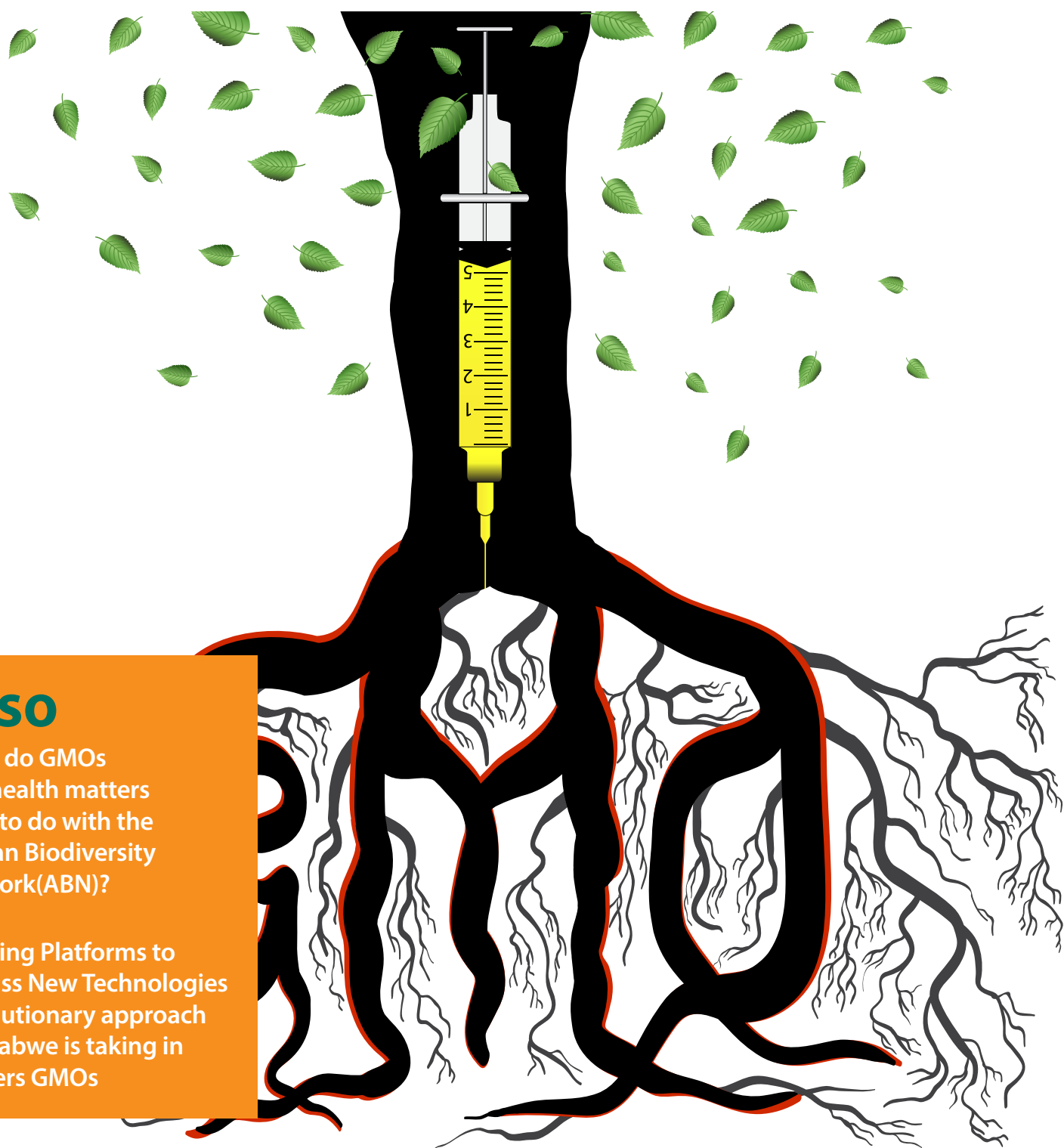


ABN

The African Biodiversity Network is a regional network of individuals and organisations seeking African solutions to the ecological and socio-economic challenges that face the continent.

NEWS

NOVEMBER 2016 - JANUARY 2017

**ALSO**

What do GMOs and health matters have to do with the African Biodiversity Network(ABN)?

Creating Platforms to Discuss New Technologies
Precautionary approach
Zimbabwe is taking in matters GMOs



GMO Free World

“An ecosystem, you can always intervene and change something in it, but there’s no way of knowing what all the downstream effects will be or how it might affect the environment. We have such a miserably poor understanding of how the organism develops from its DNA that I would be surprised if we don’t get one rude shock after another.”

Professor Richard Lewontin, Professor of Genetics, Harvard University

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Brot
für die Welt



Norad



Editor's Note



The African Biodiversity Network continues to offer a unique, very African, approach to sustainability and community resilience, rooted in traditional practices through its core programme areas as per our mandate. Central to this is the role that seed plays in perpetuating indigenous cultures via traditional breeding of seed, its preservation, its sharing and accompanying rituals and as a source of livelihoods for millions of small-scale farmers. Indeed, in this respect, seed is a heritage that has been passed down from our forefathers and whereby us, as the present generation, have been entrusted to pass it down to those coming after us.

However, indigenous seed is under threat from GMOs, controlled by multinational corporations and who seek to monopolise seed. The repercussions of this are horrifying to contemplate, let alone the accompanying disaster to the environment, animal, plant and human health and the yoking of millions of small-scale farmers into perpetual bondage. Which circumstances calls for everyone to resist the advancement of GMOs and related technologies and rethinking of 'development'.

In this regards, other African countries can learn from Zimbabwe which is taking a precautionary approach when it comes to GMOs as provided for in the Cartagena Protocol. Still on this, the farmers there and others stakeholders are engaging policymakers in discussions on this via the Zimbabwe's Technology Review Platform for Crops, Livestock and Foods. Contained too in this edition is a working definition of agroecological organic agriculture and what it entails as well as the role of the African Biodiversity Network in this sphere.

Another issue facing small-scale farmers is shrinking of arable land due to an expanding population and the subdivision of farmland. A fact that calls for farmers to exhibit ingenuity in making a livelihood for themselves, their family and in feeding the nation. We travel to Meru County, Kenya, to find out how farmers have been trained to maximise their small farms.

As always, ABN continues to deepen its practice as a platform for sharing and learning amongst its members. We also continue to work closely with like-minded others in sharing our philosophies and methodologies; with emphasis on local, national and regional collaboration. We also continue to encourage our partners to share issues and stories from the communities that they are working with so that others can adapt them.

Enjoy!

Karen Nekesa Samukoya
Communications and Advocacy Officer, ABN

Snippets



'BIG BANG' FONIO

Fonio is the name of two cultivated grains from the *Digitaria* genus (White fonio, *Digitaria exilis*; and black fonio, *Digitaria iburua*) and is an

important cereal in parts of West Africa. Though its grains are very small, fonio is considered a superfood as it is rich in essential amino acids. The crop is also drought resistant and has spiritual mysticism among the Dogon people of Mali who believe that the universe came into being when the supreme creator exploded a single grain of fonio.

FOOD EQUALS MEDICINE

In the African context, biodiversity, more so, in respect to seed, is inherently tied to culture. As culture was passed down from one generation to another, so too was seed and its secrets such as accompanying rituals and breeding. Traditional breeding evolved with nature, thus the food begotten from the seed was essentially wholesome and rejuvenated the body, mind and soul as medicine would.

FARM PLANNING

With the ever-increasing subdivision of farmland in rural areas, small-scale farmers have to be creative in order to feed their families as well as have something left over to sell and meet their other commitments. A creative way to go about this is to engage in farm planning practices such as mixed farming, crop rotation and use of organic manure in lieu of commercial fertiliser.

BIOSAFETY BILL

Uganda's Draft Biosafety and Biotechnology bill, 2012, continues to elicit a mixture of emotions. While proponents of the bill aver that it will go a long way in ensuring food security in the country, opponents to it contend that an alternative bill is in order. This alternative bill is being fronted by CSOs, under the Food Rights Alliance (FRA) and who are worried that the current bill would lead to contamination of indigenous seed among other negative environmental effects if it were to pass as it is.

PEOPLE'S POWER

GMOs and related technologies are a threat to everyone. As they are fronted by big corporations, the ordinary citizen might feel helpless in regards to this. However, this is not the case and you can reclaim back the power in regards to the kind of food you consume. This includes lobbying against GMOs and buying produce from farmers or outlets who stock non-GMO foods.



MYTHS AND FACTS

GM proponents claim that genetic engineering is just an extension of natural plant breeding. They say that GM crops are no different from naturally bred crops, apart from the inserted foreign GM gene (transgene) and its protein product. But this is misleading. GM is completely different from natural breeding and poses different risks.

Natural breeding can only take place between closely related forms of life (e.g. cats with cats, not cats with dogs; wheat with wheat, not wheat with tomatoes or fish). In this way, the genes that carry information for all parts of the organism are passed down the generations in an orderly way. In contrast, GM is a laboratory-based technique that is completely different from natural breeding.

Source: *GMO Myths and Truths* by Michael Antoniou, Claire Robinson and John Fagan

BURKINA FASO AT A GLANCE



Area: 274,000 km²

Capital: Ouagadougou

Population: 18.11 million

Currency: West African CFA franc

Internet domain: (.bf)

Famous personality: Thomas Sankara

Nationality: Burkinabe

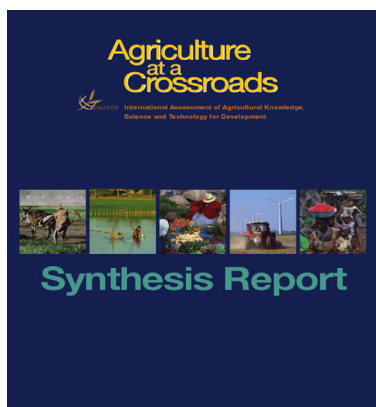
Official language: French



CARTAGENA PROTOCOL

The *Cartagena Protocol on Biosafety to the Convention on Biological Diversity* is an international agreement which aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health. It was adopted on 29 January 2000 and entered into force on 11 September 2003.

<https://bch.cbd.int/protocol>



POVERTY AND LIVELIHOODS

Important options for enhancing rural livelihoods include increasing access by small-scale farmers to land and economic resources and to remunerative local urban and export markets; and increasing local value added and value captured by small-scale farmers and rural labourers. A powerful tool for meeting development and sustainability goals resides in empowering farmers to innovatively manage soils, water, biological resources, pests, disease vectors, genetic diversity, and conserve natural resources in a culturally appropriate manner. Combining farmers' and external knowledge would require new partnerships among farmers, scientists and other stakeholders.

Source: IAASTD's *Agriculture at a Crossroads Synthesis Report*

FEEDBACK

Do you have any questions you'd like to ask or comments you'd like to make? We would love to hear from you. Email us at abnsecretariat@africanbiodiversity.org or write to us at African Biodiversity Network P.O. Box 6271-01000 Thika, Kenya. You can also interact with us on our Facebook page at African Biodiversity Network or follow us on twitter @africanbiodiv

ABN News is published by the African Biodiversity Network. We acknowledge our Partners for contributing articles and stories towards the success of ABN News as a strong advocacy mouthpiece.



What do GMOs and health matters have to do with the African Biodiversity Network (ABN)?

A doctor by profession, DR. PETER MOKAYA expounds why the food we consume needs to be medicine as well. Accordingly, he advises on policy change away from genetically modified organisms (GMOs) into more sustainable agricultural practices and the pivotal role that ABN plays.

What are my perspectives on the past, present and future of agroecological organic foods and lifestyle? Where is the “health outcomes” link with biodiversity and the sustainable environmental outcomes?

This being my maiden article for ABN news, I'd like to introduce myself. I am an African male who was born and bred in Africa, almost six decades ago. I have lived long enough to experience Africa from pre-independence days, being one of many sons (and a daughter) of a first-generation Christian father, whose father (my grandfather) was polygamous. As such, I got to interact with my many grandmothers and witnessed, first hand, diversity! I have over 30 years of healthcare and related eco-friendly experience and practice. I have trained locally and abroad as a conventional doctor, but I also have acquired skills and knowledge of the healthcare interactions with various facets of the human condition, including the central role of food. Indeed, I have come to appreciate the central role of the seed: Its medicinal value and its pivotal role in determining a peoples' culture, aptly referred to as “agri-culture”; and as food for sustenance, its cornerstone role in achieving positive health outcomes or negative health outcomes. This is what I will attempt to outline, in this article, as an introductory article, so you can also see the “big picture” For ease of understanding, I will start each section by posing a question which I will attempt to answer.

What is agroecological organic agriculture and who are the pioneers of organic agriculture in Africa?

In my opinion, the concept of organic versus non-organic is alien to the African situation. For millennia, Africans practiced “agroecology” albeit in a non-documented manner. Information was passed, orally, from generation to generation, until only very recently when documentation began. As such, most of the secrets and wisdom on how to preserve, save and share seed and the socio-cultural and medicinal value of seeds and plants, as stored in the “seeds” was handed over, verbally, from

one generation to the next. Secondly, by default, the African lived, intuitively, in harmony with nature and the ecosystem: He only took from nature what he needed for his survival and existence: He maintained the “hunter-gatherer” lifestyle until very recently, when “Western civilisation” was introduced to Africa, with both positive and negative consequences. As an example, the San people also referred to as “Bushmen of the Kalahari”, to this day still practice an “agroecological organic” lifestyle: rich in tradition, biodiversity and natural health remedies. Recent research has demonstrated that not only is this “lifestyle” in harmony with nature but it also embraces the principles of ecology, health, fairness and caring. These practices, although not recorded, existed and were practiced for millennia. So how does one start to describe sustainable agriculture and sustainable health, in the African context, and in the same vein allocate individuals as pioneers of the sustainable agroecology organic movement? Who are these pioneers, who are “African”?

To answer the above twin questions, I would have to include all my grandparents and those before them, among the list of African pioneers of the agroecological organic movement. These accolades apply, as much, to all others, including the Bushmen, who still practice “default agroecological organic farming” and related lifestyles, including their rich health and wellness and herbal and traditional remedies. However, for purposes of this article and to stimulate opposing views from the readership, below are a couple of people I know personally and respect and who I consider to be pioneers of the agroecological organic movement, who are visionaries and men of foresight. These people can also shed light on how to define and contribute to a broader agenda for the contribution of agroecological organic agriculture and its links and relationship with health and health outcomes, into the future. By this, I mean the health of soils, plants, animals and human beings. Indeed, the link goes back thousands of years

from when Hippocrates, the **Father of Modern Medicine**, famously stated “*Let food be thy medicine and thy medicine be thy food.*”

Mr. John Njoroge: Founder and Chief Executive Officer (CEO) of the Kenya Institute of Organic Farming (KIOF)

Dr. Hans Herren: Former Director-General, International Centre of Insect Physiology and Ecology (ICIPE), and Co-Founder of Biovision Africa Trust (BvAT)

Notably, Dr. Hans Herren was the Co-Chair of the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) report that was completed in 2009. It was funded by the World Bank and The Food and Agriculture Organisation of the United Nations (FAO) among others and involved over 400 scientists. The report, which took 4 years to complete, describes the current global challenges of agriculture and recommends that the way forward for sustainable agriculture is a shift from the current agrochemical industrial model of farming systems that are heavily dependent on chemical external inputs and GMO biotechnology, to a more locally based small-scale farmer centred Agroecological Organic Agriculture (EOA). EOA farming and the consumption food system is not only good for human health and public health outcomes, but it is also good for the ecosystem and protects the environment; including encouraging and conserving biodiversity and mitigating climate change.

Who else has recommended policy changes away from GMOs to more sustainable approaches which include regenerative agriculture and organic farming systems?

The best health policy advisors of the United States government, drawn from the Department of Health Policy, at Johns Hopkins Bloomberg School of Public Health, have done research and their findings support those recommendations.

Here is the link to the evidence:

http://www.researchgate.net/publication/273784088_Food_System_Policy_Public_Health_and_Human_Rights_in_the_United_States



Organic vegetables growing in garden. Depositphotos

This is the first time, in the USA, that top public health policy advisors have not only linked the current food system, that is largely based on chemically produced foods which are GMOs with poor health outcomes, but also boldly recommended a shift to agroecological organic farming systems that are in harmony with nature and put the family farmer at the centre of agricultural food production, processing, marketing and consumption and link that approach with better health outcomes. Additionally, they have linked these to a broader understanding of the current global goals that define sustainable development: These include the 17 Sustainable Development Goals (SDGs); <http://www.un.org/sustainabledevelopment/sustainable-development-goals>.

In summary, the SDGs embrace a sustainable development agenda whose overall goal is ... “to end POVERTY, PROTECT the planet and to ensure PROSPERITY for all” {Emphasis mine}. As such, in addition to the different components of a Sustainable Development Agenda, my recommended approach is that we try to embrace the seventeen SDGs and

link them to better health outcomes and improved quality of life for all humanity: most of them are represented in the SDGs. However, in my opinion, the most glaring gap in the Ecological Organic Movement is the human health component of the Organic principles and values, namely: while caring, fairness and ecology are fairly well represented, there is almost a total lack of emphasis on improving human health: It is my considered opinion, based on these gap analyses and others carried out elsewhere, that going forward, this anomaly needs to be corrected and addressed because at the heart of all the 17 SDGs is the human consumer of food, goods and services!

The **consumer** is key in pulling the value chain... as a chain can only be pulled and not pushed!

What is the recommended way forward with ABN and partners?

1. Embrace the recommendations of the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) report, that recommends a shift to sustainable agroecological

The IAASTD report recommends a shift to sustainable agroecological farming and food production systems and incorporate its impact on health outcomes.

farming and food production systems and incorporate its impact on health outcomes.

2. ABN, the Organic Consumers Alliance (OCA) and other global partners, including the United Nations (UN) agencies, should articulate a “Shared Vision” that is aligned to Global Food and Nutrition Security imperatives and create room for Ecological Organic Agriculture, broadly, and Organic Agriculture, specifically. This is because Organic Agriculture is only a small sub-set of agroecological agriculture and needs to find more space into mainstream policies.
3. One of the approaches for ABN and partners to remain relevant and contribute to meaningful sustainability is for agroecology organic agriculture to be mainstreamed into global, regional and national agriculture, health and environmental policies.
4. Finally, ABN should actively partner and collaborate with consumers’ organisations like OCA, for example, through a series of consumers’ awareness articles on the dangers of GMOs to health outcomes, in subsequent articles, to highlight the contribution of agroecological organic agriculture in achieving better health outcomes. ■

*Dr. Peter Mokaya
The writer is a Director and CEO
Organic Consumers Alliance (OCA)*

TAKING BACK THE POWER!

The role of the citizen in the fight against GMOs and GM technology

As a private citizen, you may feel helpless when it comes to the fight against GMOs and GM technology. However, that need not be the case. As the saying goes, knowledge is power. Once you have the power, then you can act on it. So, how do you go about it?

Understand what GMOs and GE are and what they are not

Genetically modified organisms (GMOs) have variously been defined as 'plants or animals that have had their genetic makeup altered to exhibit traits that are not naturally theirs' or 'organisms in which the genetic material (DNA) has been altered in a way that does not occur naturally.' Genetic engineering (GE) or Genetic Modification (GM) is defined as the deliberate modification of the characteristics of an organism by manipulating its genetic material.

In genetic engineering, scientists remove one or more genes from the DNA of another organism, such as a bacterium, virus, animal, or plant and "recombine" them into the DNA of the organism they want to alter. By adding these new genes, genetic engineers hope the plant will express the traits associated with the genes. For example, genetic engineers have transferred genes from a bacterium known as *Bacillus thuringiensis* or Bt into the DNA of cotton.

One of the main problems with genetic engineering is that the process of inserting genes into the DNA of a food plant is random as scientists have no idea where the genes go. This can disrupt the functioning of other genes and create novel proteins that have never been in the food supply and could create toxins and allergens in foods.

Supporters of genetic modification say that the technology is simply an extension of traditional plant breeding.

The reality is that genetic engineering is radically different. Traditional plant breeders work with plants of the same or related species to create new plant varieties. Genetic engineers break down nature's genetic barriers by allowing transfers of genes from bacteria, viruses, and even animals - with unforeseen consequences.

(Source: <http://non-gmoreport.com/>)

Understand the issues

When it comes to genetically modified organisms (GMOs) and genetic engineering (GE) technology, there is a babel of differing opinions, so to speak. As such, understanding the issues is critical as it helps one make an informed decision with regard to the food choices that one makes. Issues surrounding GMOs and GE technology include government policies/regulations on GMOs/GE; impact of GMOs/GE on humans, plants, animals and ecosystems; alternatives to GMOs/GE such as conventional seeds and natural breeding; ethics surrounding the use of GMOs/GE; biodiversity; industrial agriculture and why it poses a threat to small-scale farmers; who funds scientific research and if they have vested interests, and the like.

NB: Industrial agriculture refers to a modern type of agriculture which 1) requires high inputs of money, fertilisers, and eliminates jobs (industrial farms use "labour-saving" technologies such

as pesticides in the place of weeding and heavy machinery for planting and harvesting), in the case of crop production and 2) for animal production is characterised by a dense population of animals raised on limited land and requiring large amounts of food, water and medical inputs.

(Source: <http://www.sustainabletable.org/>)

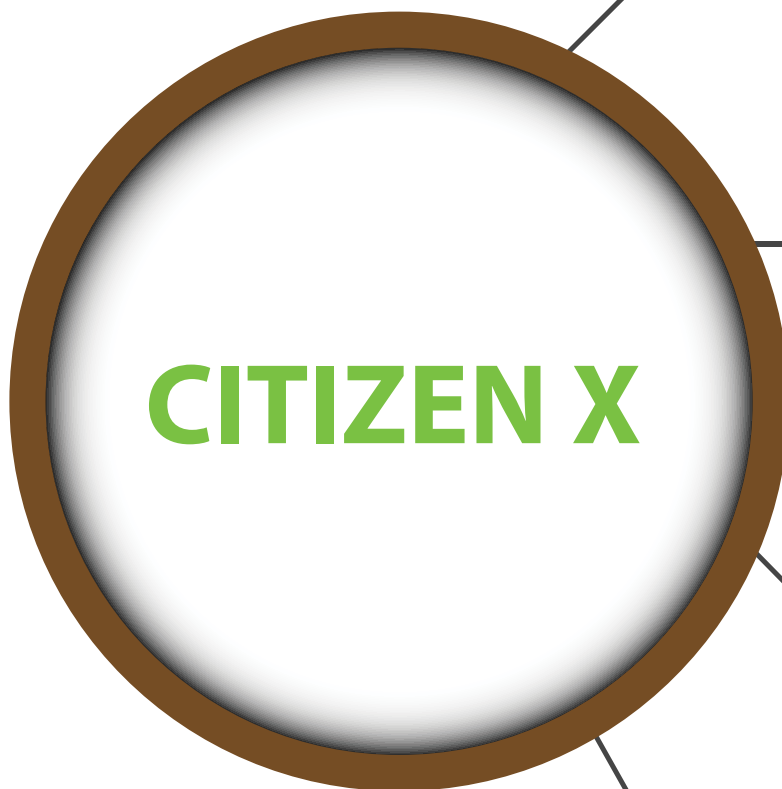
Lobby against GMOs

A good start to lobby against GMOs is to research on your country's current status pertaining to legislation on GMOs/GE. Are there existing laws regarding the same? A pending bill? Is your country pro-GMO or anti-GMO? Having such information - with which to build a strong case will enable you to leverage various stakeholders (policy makers, the civil society, anti-GMO proponents, etc.) towards limiting or abolishing GMOs/GE technology.

Others

Other activities you can engage in include boycotting GM products, identifying and shopping for food from organic farmers and lobbying for tighter regulation/labelling of GMOs. Additional activities you can engage in include volunteering your time to create awareness on GMOs/GE in schools, churches, etc., and joining in the fight for seed sovereignty/biodiversity and the rights of small-scale farmers.

The role of the citizen in the fight against GMOs and GM technology



Knowledge is power. Once you have the power, then you can act on it. So, how do you go about it?

01

GMOS/GE AWARENESS

Genetically Modified Organisms (GMOs) are organisms which have had their genetic material (DNA) altered in a way that does not occur naturally. Genetic Engineering (GE) is the deliberate modification of the characteristics of an organism by manipulating its genetic material.

02

UNDERSTAND THE ISSUES

1. Government policies/regulations on GMOs/GE
2. Impact of GMOs/GE
3. Alternative to GMOs/GE (conventional seed, natural breeding methods)
4. Ethics of GMOs/GE use
5. Biodiversity
6. Industrial agriculture

03

LOBBY AGAINST GMOS/GE

1. Research on country's stand on GMOs/GE
2. Identify partners for the fight against GMOs/GE
3. Lobby as appropriate

04

INDIVIDUAL/GROUP EMPOWERMENT

1. Boycott GM products
2. Identify, promote and shop from organic producers
3. Create awareness on the dangers of GMOs/GE at home, school, church, etc
4. Participate in anti-GMO demos



BT COTTON

Impoverished Farmers of Hounde, Burkina Faso Speak Out

What Kenya must learn from them

Initially hailed as a success story in improving Burkinabe farmers' fortunes, Bt cotton has proved to be the bane of their existence. From yielding low quality cotton, poisoning livestock and putting poor farmers at the mercy of multinational corporations, WANJIRU KAMAU and OUSAMANE TIENDREBEOGO draws lessons for Kenya farmers from this fiasco.



Women harvesting cotton, Burkina Faso. George Ogutu

Mr. Isiyika, a cattle farmer in Hounde, is not happy about Bt cotton. In the last 3 years, he has lost 70 head of cattle as a result of them feeding on the genetically modified cotton straw. The cows started having diarrhoea, with the symptoms of the illness perplexing everyone including the local veterinarian. Worse still, they did not respond to any prescribed treatment and eventually died. He is not alone as other farmers have lost their cows, sheep and goats.

Burkina Faso is a land-locked country located in West Africa with almost 90% of its population engaged in farming. The leading subsistence crops are sorghum, millet, corn and rice while cash crops include cotton, groundnuts, and sesame. Cotton, also known as “white gold”, is grown mainly for export. It accounts for about 3% of the country’s GDP, 18% of exports and provides livelihood for over 3 million people. Burkina Faso’s share of world cotton exports has tripled over the past ten years – a remarkable achievement despite a slump in

world prices and ongoing political risk and stability challenges. Cotton production also provides rural food security for farmers as the seed oil is extracted for cooking and the seedcake used for feeding livestock.

Bt cotton was introduced to farmers by the government in collaboration with Monsanto in 2008. As at 2014, 140,000 small-scale farmers were growing the crop, representing 70% of total cotton production in Burkina Faso (TWN Brief, Sept 2016). Initially this was hailed as a success story with farmers reportedly earning 50% more based on studies by Monsanto. In 2016, cotton companies claimed that the varieties of Bt cotton grown in Burkina Faso were producing lint of inferior quality, resulting in tens of millions of dollars in lost revenue. As a result of these concerns, there is now a national ban on production of Bt cotton in Burkina Faso this year. While the key reason for the ban is the economic loss, particularly by the cotton companies, farmers have expressed concerns on the following areas:



I. Quality of Bt cotton

Burkinabe cotton had a global reputation of high quality regarding cotton fibre quality and efficiency as a result of a decades-long breeding programme that began during the French colonial era. During the crossing of these varieties with the Bt gene, these characteristics were not retained. It appears that - to hasten the introduction of Bt cotton - the focus moved from producing varieties with a diversity of quality and local adaptation characteristics to a more narrow focus on pest resistance. (TWN Brief, Sept 2016). In addition, farmers raised issues about the weight of the Bt cotton in comparison with the conventional cotton as their investigations showed that there were more seeds in the lint from conventional seeds compared to the GM cotton. This is important to farmers as payment was based on weight and which meant reduced income for the GM variety.

II. Lack of choice

Seed ownership in Burkina Faso is entirely in the hands of seed companies and which means that farmers can only grow what is provided by these companies. Once the cotton buying companies decided that they were no longer selling Bt cotton, farmers did not have access to an alternative source. This is a key socio-economic concern and an infringement on the rights of smallholder farmers and their access to genetic resources.

III. High inputs costs

The cost of proprietary GM seed is currently CFA 27,000 (45\$) compared to 750 CFA (1.25\$) for conventional cotton seed. Bt cotton seed is 36 times more expensive! This cost must be met by the farmer. Out of this, CFA 17,000 goes to Monsanto as royalty, a whopping 63% of the cost of the seed! This contrast in the pricing as well as a large portion of the cost being allocated to a multinational corporation can only serve to disenfranchise the farmers and increase their vulnerability to poverty.

IV. Loss of livestock

An area that has not received much attention from the government and multinationals is the loss of animals by Burkinabe farmers as a result of feeding on the Bt cotton straw. This has been witnessed during the last 3 years and attributed to a disease that began as diarrhoea and that could not be treated by local veterinarians.

This phenomenon is also reported in a release by Jeffrey Smith in 2008 where farmers in India who had always fed their buffalo herd on conventional cotton straw lost 13 animals on January 3rd 2008 after feeding them on Bt cotton straw. The same village reported losses of 26 goats and sheep. In the *GMO Myths and Truths* publication, the authors conclude that "Bt toxins have been found to have toxic effects on non-target organisms other than insect pests – including mammals... they cause multiple effects to multiple organ systems or allergic reaction." Though the economic impact of the loss of livestock on smallholder farmers who use them for food and draught power is quite severe, no compensation from either the owner of this technology or the state has been received by these farmers. Worse still, this issue has been downplayed even as Burkina Faso abandons Bt cotton.

Wanjiru Kamau is the Lobbying and Advocacy Manager, Kenya Organic Agriculture Network (KOAN)

Ousamane Tiendrebeogo is the Secretary General, Syndicat National des travailleurs de l'Agro-Pastoral (SYNTAP), in Burkina Faso (National Syndicate of Agropastoral Farmers)

NB: An updated version of this article was published in the *Daily Nation*, Kenya: <http://www.nation.co.ke/oped/Opinion/Genetically-modified-cotton-risky/440808-3814340-rp0oqz/index.html> (last accessed on 17th February, 2017)



FARMING IN SMALL PARCELS OF LAND

With the ever increasing and uncontrolled subdivision and shrinking of farmland in Kenya, smallholder farmers are finding it harder to sustain their families on agriculture alone, beside feeding the nation. However, not all is gloom and doom as the Institute for Culture and Ecology (ICE) is equipping farmers with skills on optimal and sustainable farm management as elaborated by HANNAH KIGAMBA.

Kenyan farmers with small parcels of land strive to maximise on their production capacity; with most of these parcels of land also housing the farmer and his family. However, the Kenyan smallholder farmers are finding it hard to survive on farming alone due to decreasing farmland sizes. Meru County is one of the regions affected by this development and which has been occasioned by the uncontrolled subdivision of land in Kenya. To counter this, the Institute for Culture and Ecology (ICE), working with





ICE staff on a field visit to Damaris' farm, Meru

the smallholder farmers in this region, has introduced farm planning as part of its on-farm training to equip farmers with skills on optimal and sustainable farm management. This training is geared towards helping the farmers diversify their farming system and thereby increase the family income.

Among the beneficiaries of the training is Damaris Mwirigi who hails from Gakumbo village in Ntima West Ward. ICE engaged her and her group, Mwingene, in 2014. Two years later, her continued engagement with ICE has seen her fortunes improve considerably. This is as a result of her resorting to farm planning. Damaris small farm is about ½ acres and where she keeps a dairy cow, grows arrowroots,

beans, maize, and a variety of vegetables. This type of farming that is mixed farming has enabled her to diversify her income and reduce the risk of failure, say like in monocropping should the whole crop fail, as she has spread out the risk. In addition, mixed farming has seen a considerable reduction in her external outputs as she sources most of her inputs from the farm. This has made her farm to be a self-sustaining system where the product, waste and by-product of either crops or the cow is an input for the other. Damaris says that the use of organic manure is good for soil fertility.

Damaris further says that she has witnessed the benefits of farm planning on her farm, and by extension, her life and that of her family. She stresses that farm planning has made her farm to be more productive and has also made her to be more focused in her farm work. However, she admits that the initial stages of implementing the farm planning were arduous due to the intensive labour output required.

At the end of each season, Damaris evaluates her farm so as to plan for the next season. This included deciding which crops to rotate on the various plots of land that constitute her farm.

In addition to the farm planning skills, Damaris has been trained on preparing compost manure, agroforestry and diversification of sources of livelihoods. With these skills, she no longer relies on external inputs/chemical fertilisers for her farm. This has enabled her to maximise her profits by reducing costs and increasing productivity through diversification and improved farm management. Consequently, this has allowed her to farm in an efficient, sustainable and environmentally conscious manner.

Damaris, a mother of three, says that she engages her children in the farm. This enables her to transfer the knowledge on the need for diversification, sustainable organic farming and optimal use of land to them. Further, the children enjoy being engaged in the farming activities as they benefit from it as some of their needs (for example education) are paid for using the income earned from the farm.

In conclusion, Damaris states that though many people in her community had lost hope in farming due to the small sizes of farm land, her success story is inspiring them to follow in her footsteps. She quotes Brian Brett, author of *Trauma Farm: A Rebel History of Rural Life*, that "Farming is a profession of hope."

Hannah Kigamba
The writer is project officer at the
Institute for Culture and Ecology (ICE)





Lettuce plantation. Depositphotos

CREATING PLATFORMS TO DISCUSS NEW TECHNOLOGIES

African countries are under incessant pressure to adopt genetically modified organisms as the panacea to solving hunger in the region, more so, against the backdrop of climate change and its attendant consequences. However, African countries need to learn from the example of Zimbabwe which is taking a precautionary approach in matters GMOS as expounded by GERTRUDE PSWARAYI.

African countries are currently experiencing enormous pressure to adopt foreign technologies that are purported to be the 'magic bullet' to solving food and nutrition insecurity in an era of climate change. Today, multi-national corporations have eyed sub-Saharan Africa and a new form of colonisation is beginning to take place. This poses a threat to national sovereignty and infringes on the freedoms and choices of African citizens.

Zimbabwe is not being spared from aggressive and diabolic tactics being adopted by profit driven multi-national corporates who have their claws on seeds and the technology to modify their genes. A number of technologies have and are being developed to enhance production and productivity in the crop and livestock sector as well as to ensure food and nutrition adequacy, and safety standards.



As a nation, Zimbabwe has always taken a precautionary approach when adopting new technologies. However, the pressure to swiftly adopt certain technologies without weighing their consequences on the ecology, economy, society and environment is mounting. Genetic engineering and the use of genetically modified organism (GMOs) is perhaps the most debated technology. While GMOs proponents say GMOs are safe, opponents say they are not. Failure to reach consensus demonstrates the need for Zimbabwe to continue to use the principle of taking precaution as provided for in the Cartagena Protocol.

While taking precautionary measures, it is paramount for Zimbabweans to begin a process of engaging in open discussions about agriculture related technologies that are being proposed for adoption. Doing so will create awareness and understanding of these technologies. It will also enable citizens to collectively formulate appropriate policies and strategies to dealing with new technologies. The Zimbabwe's Technology Review Platform for Crops, Livestock and Foods is one such platform that exists to discuss technologies and their consequences and offer practical solutions to facilitate decision making and policy formulation.

Launched in July 2016 and housed under the Agriculture Research Council of Zimbabwe, the Platform's mandate is to scrutinise all agriculture related technologies being proposed for national adoption. Speaking at the official launch of the

Zimbabwe's Technology Review Platform for Crops, Livestock and Foods in Harare, the Permanent Secretary in the Ministry of Agriculture Mechanisation and Irrigation Development, Mr. R. Chitsiko pointed the need for Zimbabwe to be wise in adopting appropriate technologies and the importance of getting adequate consultation before making decisions.

However, a coordinated approach is required if Zimbabwe is to resist technologies that bring unintended consequences. This was reiterated by the Principal Director under the Department of Research and Specialist Services, Mrs. D. Hikwa during the launch of the Platform when she emphasised the need to work as a team and avoid the silo mentality in technology development, review, adoption and adaptation.

The Zimbabwe's Technology Review Platform for Crops, Livestock and Foods has marked a new era in the history of Zimbabwe. It has created a safe space for the general public, scientists, researchers, practitioners, product developers, development partners, industry, policy makers, consumers and civil society to come together with a common goal of reviewing agricultural technologies proposed for adoption in Zimbabwe. Perhaps this is our first battle in which we are united to save our country and one example from which other African countries can learn from. ■

*By Gertrude Pswarayi,
PELUM Zimbabwe Country Coordinator*

THE CURRENT STATUS OF GMOS IN UGANDA

With agriculture being the main economic driver of East African countries with, for example, 80% of the labour force in Uganda being employed in this sector, there are dissenting voices as to the use of GMOs in improving smallholder farmers' fortunes. Nowhere is this more pronounced than the Draft Biosafety and Biotechnology bill, 2012. KEMIGISA DIVINE MERCEY reports.

INTRODUCTION

In Uganda, as with the other East African countries, the agriculture sector forms the backbone of the economy as it contributes to economic growth and sustains the livelihoods of the majority of the population. For instance, the sector employs 80% of the labour force and contributes up to 24% of Uganda's Gross Domestic Product (GDP).

Within the agriculture sector, seed is an indispensable asset and for generations, farmers have depended on a variety of seed to feed the world. In African communities, seed has evolved from being perceived simply as food to being an important aspect of culture. Farmers have created and managed their own seed systems through saving, sharing, exchanging and recycling of seed. In this way, they have managed to preserve and secure their control over seed as a source of food security and means of livelihoods.

Today, however, the world is witnessing a massive onslaught on both seed and seed systems; more so from multinational corporations which seek profits from seed breeding, seed distribution, and fertilisers and pesticides manufacturing and supply, among others. While farmers have always sought to improve the productivity of their seed through indigenous methods such as agroecology, the efficacy of these agriculture practices is being contested. Matters have been worsened by climate change effects such as droughts and floods as well as various pests and diseases which threatens farmers' production capacities.

THE POLICY DEBATE

In 1993, Uganda ratified the Convention on Biological Diversity (CBD) and subsequently, the Cartagena Protocol on Bio-safety in November 2001. Article 17 of the Cartagena Protocol requires that Uganda, being a signatory to the protocol, provides for emergency measures to deal with unintentional release of GMOs. In order to reinforce this, the Biotechnology and Biosafety policy was approved by the government in 2008.

Within the same year, the government embarked on a process to develop the Biosafety and Biotechnology bill. However, the bill was later reviewed and a new version developed in 2012. The bill is meant to provide a regulatory framework to ensure the development of research and modern technology which is safe for biotechnology users given that Uganda's comparative advantage in matters agriculture lies in the country's numerous indigenous varieties.

The Draft Biosafety and Biotechnology bill 2012, was introduced for the first reading in Parliament in February 2013. Thereafter, it was referred to the Parliamentary Committee on Science and Technology for further consultations, debate and consideration before passing into



Group of women working in the field. Depositphotos

law. However, the bill is yet to be assented because of a number of contentious issues that have been raised regarding some of the provisions therein. Consequently, following a number of civil society advocacy campaigns, the Parliamentary Committee requested that an alternative bill highlighting alternative provisions to those provided in the current bill to be developed and presented to the committee for consideration. Civil Society Organisations (CSOs), under the Food Rights Alliance (FRA) banner, have since developed an alternative bill. In addition, since 2008, they have been sensitising and collecting people's views in regards to the bill and in particular, GMOs and their implications on the agricultural sector.

PEOPLE'S PERCEPTIONS ON GMOS

The framers of the bill argue that the use of modern biotechnology, which involves the use of Genetic engineering (GE) techniques to transfer useful characteristics like disease resistance or drought tolerance, will create opportunities for modernisation of agriculture, protection of the environment and enhance public health and industrialisation.

However, farmers, CSOs, academia and a section of the private sector are still sceptical about the plans to introduce genetically modified organisms (GMOs) into the country. At a national GMO symposium in September 2015, farmers' groups expressed fear that GMOs might be destructive to the environment and harmful to human health. During the symposium, a representative from the Uganda Youth Platform (UYP) called for the withdrawal of the bill, warning that GMOs would have dire consequences on Ugandans' food security and food sovereignty as well as the country's biodiversity. In an interview, Dr. Olupot Giregon, a professor at Makerere University, noted that the competitive characteristics of GMOs are viewed as a major factor that may lead to contamination of Ugandan's indigenous crops. He also warned that since GM farming relies on the extensive use of pesticides and chemical fertilisers, such GMO crops gather toxic substances that make them unsafe for human and animal consumption and which disrupt the natural food chain. Dr. Olupot argued that opening up Uganda

CARTAGENA PROTOCOL

Article 17. Unintentional transboundary movements and emergency measures

1. Each Party shall take appropriate measures to notify affected or potentially affected States, the Biosafety Clearing-House and, where appropriate, relevant international organisations, when it knows of an occurrence under its jurisdiction resulting in a release that leads, or may lead, to an unintentional transboundary movement of a living modified organism that is likely to have significant adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health in such States. The notification shall be provided as soon as the Party knows of the above situation.
2. Each Party shall, no later than the date of entry into force of this Protocol for it, make available to the Biosafety Clearing-House the relevant details setting out its point of contact for the purposes of receiving notifications under this Article.
3. Any notification arising from paragraph 1 above, should include:
 - a. Available relevant information on the estimated quantities and relevant characteristics and/or traits of the living modified organism;
 - b. Information on the circumstances and estimated date of the release, and on the use of the living modified organism in the originating Party;
 - c. Any available information about the possible adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, as well as available information about possible risk management measures;
 - d. Any other relevant information; and
 - e. A point of contact for further information.
4. In order to minimise any significant adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, each Party, under whose jurisdiction the release of the living modified organism referred to in paragraph 1 above, occurs, shall immediately consult the affected or potentially affected States to enable them to determine appropriate responses and initiate necessary action, including emergency measures.

(Source: <https://bch.cbd.int/protocol/text/article.shtml?a=cpb-17>)

to GMOs will pose irreversible health and environmental risk to the country. However, researchers from the National Agriculture Research Organisation (NARO) argue that genes have always been transferred between animals and plants, and that the only difference is that now, humans can deliberately control the process to engineer crops that are disease or pest resistant, produce higher crop yields, or possess higher nutritional value. They claim that NARO only wants to conduct research on GMO so as to address agricultural problems that traditional solutions have failed to address.

Mr. Joseph Magezi, a farmer from Mityana and who has worked with SEATINI-Uganda, argues that since virtually all GM seed is patented by the multinational corporations, Ugandan farmers will be mired in poverty. This is so as they will have to purchase the GMO seed continuously from these corporations.

Generally, though, there is limited understanding on matters GMOs and their implications on agriculture and food security in the country. In addition, most Ugandans are illiterate in regards to GE technologies and the various other technologies such as tissue culture.

CONCLUSION AND RECOMMENDATIONS

The Biosafety and Biotechnology bill is an important legal framework that will ensure seed security for smallholder farmers is not impacted by the new technology that is Genetic engineering. Otherwise, if not checked, genetic engineering has the propensity to affect food security. In enacting this law, therefore, it is important that regard is made to the national development goals of Uganda including poverty eradication, improved health care, food security and sovereignty, industrialisation and the protection of the environment and biodiversity through the safe application of modern biotechnology. As such, Parliament should consider adopting the suggestions proposed by Civil Society Organisations to ensure that the proposed bill becomes a tool of development for Uganda. ■

Kemigisa Divine Mercey

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African Biodiversity Network (ABN) 2016

Achievements, Challenges and Lessons Learnt

Network Development

- During the year, ABN widened its horizon to Rwanda, a strategic country for the ABN whose context is marked by the genocide of 1994. The Global Eco-village, Rwanda, was recruited as the latest entrant.
- In the spirit of supporting and facilitating vibrant communication within the network, ABN facilitated information sharing and online exchange through social media (WhatsApp Group). Along with the ABN list serve, the social media group supported the partners, media and scientists to share and learn from each other, peer to peer monitoring and evaluation of each other's work, as well as updating each other about their work on the ground and sharing information and messages around the key events. ABN coalitions like the Tanzania Alliance for Biodiversity (TABIO) subscribed to GENET (European NGO Network on Genetic Engineering) – a news hub that enables them to receive information on genetically modified organisms (GMOs) from around the world. Many partners have increased ABN visibility through a number of websites and on Facebook.

Capacity Building

- ABN organised a series of workshops and events for its partners to exchange and learn from each other and build their capacity to respond to external and internal threats.
- In September 16th – 18th 2016, ABN organised a Youth, Culture and Biodiversity Workshop hosted by Centre d'Eveil de Valorisation, et de Stimulation pour l'Enfant (CEVASTE), an ABN partner in Benin. The event brought together the ABN partners from Groupe De Recherche et d'action pour le Bien-Etre au Bénin (GRABE-Benin) and Nature Tropicale (Benin), Jeunes Volontaires pour l'Environnement (JVE International) (Togo), Regional Advisory Information & Network Systems (RAINS)

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(Ghana), PANOS (Ethiopia) and Global Eco-Village (Rwanda).

- In Togo, JVE International hosted a Cultural Biodiversity Week from 22nd– 25th September, 2016.
- In November 25th– 30th, 2016, ABN organised a Community Seed and Knowledge training in Ethiopia hosted by the Institute for Sustainable Development (ISD). This training session brought together Country Trainers from Uganda (National Association of Professional Environmentalists, NAPE), Kenya (Institute for Culture and Ecology, ICE), Zimbabwe (Chikukwa



Ecological Land Use Community Trust, CELUCT), Rwanda (Global Eco-Village), Tanzania (Envirocare), Ghana (Regional Advisory Information & Network Systems, RAINS) RAINS) and Ethiopia (Institute for Sustainable Environment, ISD, and Movement for Ecological Learning and Community Action, MELCA-Ethiopia). It was a seed mentorship programme with renowned seed scientists and practitioners, Dr. Melaku, Dr. Tewolde and Dr. Regassa.

- From 5th– 9th October, 2016, ABN organised a regional workshop in Kenya on Multiple Evidence Base Approach (MEB Workshop). It brought together ABN partners to deepen and draw some common understanding and general alignment on the ABN approaches and methodologies.

Documentation

- ABN, together with the Gaia Foundation, published and translated into French a report on “Celebrating African Women: Custodians of Seed, Food and Traditional Knowledge for Climate Change Resilience”. This was a great achievement for the ABN Secretariat and the wider network as it helped realise the objective of developing information, education and communication materials for the partners coming from Francophone Africa.
- During the year, ABN produced films such as “Tharaka Seed Work” and “Dam Building Film.” Other films included the YCB film on “Learning from the Root” in Konso, Ethiopia and the Evidence based Advocacy film that was recorded during the advocacy experiential learning in Burkina Faso.



Members drawn from ABN and its partners during a field visit in Burkina Faso

- Two newsletter editions on agroecology and culture were published and shared within the network and social media.
- In 2016, the media and policy guides were peer reviewed by ABN partners. The media guide has been translated into French for partners from francophone countries to increase skills and knowledge of engaging the media in their policy and advocacy work. The policy and advocacy guide has been simplified to encourage partners and communities to carry out more advocacy using bottom-up approach.
- The Participatory Ecological Land Use Management Association (PELUM- Zimbabwe), the Southern and Eastern African Trade, Information and Negotiations Institute (SEATINI, Uganda) among other ABN partners also produced newsletters which they shared with ABN to reach a wider audience.

Strengthening Advocacy and Alliances

- ABN in collaboration with the Tanzania Alliance for Biodiversity (TABIO) and the Tanzania Organic Agriculture Movement (TOAM), the Southern and Eastern African Trade, Information and Negotiations Institute (SEATINI), the Kenya Biodiversity Coalition (KBioC), the African Centre for Biodiversity (ACB), the Third World Network (TWN), the Participatory Ecological Land Use Management Association (PELUM- Zimbabwe), JINUKUN and the Alliance for Food Sovereignty in Africa (AFSA) participated in a bio-safety training that was held in South Africa, 22nd– 26th February, 2016. The training was helpful in influencing policy and public opinion.
- At the international front, the ABN partners participated in the International Union for Conservation of Nature

(IUCN) World Conservation Congress held in Hawaii in September, 2016. GRABE-Benin (Benin), NAPE (Uganda), Nature Tropicale (Benin), and the Centre for Indigenous Knowledge and Organisational Development (CIKOD) (Ghana) took part. This event was jointly organised with our international partner, the Gaia Foundation. As a follow up, a coalition of sixty custodians from five communities in Kenya; Tharaka, Meru, Kamba, Kikuyu and Maasai met to give a united voice against the destruction of sacred sites.

- From October 16th – 19th, 2016, ABN participated in the 59th Ordinary Session of the African Commission on Human and Peoples' Rights and where ABN was accorded an observer status. ABN also presented a report on "A Call for Legal Recognition of Sacred Natural Sites and Territories and their Customary Governance Systems" to the Working Group on Indigenous Populations/Communities. The report was well received and ABN was promptly asked to draft a resolution to be put before the Commission. Because of time limitation, the Commission resolved to consider and discuss the resolution at the Extraordinary Session, which will be held from 8th – 22nd May, 2017, in Banjul, The Gambia.
- From 2nd - 6th October 2016, ABN organised an advocacy experiential learning visit hosted by Collectif Citoyen pour l'Agro-écologie (CCAIE); a coalition based in Burkina Faso. The visit took the ABN coalition members, farmers, scientists, media and decision makers through a process of reflecting on the issues, aspirations and demands of communities affected by genetically engineered crops. ABN Coalition partners used the experiences to influence different legal instruments and produced information materials that were shared widely through the network.

Strengthening Learning Centres

- During the year community learning centres of indigenous and local knowledge continued to evolve and new ones emerged. These learning centres have potential for hosting others for experiential learning. The following is a list of the new and existing learning centres that emerged/got strengthened. Ghana (RAINS), Benin (GRABE-Benin, Nature Tropicale and CEVASTE), Uganda (NAPE), South Africa (Usiko), Kenya (ICE) and Ethiopia (ISD and MELCA-Ethiopia).
- ABN is working around establishing learning centres in an effort to contribute to the global processes. ABN is a member of the International Indigenous Forum on Biodiversity and Ecosystem Services (IIFBES) which is a caucus composed of indigenous peoples and local community participants at the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES).

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Challenges

A key challenge has been communication with certain partners. It takes time to get important feedback over emails. In order to address this, more communication will be done over the phone to reach the partners who have the challenges of internet range and who may not easily access email. Social media will also be an option.

Lessons Learnt

- Need to upscale the mentorship programme
- Need to work towards revived, recognised and vibrant seed networks
- Political interference in policy formulation processes and limited capacity of the legislators to enact seed policies
- The media have not been able to present a balanced debate on the issue of GMOs and biotechnology in the public domain as expected by ABN partners, allies and communities
- Fact finding trips are essential in generating evidence for advocacy and lobbying
- Increased and strengthened coalitions working with ABN, for instance, CCAE in Burkina Faso and JINUKUN in Benin, which are Francophone countries

WORLD SOIL DAY



5th DECEMBER 2016

“Soils and pulses, a symbiosis for life”.

The World Soil Day (WSD) campaign aims to connect people with soils and raise awareness on their critical importance in our lives.



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