since been built in the community, and farmers are also benefiting from this important resource. Initial success of the project has seen more and more farmers wanting to be involved, and a second beehive fence site was established in neighbouring Mwambiti community in 2015.

In south-western Uganda in the Kanungu District , a community-based organization called Conservation and Development, founded in 2013 by Moses Arinaitwe, has been at the forefront of mitigating human elephant conflict,along the migratory corridor between Bwindi Impenetrable Forest and Queen Elizabeth National Park.

Keeping bees for honey is a tradition among the people living around Bwindi Impenetrable Forest and so the group chose to use bees to mitigate the persistent conflicts after learning that elephants fear being stung.. With local craftsmanship they have been making Kenya top bar hives, tree log bee hives and traditional bee hives which are then distributed to farmers living along Bwindi Impenetrable forest and Queen Elizabeth National Park.So far 164 bee hives have been installed with the involvement of 195 farmers. The project has resulted ina significant reduction in cases of crop raiding by elephants, improved crop yields due to pollination by bees, and an extra source of income from the sale of honey and wax The groups future plans are to involve all farmers along the boundaries of the two National Parks in beekeeping. The group hopes to collaborate and partner with researchers and conservation based organizations, to train farmers on entomology, bee keeping, conservation agriculture and entrepreneurship, so the farmers can get maximum benefits from their beehive fences.

Beehive fencing is showing a lot of promise in Africa, as a relatively low-cost, low-maintenance, community-based elephant deterrent, which is helping farmers protect their crops, and also providing farmers with honey for their personal use and sale. This success in Africa has generated a real buzz around the globe, with many people in Asia wondering if it could also be used there.

With Kenya's 'Elephants and Bees' team, a beehive fence research site has recently been established in a small village of Sri Lanka, called Dewagiriya Village that experiences high levels of human-elephant conflict all year round, to test the potential of using this technique in Asia. The Asian honeybees are much less aggressive then their African cousins, but it is still quite possible that their sting will help keep elephants from farms, plus the farmers will benefit from producing honey.

10 beehive fences were built between 2014 and 2016, and are being monitored to evaluate their effectiveness. A workshop was recently held to train the community in beekeeping skills, and several farmers harvested their first small amounts of honey earlier this year.

Human-elephant conflict is a complicated and ever-changing problem, and there is no one solution for it. It may be that a combination, or rotation, of multiple solutions works best in many locations. It is important to monitor beehive fences and crop-raiding events to properly evaluate the deterrent effect in any given location, to train farmers in beekeeping so they can be responsible for their hives, and to learn about the local elephant population and their patterns.

Beehive fencing is an exciting and eco-friendly deterrent that can play an important role in helping small-scale farmers protect their livelihoods, all the while enjoying farm-fresh and elephant-friendly honey! It is a wonderful example of beneficial human-wildlife interactions, where one very tiny little species is helping protect two very large species – humans and elephants.

KNOWLEDGE @MAPKIBERA

MAP KIBERA

Since the first settlers came to stay in Kibera in the 1900's little has been done to improve the quality of life of the inhabitants in Kibera area. There has been little development in terms of infrastructure in the area despite the ever increasing population due to rural urban migration.

A group of 13 young people felt it was up to them to do something to address the situation in terms of insecurity, unemployment as well as health care services and schools. Led by Joshua Ogure who started as a video trainee and currently the project manager for Map Kibera trust, the founding members felt it was prudent to map out key installations of basic infrastructural facilities in the area including Schools, health facilities, police stations among others. The objective of this initiative was to establish how many public schools, water points, police posts and health facilities are found in the area. However, at the initial stage, the founders had an idea of how mapping or cartography could be done.

In 2009 the group met Erica Hagen and Mikel Maron from Open street map who trained them on how to use a GPS device and developing maps using QGIS and JOSM software. After the training MAP KIBERA was formed as an organization. The first task was to develop the general map of Kibera with all the facilities and infrastructure.

In 2009, UN-HABITAT funded MAPKIBERA to digitize the map of Kibera a process that took 5 months. Members were given hand held GPS devices and were asked to take the co-ordinates of various infrustrure like housing, roads, schools among others. The data was then cleaned and plotted into a map using Arc GIS and for the first time Kibera had an up-to-date digital map.

In spite of the break through, the map looked so congested and it did not tell the story of Kibera. With UN-HABITAT funding the group embarked on developing a digital map with four key thematic areas that were most pertinent to the community and they included: Security, Schools, Water and Sanitation and Health facilities.

Embarking on the venture raised a lot of suspicion from the residents since it required collecting of very sensitive information but after explaining to them what the intention of the mapping was the community became very supportive.

Town hall meetings were held to educate the residents on the need for developing the map and the people spear heading the project were sons and daughters of Kibera who had no ulterior motives from the data collected.

After the mapping exercise it was discovered a vast majority of the health facilities in the area were privately owned and out of reach for the common person.

Only four schools were public schools and the rest were either informal or private schools. Water points were unevenly distributed with some areas having more taps than others. Police posts were very few resulting to increased cases of mugging. The maps developed were printed or painted in walls and this led to a discussion among the locals. For example, citizens were able to question why the water points unevenly distributed. This made Nairobi Water and Sewerage Company come to action to address the problem. The black spot in terms of high insecurity cases was shared with the police resulting to an increase in the number of police posts and installation of flood lights in the area. It was also discovered that there were very few toilets resulting to the construction of more public toilets by the Government.

The MapKibera concept has been replicated in Mathare and Mukuru kwa jenga informal settlements. The same project has been initiated in Kwale and Dar-es-salaam and will be launched soon in Kitui and Nakuru.

The members are now vastly experienced in mapping and do offer consultancy on the same when required Government and Non-governmental bodies are now engaging their services and are using maps developed by Mapkibera to offer better services

In 2010 as a result of the mapping of key thematic areas, an SMS platform was initiated for the residents of Kibera to report incidences of insecurity and any other important matters that would be forwarded to the relevant authorities for action. Currently Mapkibera is using a web based report collection using face book and twitter but they hope to revamp the sms platform since its affordable and it does depend on smart phones to operate.

Challenges

Sustaining the program in the long run is a challenge since the organization tends to lose it's most trained staff but we are lucky to have a dedicated team.

MapKibera is an initiative that can be applied in both rural and urban areas in addressing issues like human wildlife conflict, urban planning and smart farming.

MAP KIBERA has demonstrated on how effective citizen journalism and mapping is in addressing challenges facing an area or a society. No outsider will best address or articulate issues facing a particular area other than the residents found there and for the residents they ought will and zeal to solve the problems for them to enjoy the fruits of their labour.

contact@mapkibera.org
Twitter: @mapkibera
Website: www.mapkibera.org

Culture and conservation

environmental stewardship in rapidly changing African environments

Is culture still relevant in environmental conservation today? This debate features in many scientific forums and in sustainable development agenda involving leading agencies like UNEP, the World Bank, CIDA, IDRC, UNESCO, and FAO. 'Culture' as is widely understood today by many anthropologists and sociologists follows Edward Taylor's definition: “culture, in its wide ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society”.

Despite this comprehensive definition, the role of culture in environmental conservation is narrowly understood through the facets of indigenous/traditional/local knowledge and belief systems. However, many people believe that indigenous knowledge and traditional belief systems are 'a thing of the past' or 'a way of life of our ancestors'. These narratives tend to imply that culture has little or no place in contemporary society. Indeed, conservationists emphasise that there is rapid erosion and consequent loss of African cultures as people increasingly adopt modern values, practices, lifestyles, and behaviours. The main challenge has been on how to protect and maintain culture and indigenous knowledge in a rapidly changing African and global environment. The Kaya forests in the Kenyan coast provide an example: while some elders still observe the integrity of the Kayas, there is an emerging generational crisis where youths seem to hold different attitudes and opinions on the value of these spiritual ecosystems – some more interested in felling and selling selected tree species to make quick money.

Instead of looking at these behaviours and changes of attitudes as a form of erosion of indigenous knowledge per se, we must begin to understand these dynamics alongside changing cultures – as cultures change, some ecosystems will undoubtedly be commoditised or threatened through changing global value systems. Nevertheless, as environments change, humans also adopt environmentally friendly behaviours and actions either consciously or unconsciously. This is reiterated in the definition of culture, where Edward Taylor emphasises the various 'capabilities' and 'habits', acquired by members of society, perhaps implying that there is a component of continuous learning and adaptation through borrowing, innovation, or invention of ideas and practices. One therefore has to look at the (un)intended consequences of culture change by examining both sides of the coin.

Indeed, there are many often overlooked habits (or practices) and environmentally friendly behaviours that members of society have internalised across time as shared solutions aimed at dealing with pressing environmental problems like soil erosion, climate change, and desertification, among others. These practices constitute the responsible use and protection of natural resources. Take the example of terracing and planting of Napier grass on smallholder farms in Machakos county or the art of collecting rainwater from the bole of coconut trees in Kwale county . These simple but ingenious practices are some of the foundations upon which the two societies exist. Although their effect may not be readily observable, such shared actions undoubtedly enhance environmental protection and have direct effects on local livelihoods. These practices are learned, shared, and adaptive, thereby making them part of culture.

In a rapidly changing world, there is tendency to search for more 'serious' and perhaps exotic ideas and solutions for environmental problems, while simple ingenious practices are often overlooked, yet they contribute immensely to our common future. The challenge therefore is to support and encourage similar positive practices, and to anticipate the unintended consequences of culture change in order to limit the possible environmental effects.

Dr. Eric Mutisya Kioko is a Social Anthropologist, Lecturer, and Research Fellow at Kenyatta University in the Department of Environmental Studies and Community Development

kioco@yahoo.com

LEARNING SOSPETER KIBIWOTT

In November 2015 there was a huge cry from the residents of Kisii town complaining of bats invasion in the town, there main problem was the constant noise they were making and their urine was full of urea spoiling ceiling boards and making the area smelly. All sought of theory were brought as to why the invaded the town but the underlying factor among many residents is that they should be eliminated.

Bats are members of the order Chiroptera. Chiroptera is derived from the greek word "hand-wing" in reference to a bat's webbed hand like wings. Bats are one of the most diverse and widely distributed groups of animals. The order is subdivided into two suborders: megachiroptera and microchiroptera. These suborders form the 17 families of bats with 181 genera and 1,250+ bat species.

Bats are the second largest order of mammals after the rodents, representing about 20% of all classified mammal species worldwide, with about 1,240 bat species divided into two suborders: the less specialized and largely fruit-eating megabats, or flying foxes, and the highly specialized and echolocating microbats. About 70% of bat species are insectivores. Most of the rest are frugivores, or fruit eaters. A few species, such as the fish-eating bat, feed from animals other than insects, with the vampire bats being hematophagous, or feeding on blood.

Bats are present throughout most of the world, with the exception of extremely cold regions. They perform the vital ecological roles of pollinating flowers and dispersing fruit seeds; many tropical plant species depend entirely on bats for the distribution of their seeds. Bats are economically important, as they consume insect pests, reducing the need for pesticides. The smallest bat is the Kitti's hog-nosed bat, measuring 29–34 mm in length, 15 cm across the wings and 2–2.6 g in mass.

Mega chiroptera/Mega bats

Mega chiroptera are also known as fruit bats, this is because they primarily eat fruit, nectar, pollen and plant life. Their diet makes them play an important ecological role of pollination and seed dispersal through their droppings which is a rich source of organic manure.

Mega bats common characteristics include: Large eyes, Dog-like facial structures, Broad visual cortex for enhanced visual acuity, A good sense of smell, Do not use echolocation, Have furry bellies and big ears.

They like to live in large colonies and are very nomadic.

Micro-chiroptera/Microbats

Microchiroptera or Microbats are much smaller compared to mega bats and primarily eat insects and small prey like amphibians, birds, and fish though some species like the Vampire bat consume blood of mammals as their source of food.

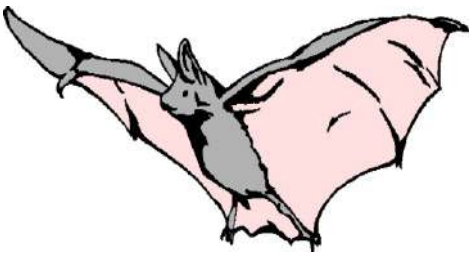
Mega bats common characteristics include: They are more solitary living in smaller colonies of the same species, The use echo-location to navigate in the dark and hunt for food, They have large ears and good hearing that also helps in hunting for food at night, They lack the claw on the toe of their forelimb, They are fur-less and exposed, making them to seek warm shelter.

Culture

In the African culture bats are viewed differently, example among the Nandi community bats are viewed as a sense of good luck and wealth and so they are rarely chased away from their roosting areas but in other communities they are viewed to bring bad omen and so there roosting areas get destroyed and are killed on sight. This misconception has to be addressed by educating them on the ecological value of bats.

Threats

Bat populations are declining worldwide. Sadly many bat species are vulnerable or endangered due to factors ranging from rapid increase in human populations, with the related loss and fragmentation of habitat, diminished food supply, destruction of roosts, diseases and hunting or killing of bats.



Scientists from Kenya Wildlife Service, National Museums of Kenya and Jomo Kenyatta University identified the bats in Kisii town as African Straw-coloured fruit bats (Eidolon helvum) is a native African bat belonging to the sub-order Macro-chiroptera. This bat is a migratory species in parts of its range; populations migrate from the West African forest north into the savanna zone during the major wet season. It ranges from sea level to around 2,000 m above sea level (Ruwenzori Mountains).

IUCN has listed the African straw-coloured fruit bats as Near threatened because this species is in significant decline because it is being seriously over harvested for food and medicine making the species close to qualifying for vulnerable.

skt656@gmail.com

LEARNING DR. ESTHER NGUMBI

Microbes

the invisible allies working around the clock to help farmers

They are tiny. They are invisible to our naked eyes. But, they are our friends—and they are plenty. They are beneficial soil microbes.

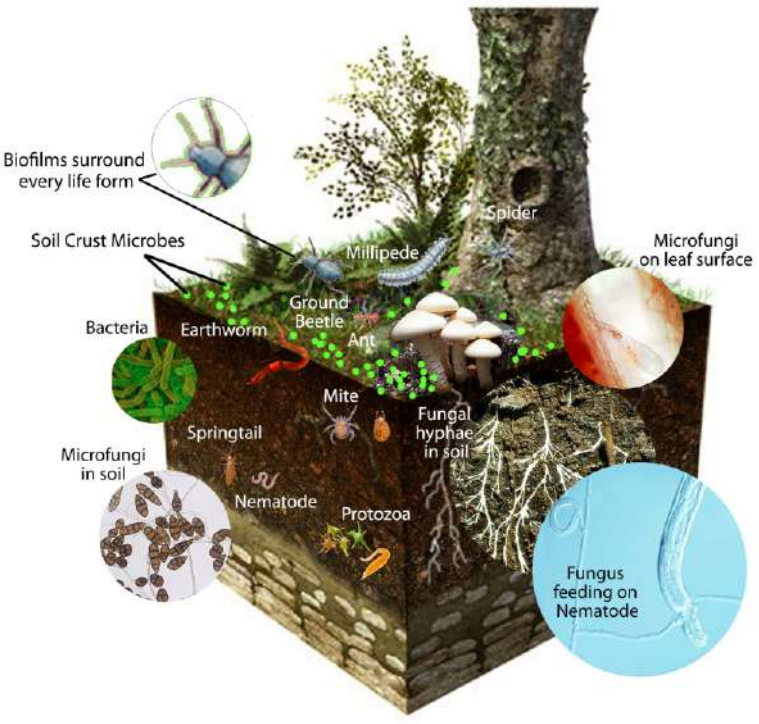
In agriculture, beneficial soil microbes form mutually beneficial associations with plants including maize, tomatoes and peppers. Like the microbes that live in our bodies, helping us with everything from nutrition to immune responses, beneficial soil microbes are our friends. They can help farmers deal with the many climate-change related challenges facing agriculture.

First and foremost, beneficial soil microbes can help restore the health of our soils. Healthy soils produce higher crops yields, hold more water and allow for increased productivity. Secondly, soil microbes can help plants to absorb available nutrients from the soil. Plants treated with beneficial soil microbes grow faster and are healthier. Microbes also help crops to tolerate extreme temperature and drought. Plants treated with beneficial soil microbes have a deeper root system and their shoots grow more quickly. Under drought conditions, plants are able to take up water from drying soil and can maintain near-normal growth resulting in increased crop productivity. Thirdly, treated plants help plants to fend away insect pests. Furthermore, soil microbes can improve overall plant growth.

Currently, microbial-based solutions- developed from beneficial soil microbes are among the key novel solutions driving and impacting agriculture. At the same time, understanding and exploiting microbes to achieve sustainable food production and resilient agricultural systems is a rapidly developing part of agricultural biotechnology. In developed countries, microbial-based solutions for agriculture are a $2.3 billion market and growing. As hunger and food insecurity concerns increase, beneficial soil bacteria and microbial inoculants developed from beneficial soil microbes offer novel solutions needed to ensure the sustainability of our food production systems and the resilience of our agricultural systems.

In Kenya and the African Continent, in particular, it is hard to overemphasize the anticipated benefits that beneficial soil microbes can offer. At the moment, 65% of soils are degraded. This costs African farmers $68 billion annually. As soil degrades, so does the microbial life. Microbial-based solutions can and will help reverse the current and widespread soil degradation in Kenya and Africa. Healthy soils are the foundation to resilient and sustainable agricultural systems. Resilient agricultural systems will allow Kenya and Africa to grow the crops it needs to feed its population and hence contribute to the eradication of hunger.

Twitter: @EstherNgumbi



CAREER CHOICE PHOTOGRAPHY

MEET CHRIS WANGA

1.When did you discover you had a passion for photography?

It all started when I was an undergraduate in Makerere University. Though I was pursuing a degree in Information Technology I was always captivated by photography and decided to pursue it as a hobby, with time it became a full time job that I greatly enjoy to date.

2.What does it entail to become a professional photographer?

One needs a professional camera (laughs). Any way being a photographer is not for the faint hearted. It is a profession needs commitment and dedication and one has to keep abreast with the changing technology also one has to do lots of research and do lots of practice. Secondly customer relation is Key since it may make or break you and I have come appreciate word of mouth as one of the best marketing strategies. Lastly professionalism earns one respect in the industry.

3.The cost of photography equipment is high. How can one go about it?

I strongly agree, photography is one of the most expensive industries we have. The gear needed costs much and it truly depends on how deep your pocket runs. If you are at a point where by you can acquire the desired gear with ease, do it and if you are not in a position, saving enough money would work. Also network with fellow photographers to hire out their equipment but again how you handle the borrowed equipment matters.

4.Do you offer mentorship to upcoming photographers?

I would not call it mentorship as at now. What I do is I try to be a solution giver. Example if one needs to know something about photography and I am in a position to give an answer, I will gladly do it. Do not forget sharing is caring and only pros share their knowledge freely and confidently. On that note, we as professional photographers came together and formed (Photographers Association of Kenya) where do share knowledge, skills and legislate rules of how we need to conduct ourselves, customer relations, collective bargaining among others not forgetting just being a family.

5.What makes picha za Wanga stand out from the rest?

Foremost the name stands out (laughs) many think its slung. Swahili is a rich language and so we adopted “PICHA" for picture. Anyway that's a talk for another day. At Picha za wanga we strive to be an all rounded photography firm and offer all types of services pertaining photography. (ArtWithAHeart) is our slogan and we do not leave out the human aspect for that reason we are too friendly for life (laughs). W e also stands out because of God in us and the HOLY SPIRIT who always guides us. Does shooting funerals with style make us stand out? (pauses). We take pride in funerals "Last respect" photography being a segment not undertaken by many.

6.Parting shot

Photography is an art, we are creative's and have the mind of CHRIST. Always involve the HOLYSPIRIT of God and you will succeed. Just like any other profession read, research and practice. Learning never ends and I ask you all to reach out to PICHA ZA WANGA for the best professional photography in Kenya.

Contacts-Email: pichazawanga@gmail.com
FACEBOOK: PICHA ZA WANGA
BLOG: www.pichazawanga.wordpress.com
Mobile: +254 726 823 020

LEARNING DR. GEORGE ESHIAMWATA

Building capacity for effective natural resource management:

The contribution of Egerton University's diploma, undergraduate and postgraduate programmes

Kenya is endowed with a rich biodiversity characterized by a broad range of flora, fauna and a kaleidoscope of geomorphologic formations in addition to a growing cultural heritage. Natural resources form important natural capita and asset of a nation in terms of the diverse ecosystem goods and services in the form of ecological value, nutritional and medicinal value, socio-cultural value, aesthetic information, spiritual and religious information, historical information (heritage value), cultural and artistic inspiration, and scientific and educational information. However, with all these benefits emanating from natural resources notwithstanding, the resources are facing a lot of threats. There is no greater long term need in Kenya today than the conservation and management of her vast natural resources including flora and fauna; natural forests water catchment areas, wetlands and aquatic life. The pressure on natural resources led to forest loss, land cover change, soil erosion, climate change, pollution, desertification and degradation of water catchment– all of which combine to impair the land and water resources. These are exacerbated by other natural resource challenges such as scarcity, lack of transparent natural resource governance and management and high dependence on natural resources, without proper management and appropriate policies. On the other hand, these resources are a key determinant of sustainable development including contributing to national development targets (e.g. Vision 2030) and global targets (e.g. the 17 Sustainable Development Goals to be achieved by 2030). There has been a paradigm shift in the management of natural resources with policy emphasis on sustainability. For example, Vision 2030 outlines environmental situation in terms of 6 areas. First, there is a focus on sustainable management of natural resources (water towers, etc) by addressing degradation of the five water towers due to agricultural encroachment and agriexpansion and the need to safeguard these critical areas to achieve ; water sufficiency (i.e. quantity and quality) and reduce recurring flooding. Secondly, Vision 2030 acknowledges that rich ecosystems and biodiversity is a turnkey to socio-economic and cultural benefits considering a stream of ecosystem goods that the natural capital provides. Thirdly, this economic blueprint appreciates the role wildlife play is sustainable development especially through tourism and other ecological roles and any threat to their survival is equated to "killing the goose that lays golden eggs". Fourth, natural resources are important for human health and the consequences of a polluted environment can have dire and far-reaching ramifications of human health. Fifthly, Vision 2030 acknowledges the impact of climate change and desertification of the country's development pathway. Lastly, Vision 2030 considers the importance of harnessing of strategic natural resources in spurring sustainable development. The contribution of natural resources in as a key pillar in achieving the seventeen Sustainable Development Goals is very apparent. There is need to develop capacity in academic and professional training institutions to provide relevant training to conservation professionals to respond to these threats and plan and implement management strategies that meet these emerging challenges. Developing the capacity of a constituent of people with an understanding of ecosystem complexity and the values and practical skills to participate responsibly and effectively in establishing ecologically sustainable lifestyles and environmental well-being is a priority. Egerton University is at the forefront of developing the much needed capacity to effectively manage Kenya's natural resource endowment. At Egerton University, the Department of Natural Resources is one of the 51 Departments spread over 9 Faculties at the University and was started in 1965 offering Diploma programmes in Range Science, Forestry and Wildlife Management. In 1990 a BSc in Natural Resource Management was started. The department is currently domiciled in the Faculty of Environment and Resources Development. Today the Department offers the following programmes: Natural Resource Management (BSc, MSc - with specializations in Wildlife ecology, Forest ecology, Human ecology and Rangeland ecology, PhD levels), Natural Resources and Peace (MSc, PhD levels, Wildlife Enterprise and Management (BSc levels), Integrated Forest Resources Management (BSc levels), Dryland Resources Management (Diploma, BSc levels, PhD), Ecotourism and Hospitality Management (Certificate, Diploma and BSc levels), Programmes in the department are designed to provide broad based education, technical, professional knowledge and practical skills for undergraduate and postgraduate students who wish to study environmental issues related to resource use, protection and enhancement of environmental quality and human welfare. The goals of the programmes offered in the department are the application of knowledge in ecological, sociological, technical and economic concepts to the theory and practice of natural resource conservation, utilization and management, communicating this knowledge and management techniques to the relevant members of the Kenyan society and beyond, analyzing and evaluating critical issues in natural resource policy, conservation, utilization and management.

The programmes offered are consistent with Egerton University's mission of transforming lives through quality education. The programmes aim to impart skills and knowledge to prepare students to effectively contribute towards addressing some of the current and emerging problems facing wildlife resources in the 21st Century so as to reduce species extinctions while achieving national (e.g. Vision 2030), regional and global conservation and development targets (e.g. Sustainable Development Goals) through entrepreneurial skills and job creation. The University inculcates into the students the diverse range of theoretical and practical skills keeping pace with the emerging capacity needs and the requisite competence needed in industry workforce. The programmes place a greater emphasis on preparing them to fit in the job market, find sustainable solutions of interdisciplinary challenges related to the management of natural resources and also inculcates in the students the much needed creativity and entrepreneurial skills in ecotourism and hospitality and management of wildlife enterprises through tailor-made courses that would make them self-employed while creating employment opportunities and unlock other employment opportunities for jobless people in the society. There is a strong element on research through practical undertaken using field courses, student projects and seminars. As part of the practicals and income generation, the Department has a large tree nursery. Seedlings from this nursery have also been used in the restoration and rehabilitation of the Mau Forest. Students have form clubs and are currently involved in regular bird watching, participate in the NatureKenya/BirdLife International led Common Bird Monitoring and Kenya Bird Map, community awareness among other activities.

TALENT MR. MATSIKO DAVID BITAKA

BWINDI IMPENETRABLE KIDS LEAGUE

460 Kilometres west of Kampala lay Bwindi impenetrable forest and National park. The forest lies on the Uganda-Democratic Republic of Congo Border. Matsiko David a conservationist and the founder of Rugando Parents Schools is taking his young students through the paces of taking penalties on a wet muddy grounds which the students seem to love.

As the young football players take a short break, David scans the vast forest canopy in front of him rolling for miles and miles and appreciating the iconic mountain gorilla growls coming from the forest floor, nearly 346 bird species, 200 butterflies, 324 tree species and over 100 species of mammals. " Master Matsiko we are ready for the second session" of training yells one of the students.

In 2012 with partnership with Conservation Through Public Health (CTPH) Bwindi Impenetrable Kids League was formed with an aim of developing talents through the sport of football and revive an age old tradition among the Bakiga community living around Bwindi Impenetrable forest of passing on conservation knowledge to the young ones who are the custodians of the forest in the days to come.

The Children who participate in the league are aged between 8-14 years involving schools like Buhoma community school, Rugando Parents School, Mukono Primary school and Kanyashande primary school. The league runs on a round robin and it has attracted a lot of interest from the neighboring schools.

The participants in the league besides getting training in soccer and environment conservation, they do receive scholastic materials like pens, books, geometrical sets from well wishers and tourists who come to watch the kids play. In the beginning of 2017 the Bwindi Impenetrable Kids league got a shot on the arm with some financial support from Dr. Gladys Kalema Zikusoka the founder of Conservation Through Public Health(CTPH) the league was relocated to Mpungu sub-county within the greater sub-county of Bwindi Impenetrable National Park.

Tumwiine a promising mid fielder says he wants to be like "Farouk Miya" a Ugandan International playing for Royal Excel Mouscron in Belgium of which David interjects, "his dream with CTPH is to produce all round students who will fly the Ugandan flag higher as well as become custodian of Bwindi Impenetrable forest which derives its name from Runyakitara meaning "Impenetrable" this is because of the extensive stands of bamboo inter twinned among the large forest hard wood".

With a little bit of support to purchase soccer balls, scholastic materials and help expand the league. A lot will be achieved in terms fostering cohesion among the people of Bwindi, support conservation efforts and lastly nurture future

davidmatsiko@gmail.com

POLLINATION CAROLINE NJOKI

Empower Farmers to Conserve Pollinators for Better Coffee Returns

Kenya's coffee ranks highly in the international market and fetches the country billions of shillings every year as foreign revenue. . In the global market, our very own Coffee arabica is preferred to boost other varieties and produce desired superior flavors for the many consumers who take delight in the beverage. It is estimated that six million people directly or indirectly depend on the coffee sector for their livelihood in the country. Despite the high returns, very few people including farmers attribute this from pollination services by insects. A visit conducted in April 2015 to several coffee plantations within Kiambu County- a key coffee growing area revealed a knowledge gap among farmers. The coffee plants were in full bloom. It was hard work for the ants, hawkmoths, flies and bees as they moved from one flower to another often making repeated visits. In the process, these tiny but useful creatures collected and moved pollen grains from the male to the female part of the flowers hence enabling coffee berries to be formed. They would occasionally visit other non-coffee plants for the additional nectar and pollen which they utilize as food.

However, many farmers lack the knowledge to identify the beneficial insects from the damaging pests. Indiscriminate use of pesticides as well as clearing or burning of the natural habitats used by pollinators as nesting and foraging sites are contributing to their decline. This was evident in some of the farms visited as workers were busy spraying the coffee bushes with highly toxic synthetic insecticides as the plants were in full bloom. There were hardly any insects spotted and a few but small berries in some plants were developing. The owners and workers did not seem to know what could be the reason but instead linked it to the unstable weather.A study conducted in selected coffee farms in Kiambu County and published in the Asian Journal of Agricultural Sciences established that adequate pollination from insects mainly bees result into many, well formed and heavier coffee berries. High quality berries that are full of flavour are preferred and earn more money. In another study titled, 'Farmer's perceptions of pollinators' importance in coffee production in Uganda,' reveals that 90% of the small-scale farmers were not aware of the role played by pollinators especially bees in increasing coffee yields although it is a major cash crop. Outside Africa, the loss of pollinators in North America and Asian countries is enormously costing them as they resort to human assisted pollination- an expensive, tedious and less effective as compared to the one that occurs naturally. The cost of produce goes up and is passed on to the consumers. In Kenya, production has gone down over the years as a result of low global prices, shift to other crops and rising demand for land for real estate expansion. But there is renewed interest for organically-grown coffee sold for a premium price.

Apart from coffee, pollinators are also responsible for production of various crops, fruits, fibres, medicinal plants and regeneration of wild plants. A report released early 2016 by the Intergovernmental Platform on Biodiversity and Ecosystems Services (IPBES) indicates that wild pollinators are declining and their loss would harm food security for an ever growing human population, livelihoods, human health, industries and global economy. Additionally, a study by French and German scientists published in the Ecological Economics Journal adds that the disappearance of pollinators would translate in consumer losses estimated between €190 to €310 billion. Raising the level of awareness among coffee farmers on pollinators and their importance to boost production and income is therefore a matter of priority. Producing and disseminating simple pollinator identification materials for farmers and emphasis on biological control of pests are some of the solutions. If spraying is necessary, farmers should only do so outside the flowering period. In addition to coffee, planting a variety of trees and wild plants in the farm to ensure there is adequate food for the pollinators all year round.

Besides developing better yielding coffee varieties, the Coffee Research Foundation requires to put more emphasis on pollination in their research and extension agenda. On the other end, the Pest Control Products Board should be at the forefront to regulate entry, supply and use of pesticides only approved as safe so as to protect beneficial insects, human health and the environment

Well drained fertile soils, pruning, weeding, adequate rainfall and application of fertilizers are not enough in coffee production. It is time to recognize pollinators as the 'silent' yet essential input in producing the finest and highly sort for 'Kahawa Namba One'

twitter:Njoki_Carol83

INNOVATION SIMEON OGONDA

Energy saving stoves

Our cooking challenges today present greater problems for our country than we can imagine sometimes. We use three stone fire-places that produce immense smoke that irritate the eye, contribute to lung diseases, damage the environment through cutting trees, and increase our spending for firewood. In fact, we have cut more trees that today we are in a never ending environmental crisis that hinders progress due to unreliable rainfall patterns, lung diseases that prevent productivity in farms, and many hospital visits that reduce our financial strength as families and increase our dependence on medication. Project Stoke, a Kenyan-Canadian partnership of young entrepreneurs, began with the aim of reducing smoke inhalation when using open fires for cooking. This project has become one of the many ways developed by rural communities and global partnerships to roll-back the spectre of environmental degradation, poor health, and low cost energy. With this project we haven't assumed the responsibility of solving these problems, but have taken a bold stand to finding solutions that enhance our environmental awareness campaigns.

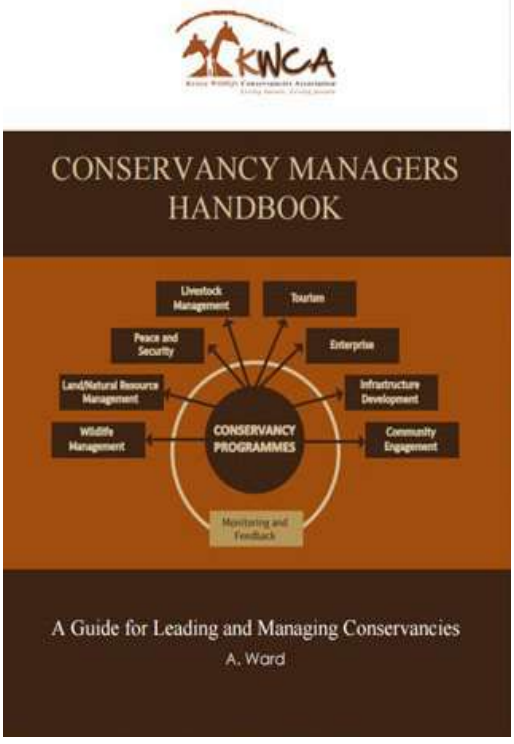
The project introduced an efficient cooking stove that produces almost no smoke. It produces bio-char (which looks almost like charcoal). The stove uses very minimal wood. It uses only a third of the firewood we consume when using open fires. When the product was launched, consumers loved it. Since its introduction, the product has attracted thousands through radio talk shows, community meetings, and conference presentation. However, our success comes primarily from the buyers who have reported very positive results. They especially love the product because it saves them money. For 20 shillings, a family is able to cook food for a whole day, a process that would cost 100 shillings on a three-stone fireplace. Moreover, we believe that the reduction of smoke produced has enhanced the level of interest that many rural communities have. Our current program seeks to introduce Bio-char as for farming. This follows a successful test in 2016 which enabled a farmer in Kano to produce 20 bags of maize in a land that produced only 7 bags in the previous year. Indeed, these successes convince us that the Stoke cooking stove is a revolutionary solution to health, environment, and finances at home.

Our partnership endures not just because of the product though. Project Stoke utilizes the strong entrepreneurship potential it provides. Started as an Enactus initiative that involved providing access to low cost energy for low income families, the project teamed up with a social venture company in Kenya, Millennial Legacy Investments founded by an Enactus alumnus to elevate the value of community focused ideas in building sustainable business solutions for communities. Enactus, an international student organization, nurtures entrepreneurs who promote change through direct action. Millennial Legacy Investments is a product of belief in direct change. This powerful combination is not of organizations, but individuals who believe that solutions we need for our environment do not come without bold solutions. We believe that by coming together as social entrepreneurs, we developed a revolutionary program that builds our capacity to handle environment and health issues at the grassroots. Project Stoke is a testament to this conviction. Since we began, we have sold 419 stoves to over 400 families, creating a financial saving of KSHS744,073.11 for these families, successfully testing bio-char for a family that was able to produce 20 bags of maize on the same land that produced only 7bags in 2015, and potentially saved hundreds of trees.

(simeon.sez4@gmail.com)

KWCA JOYCE MBATARU

Conservancy Managers Handbook for Leading and Managing Conservancies.



Conservancies have been recognized as tools for community development, wildlife conservation, climate change adaptation and as a value addition to livestock. However, managing a conservancy to achieve the aforementioned is a complex undertaking. It involves balancing many differing interests among various stakeholders,land-owners, resident/neighboring communities, conservationists, investors, researchers, policy makers, staff, government agencies, among others.

KWCA recognizes the pivotal role a conservancy manager plays in the management and eventual success of a conservancy. Conservancy managers have to balance the needs of tourism, enterprise development, infrastructure development, community engagement, peace and security, wildlife, livestock and natural resources management which often compete for space and resources within the conservancy. To satisfy the competing land uses it is important that conservancy managers are able to develop and be guided by a conservancy management plan and are able to work with all the stakeholders to accomplish the goals of the conservancy.

KWCA has published conservancy manager's handbook to help enhance the manager's personal skills in leadership and management for the growth and development of conservancies. The handbook seeks to support conservancy managers prioritize and make informed decisions in leading and managing conservancy programmes and its stakeholders.

The handbook also provides multiple skills sets and experiences that managers can use to enhance their capacity in time management, staff management, communication, planning, negotiation techniques, networking, marketing and stakeholder management among other skills in implementing their day to day tasks in the conservancy.

It is our hope that the principles, ideas and techniques used in the handbook will inspire conservancy managers to become more effective and productive in managing the conservancies and their work to be used as success stories to better our people, wildlife and environment.

The handbook has been produced with support from WWF Kenya, USAID Kenya and The Nature Conservancy.

Prof. Judi Wakhungu

Cabinet Secretary- Environment & Natural Resources

How would you describe your experience at the helm of the Ministry of Environment and Natural Resources

My experience in leading the environment sector development has been both very challenging as well as rewarding. The enactment of new progressive legislations that are key for promoting the forestry, wildlife and environment sectors has been the most rewarding experience for me. The balance between conservation and development resulting from conflicting cross-sectoral policies and legislation, illegal wildlife trafficking, and poaching has been the most challenging issues to manage. Thanks to the great support we have received from His Excellency the President who has been in the forefront in providing leadership at the global level. This is in addition to support accorded by my colleagues, and many Kenyan conservationists has been instrumental in enabling us to address most of the challenges.

The Climate change policy was recently signed into law by the President. What should Kenyans expect from its enactment?

The goal of the Climate Change Act (2016) is to provide for a regulatory framework for enhanced response to climate change, and measures to achieve a low carbon and climate resilient society for sustainable development. Kenya is the first African country to have a climate change law in place that strengthens good governance and institutional structures concerning climate change issues. The Act obligates both the national and county governments to mainstream climate change responses into development planning, decision-making, and implementation. The Act also establishes a mechanism to recognize and incentivize the contribution of non-state actors in addressing climate change, including the potential to spur private entity interest in climate related investment, climate finance, capacity building, and technology development, and transfer. Mainstreaming climate change in education curricula is another important aspect of the Act. In addition, the Act makes public participation, and the mainstreaming of gender and intergenerational equity mandatory in all aspects of climate change responses. A transformation change to a low carbon and climate resilient development has many benefits for the country as it provides linkages to regional/international cooperation. These include optimizing the country to mobilize access to international climate financing mechanisms like the Green Climate Fund and Adaptation Fund. Investment and expansion in renewable energy sources such as solar, wind and geothermal as well as energy efficiency options will increase clean energy security and reduce reliance on fossil fuels. Reforestation/afforestation of degraded forests will contribute to our constitutional requirement of a 10 percent tree cover, and also has the potential to benefit the country through carbon trading under the REDD+ framework. The promotion of Climate-Smart Agriculture (CSA) framework has several adaptation initiatives and mitigation co-benefits that will result in sustainable food security and poverty alleviation. These climate initiatives will ensure prosperity towards the attainment of Vision 2030, and contribute to implementation of the Paris Agreement and the 2030 Agenda on Sustainable Development.

The frequency of drought and famine has become more intensive and severe in the recent past, what should be done to give a lasting solution to this challenge?

As clearly stated by Inter-Governmental Panel of Climate Change, extreme climate events such as droughts and floods are expected to recur more frequently and become more intense under Climate Change. The impacts associated with these events are consequently expected to be more severe. In Kenya, these events have clearly manifested themselves in the recent past and are becoming the norm in some cases. The current drought situation that has been declared a national disaster is fresh in our minds. It is, therefore, imperative that certain actions be instituted towards minimizing the impacts associated with the extremes and make the vulnerable communities resilient.

Drought is a slow onset phenomenon whose severe impacts can be collaboratively minimized with proper contingency plans in place. Current understanding of impacts of extreme climate events in, particular drought, points to the need for investment in adaptation measures such as development of drought-tolerant crops, income diversification, improved access to meteorological information (early warnings), encouraging investments in crop and livestock insurance safety nets, and conservation of water resources as well as rain water harvesting. Effective management of drought risks requires ensuring that functioning governance frameworks and institutions are in place, high-quality climate data and information is accessible, and that sufficient human, technical and financial resources are available. In addition to the above, some of the other actions that should be undertaken to cushion those who are constantly affected by drought conditions include:

(i). Deliberate further improvement of KMD infrastructure (data observation, processing and dissemination) to ensure requisite community level drought early warning information is readily available for application by the relevant institutions.

(ii). Building the capacity of

institutions charged with the responsibility of responding to drought.

(iii). Creating awareness on the Climate Variability and Climate Change issues to the vulnerable communities;

(iv). Creating awareness on the adaptation options that if implemented will minimize the impacts of drought;

(v). Creating awareness on the application of Early Warning Information to develop contingency plans;

(vi). Enhancing the generation and dissemination of Early Warning information to be used as an input into informed decision-making;

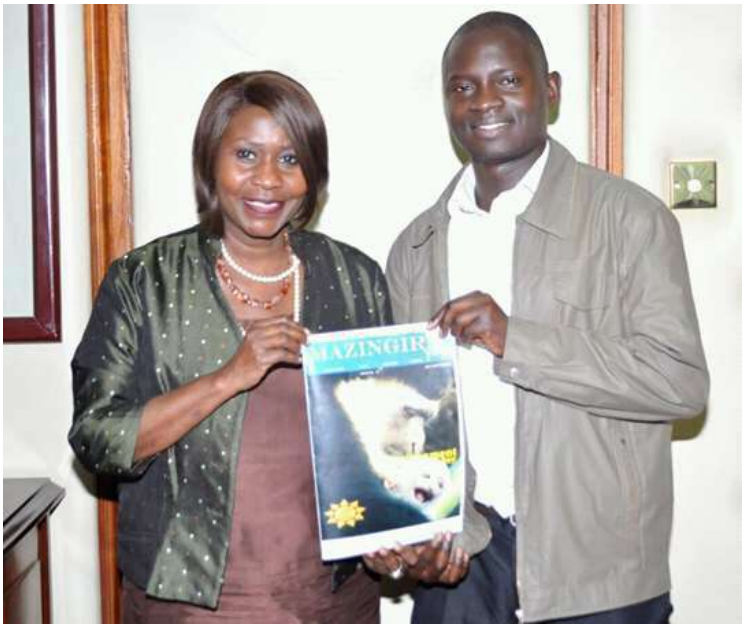
(vii). Increasing the uptake and application of Early Warning Information for decision making; and

(viii). Mainstreaming Weather and Climate Early Warning information in planning.

Towns and cities in Kenya are overwhelmed by the amount of solid and liquid wastes being generated by households and businesses, what strategies does your ministry have to ensure zero waste in future?

Solid waste management is a devolved function.
Appropriate management of waste through sorting at source, collection, recovery and recycling as well as disposal of absolute waste is an integral part of sound environmental stewardship at the county level.
The Ministry, through its National Environment Management Authority has developed a National Solid Waste Management Strategy.
We are fast-tracking the creation of an enabling policy and legislative framework to operationalize the strategy across all counties. To this end, the Ministry is drafting a Waste Management Bill which will make it possible for Kenya to effectively manage all types of waste. Our target is to have 80% of waste recycled and only 20% disposed of through sanitary land fills by 2030.

Green economy is a gem that Kenya is yet to fully explore in it's quest of becoming a middle income economy, what measures has your ministry put in place to sensitize Kenyans and other Government agencies about it?



Green economy as a development paradigm presents an opportunity for Kenya to attain a more sustainable development pathway with potential for eradication of absolute poverty and achieving climate change mitigation and adaption measures. The Ministry has taken several measures to enable transition to Green Economy. These include the development of a Green Economy Strategy and Action Plan, having a close partnership with the Manufacturing sector to promote compliance with the Environment Management and Coordination Act, and supporting continuous public education and awareness on the need for every person/ entity to adopt sustainable consumption and production behavior.

What has been your biggest achievement in the Ministry? The enactment of the Wildlife Conservation and Management Act 2013 which spells out punitive sentences on wildlife crime offenders has contributed significantly to the reduction of poaching cases of key species.

Poaching cases for rhinos reduced from the highest figure recorded in recent times of 59 cases in 2013 to 10 cases in 2016 while that of elephants reduced from 384 in 2012 to 73 cases in 2016. This translates to 83% and 80.1% decline in the cases of rhinos and elephants poaching, respectively, for the period 2012-2016.
Our elephant population currently stands at over 30,000 individuals, the fourth largest in the world and a rhino population of 1,149 individuals, the third largest in the world. Whilst these species still face conservation challenges, my Ministry has taken various policy, legislative and operational measures with great success.
Successful completion of the Country's first National electronic inventory of rhino horn and ivory stockpile with subsequent disposal through burning sent a clear signal to the global community about our commitment to the fight against illegal trade and trafficking of wildlife trophies.
For our country, we have made a strong message that our elephants and rhinos are worth more alive!
Establishment of a DNA and Forensic Laboratory has been another milestone that has helped identify origin of seized ivory, and isotopic analysis that provide admissible evidence in the courts of law and improved focus on species- specific challenges through development and implementation of species action plans. The laboratory will serve both Eastern & Central Africa.
We have also made great achievements increasing our forest cover from a low 6.99% to the present cover of 7.2% forest cover in the Country.
The Climate Change Act 2016, discussed elsewhere, is also a major achievement, not only for the sector, but for the whole country as it occasions a paradigm shift in the management of climate change affairs, including the establishment of a high-level National Climate Change Council chaired by the President. Further, the Act obligates both the national and county governments to mainstream climate change response actions in the planning, budgeting and implementation; and creates space for non-state actors to play their rightful role and contribute to the country's efforts to address climate change. I recently banned the use, importation, and manufacture of plastic carrier bags. I did this to protect our environment. The ban will need the support of all Kenyans.

Are there programs within the Ministry that would be of benefit to community based organizations engaging in wildlife conservation or general environment matters?

Enactment of the WC&M Act, 2013 has provided the legal framework for setting up community wildlife conservancies. The community wildlife conservancies now cover more than 2.5 million hectares of land and generate thousands of jobs and direct benefits to local communities. Wildlife conservation today, therefore, has been recognized as a form of land use as opposed to the past scenario.
I am in the process of gazeting conservancy, and community participation regulations to promote the development of conservancies on private and community lands and to prescribe measures that enhance community participation in the conservation and management of wildlife.

Any encouraging word to Kenyans and the World at large?

We are the best protectors of wildlife heritage. Let us all be vigilant in guarding against destruction of our wildlife heritage. The criminals are well organized, well resourced and operate beyond our borders. With your support, we are determined to beat them on their game!

The poet

Warned

he sands of time have rendered fear
Blue skies on high no longer clear
Stars were bright whence they came
Now dimmed, obscured, pollution's haze

Crystal clear our waters gleamed
Fish abundant, rivers streamed
Ocean floors sandy white
Now littered, brown, pollution's plight

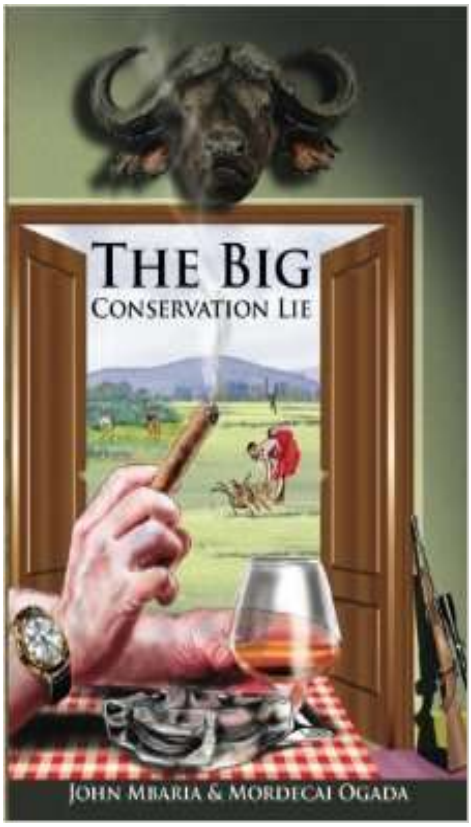
Trees towered high above
Trunks baring professed love
Birds chirping from sites unseen
Gone, paper joined pollution's team

One can't blame pollution alone
As they say, you reap what you've sown
So let us plant a better seed
Tear out old roots, cultivate, weed

Protect what has been given for free
Our waters, skies, wildlife and trees
For once they're gone, don't you say
Consider yourself warned of that fatal day

by C

Book review



Conservation is truly a passion and each and every person who loves nature will always try as much as possible to conserve the environment.

Most young Africa conservationist grows up knowing that conservation is not just a calling but an act to die for, but this does not come true when we join the conservation working community.

The conservation you find is all a big lie, but a group of individuals who want to enrich themselves through robbing the precious conservation efforts that Africa has done or centuries.

The conservation big lie has captured issues surrounding conservation in Kenya that will leave you shocked and surprised. The bold writers have come out to highlight the greed and rot that is in the conservation community in Kenya.

The book not only list individuals but also organizations that most young conservationists look up to, am sure after you read this book you will want to know more.

Transmara is found in Narok Sub county and it's an area blessed with a plethora of biodiversity making it one of the most scenic areas in Kenya. In Angata division a small Community Based Organization called Care for Human and Animals Kenya (CHAKE) was formed three years ago on the basis of protecting this pristine ecosystem that was facing and continues to face human induced destruction like illegal logging of indigenous trees and charcoal burning. Indigenous trees take a long time to mature and there was an urgent need to develop tree nurseries that would supply both exotic and indigenous trees to the residents of Transmara to reduce the pressure on the natural forests. Over the years we have collaborated with learning institutions and local administration in educating the community on the need to re-plant trees on where they are cut and to date we have planted over 50,000 trees.

Besides planting trees we do collaborate with Masai mara game reserve management in collecting waste plastic bottles and bags inside and outside the park and educate the tourists on the dangers of littering the park. Schools like Siria High school, Oldonyo-orok

secondary LLkarian,Olopikidonge primary school, Chamrrecc learning center and Kilgoris prison have some of the recent beneficiaries of the program. We shall endeavor to ensure the residents of Transmara co-exist with nature by engaging in activities that are beneficial and to that effect we are in the process of up scaling our tree nurseries and request all the help in ensuring we have a well and water storage tank. This will ensure that we plant and grow the tree seedlings throughout the year.

chakecdprogram@gmail.com
Tel+254727701198

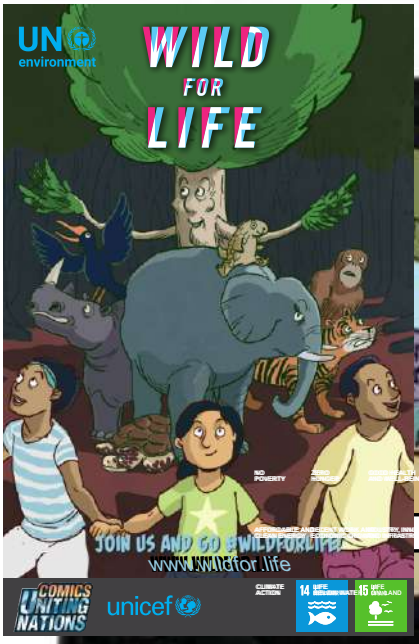
THE bio

Dr. Richard Munang

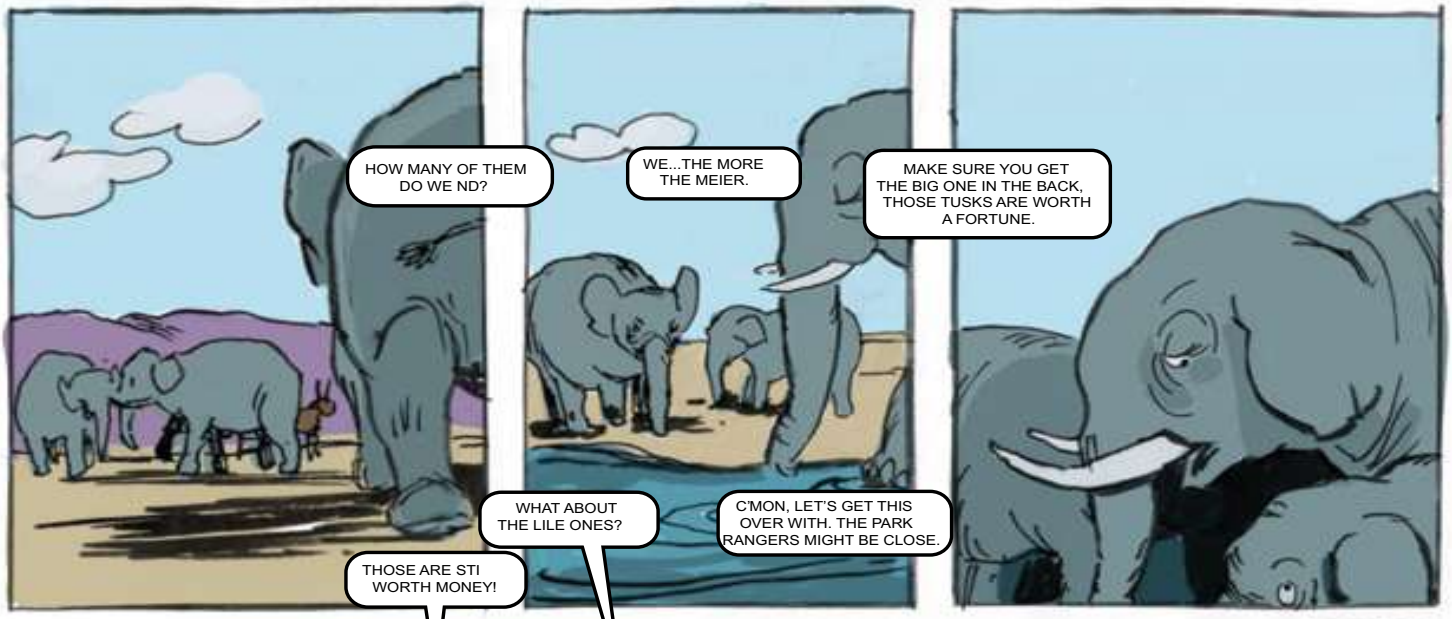
I grew up in a small village in the North western Part of Cameroon and there is a saying that when you go to the stream to fetch water, your bucket will be filled with the water that is yours. No one can take the water that is destined for you. Life will give you what you deserve, nothing more and nothing less. But first you must walk to the stream, bend down and dip your bucket. Walking to the stream is not always easy.

I grew up herding goats in my village and the only hope was the inspiration from my parents that with hard work and perseverance everyone's dreams are valid. I went to school without shoes but the inspiration was always that there was a better tomorrow and that if one works hard we can become better and inspires others. I was not born into wealth and opportunity. The year I finished elementary school, I had to wait another year before I could start high school.
My parents struggled to send me to university. When I finished university, I stayed for 1 year volunteering to gain skills and through perseverance; I won a scholarship to study at the University Nottingham in the UK and later on went to Harvard University Kennedy School of Government to pursue an Executive Education on Energy and Policy Making. Yet I too reached the stream, and my bucket is certainly not empty. It is now the turn for all the African youths to fill their own buckets.

Through volunteering your skills, knowledge and resources at your disposal towards the bigger goal of industrializing Africa's agriculture through the Ecosystem based Adaptation for Food Security Assembly (EBAFOSA)(www.ebafosa.org), you showcase your skills, get mentored to refine them and earn practical hands on experience that positions you competitively in the labour markets. Let this never Give Up attitude energize all of us.
That we can through innovative volunteerism, simultaneously develop ourselves and contribute substantively towards development of Africa. The world may seem to be in a terrible mess today, but what I have learned has shown me that there is hope. Use your knowledge to promote hope. Write about Africa. Tweet about Africa. And take on the mantle of changing Africa. Let us arise and boldly match forward in the spirit of innovate volunteerism. the future is in your hands!


UN environment
WILD FOR LIFE
JOIN US AND GO #WILDFORLIFE
www.wildfor.life
COMICS UNITING NATIONS
unicef


HOW MUCH MONEY ARE WE GEING AGAIN?
HA! A LOT MORE THAN YOU CAN SPEND IN ONE YEAR.


HOW MANY OF THEM DO WE ND?
WE...THE MORE THE MEIER.
MAKE SURE YOU GET THE BIG ONE IN THE BACK, THOSE TUSKS ARE WORTH A FORTUNE.


WHAT ABOUT THE LILE ONES?
THOSE ARE STI WORTH MONEY!
C'MON, LET'S GET THIS OVER WITH. THE PARK RANGERS MIGHT BE CLOSE.
BANG


FOCUS FASTER THAN
A FEATHERED FUGITIVE.
HUAWEI
HUAWEI