Africa Biennial Biosciences Communication (ABBC) Symposium, 2019 Report

Getting it Right: Communicating about Genome Editing

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FOREWORD

The ABBC is a platform for biosciences stakeholders to actively exchange experiences and best practices towards improving bioscience communications. The symposium, which provides an African-based and African-led platform, is the first of its kind in the region and plays a fundamental role in addressing pressing communication issues needed to propel biosciences innovations in Africa. The first ABBC was held in Nairobi, Kenya, in 2015, and the second in Entebbe, Uganda, in 2017. ABBC 2019, held in South Africa between August 29 – 30, initiated conscious conversations on genome editing in the region.

In the wake of advanced technologies, emerging genetic technologies such as genome editing are attracting a lot of attention as they enable faster, easier, cheaper and more precise changes to DNA. Genome editing holds great promise and is set to transform healthcare and agriculture sectors globally. Given the precision, affordability and potential offered for quick win, Africa stands to benefit most. Although this technology poses tremendous scientific, medical, agricultural and business implications, communication approaches will either hamper or facilitate its uptake. ABBC 2019 presented a unique opportunity to address key components that will lay the foundation for uptake of genome editing in Africa.

The symposium's overall objective was to interrogate best communication practices that will facilitate informed decision making on this emerging technology. It was inspired by an African proverb that says *"rising early shortens the journey."* We realised that conversations on how to govern genome editing were starting to gain momentum. Consequently, public engagement needed to keep pace with these rapid advancements, to avoid inheritance of restrictive regulatory regimes. Essentially, we wanted key players in Africa to have constructive dialogue about the technology early, in order to #GetCRIPSRight. We believe that starting early will enable stakeholders ample time for making informed decisions, with limited external influences that often don't serve the region's interests. This will facilitate the development of science-based regulatory frameworks.

To meet its objectives, ABBC 2019 brought together regulators, scientists, editors and science communicators to discuss how best to frame the genome editing narrative in Africa. Co-organized by ISAAA AfriCenter, ABBC2019 interrogated regulatory options for application of genome editing, how to optimize traditional and digital media when communicating about the technology, and how to manage stakeholder complexities in the engagement process. In a joint declaration outlined in page 35, the competent and diverse experts resolved to work together in preparing the continent for inclusive dialogue and adoption of genome editing tools. A declaration to establish an African coalition on communicating about genome editing was adopted.

A key feature during ABBC 2019 was the special sessions, outlined between pages 32 and 34, that paved way for focused discussions on various pain points. The sessions offered media editors, regulators and women in biosciences an opportunity to interrogate and address key issues such as; misinformation on bioscience innovations, policy and regulatory bottlenecks, as well as opportunities for women in the field of biosciences.

ABBC 2019 provided a platform for kick-starting two important and often neglected components in the research and development process – regulations and communications. As co-convener of the symposium, it is my sincere hope that our collective efforts and application of the lessons and experiences shared will enable Africa to #GetCRISPRight on the two aspects. Early indications are that Kenya and Nigeria are already making positive strides towards the regulatory front. Indeed, evidence-based regulations and effective communications must be considered at the onset to ensure the region benefits from genome editing. To all our sponsors, planning committee members, speakers and participants, thank you for being part of the team that laid the foundation for uptake of genome editing in Africa.

Dr. Margaret Karembu
Director, ISAAA AfriCenter

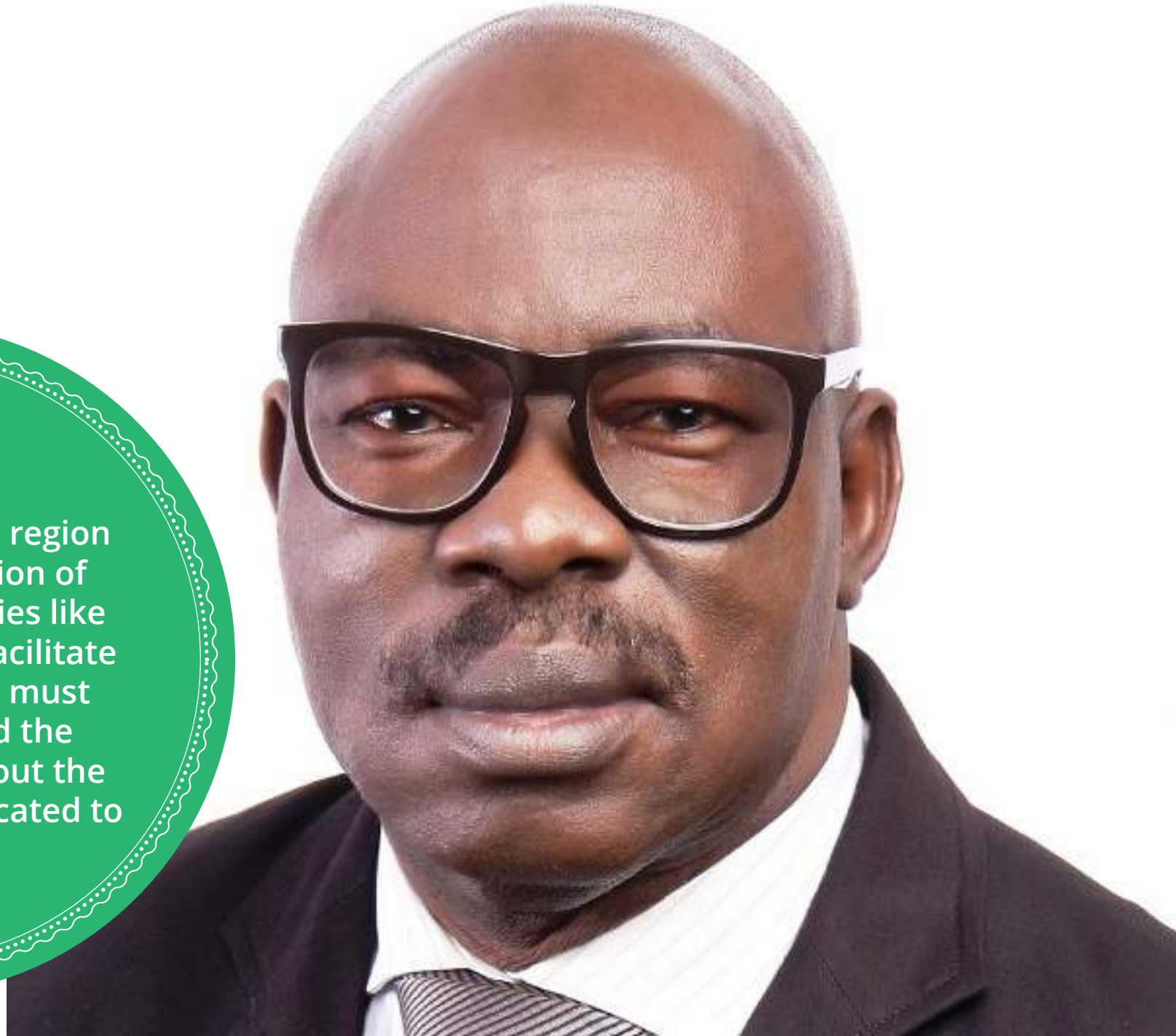
85 PARTICIPANTS | **17** COUNTRIES | **48%** MALE | **51%** FEMALE

Specific Objectives:

1. Interrogating the various regulatory options and implications for adoption and application of genome editing
2. Optimizing use of traditional and digital media in communicating genome editing
3. Sharing current and past experiences and identifying effective stakeholder engagement strategies on genome editing

Thematic areas:

- Overview of the global policy and regulatory landscape
- Framing the genome editing narrative
- Addressing stakeholder complexity



There is need for the region to be bold in adoption of beneficial technologies like genome editing. To facilitate uptake, regulations must be put in place and the risk and benefits about the technology communicated to the public.

OPENING STATEMENTS

Dr. Rufus Ebegba, Chair, Africa Union Biosafety Regulators Forum

"Advancement in modern biotechnology has led to genome editing, a new technology that enables alteration within the living system of an organism to achieve a particular characteristic – such as editing the gene that causes diseases. As this is a new technology, there is a need for proper communication to facilitate its clear understanding and to erase any misconceptions about it.

African countries have always been slow in adopting new technologies. There is need for the region to be bold in adoption of beneficial technologies like genome editing. To facilitate uptake, regulations must be put in place and the risk and benefits about the technology communicated to the public.

The ABBC is a forum for stakeholders to come up with strategies on how this technology can be adequately communicated. Regulators must come up with ways of communicating effectively without being seen as biased. One outcome of this symposium should therefore be formulation of a holistic strategy to communicate about genome editing to the public in a way that will build trust on the processes involved. African nations, under the auspices of the Africa Union, had a meeting in June 2019 that saw the establishment of the Africa Union Biosafety Regulators Forum whose mandate is to harmonize biosafety systems on the continent. This is a very bold and precise move that will help African countries, especially those with weak biosafety regulatory systems, to adopt the technology. With the free trade approach in Africa, the need for harmonized biosafety systems has become critical.

We expect that the Africa Union Biosafety Regulators Forum will come up with specific guidelines that will assist in formulating communication strategies on genome editing. In the June 2019 meeting, it was agreed that there is need for selective regulations on aspects of genome editing since not all aspects of this technology fall under the Cartagena Protocol definitions of modified organisms. Therefore, better understanding of the technology is needed to know which ones will be regulated under biosafety systems.

We are also aware of various country positions in respect to regulation of genome edited products. I believe in the African system that can facilitate understanding of genome editing and streamline regulations thereof. I wish this forum very successful deliberations. I hope the outcome of the symposium will lead to better understanding of genome-edited products and give regulators courage to communicate effectively to the members of the public."

It is projected that in 2063, 46 percent of the African workforce will be made up of youth. The African youth need innovations for them to immensely contribute to sustainable development on the continent, and to unshackle themselves from poverty. Genome editing is key, and communication is an enhancer to embracing this technology.

Dr. Mahaletchumy Arujanan, Global Coordinator, ISAAA and Executive Director, Malaysian Biotechnology Information Center, Malaysia

Dr. Arujanan underscored the need for Africa's growing population to tap into the prospects offered by emerging technologies such genome editing. Acknowledging the critical importance of youth in embracing and utilizing emerging technologies, the ISAAA Coordinator called on African leaders to support youth come up with innovations, some of which are in the area of genome editing.

Dr. Arujanan also implored African policy makers and regulators to reduce unnecessary regulatory burdens in order to facilitate seamless flow of genome editing technologies to the market. "Africa sadly missed out on the green revolution. The region should put in necessary measures to ensure it benefits from emerging technologies" she said.

> Any advancement in technology cannot be achieved in an environment where the technology is demonized; where African countries always take themselves as victims instead of players of the technology. The missing link has been communication. Communication teams, among them journalists and media editors, have often times been sidelined in conversations around bioscience tools yet they comprise an important stakeholder group. A journalists-scientists pairing program will be effective in getting CRISPR messages right.

Dr. Margaret Karembu, Director, ISAAA AfriCenter

Dr. Karembu welcomed participants to the third ABBC symposium and mentioned that the platform was put together to provide an opportunity for stakeholders to interrogate communication practices that will help Africa move forward with genome editing.

ABBC 2019 was informed by the wisdom of an African proverb that says “starting early makes the journey short.” Given that discussions on genome editing have started taking shape in the continent, Dr. Karembu highlighted the importance of getting communication right at the onset, to facilitate informed dialogue and uptake than endless debates.

> In Africa, regulations around GMOs have mainly been based on the precautionary principle. Not only has this slowed down acceptance of transgenic crops and food, it has also transformed into the principle of inaction.

Fast-tracking Africa's Development and Transformation Process: The Role of Genome Editing

Prof. Yaye Gassama, Chair, Africa Union High Level Panel on Emerging Technologies

In her keynote address, Prof. Gassama cautioned African genome editing stakeholders to avoid mistakes made in communicating about GMOs and instead take a fresh approach when it comes to communicating emerging technologies such as genome editing. Here are some highlights from the keynote address:

- Public understanding, public attitudes and acceptance of the technology are of key strategic importance in respect to gene engineering in Africa.
- Genome editing presents huge opportunities to African smallholder farmers, and mainly to African women.
- CRISPR is the best-known and widely used gene modification method. Advancement in technologies is opening windows towards better control of CRISPR. This tool is simple, precise, reliable and rapid. CRISPR is also affordable; a scientist can edit genes with less than $100.
- Climate change is a big challenge for African smallholder farmers. Genome editing methods have primed themselves as a solution. High yielding seeds that integrate drought tolerance and pest resistance are available thanks to this technology. These seeds have offered a strong and diverse nutritional base.
- Genome editing is a prospect for successful development of homegrown solutions. The technology also supports local biotechnology research and enterprise.
- Adoption of GM technology in Africa has been hampered by poor communication. This symposium will provide an opportunity to discuss an effective communication strategy and develop a new way that avoids the past mistakes and controversy around GMOs.
- African governments should provide favourable policies and regulatory environment for development of emerging gene technologies.

Is it ethical for African leaders to talk about the advantage of biotechnology and promote this technology, and on the other hand put in place regulations that hinder the technology's development? We need to hold African leaders accountable to what they say at a high political level

OFFICAL OPENING OF THE SYMPOSIUM

Ben Durham, Chief Director, Bio-innovation at Department of Science and Technology

ABBC 2019 Guest of Honor

Ben Durham acknowledged South Africa's remarkable progress in the area of biotechnology. Noting that South Africa was an early adopter of this technology in the region, Durham said the country has been a leader in developing a whole range of different experiences, capacities and expertise in the technology. His assurance was that South Africa is ready to embrace emerging technologies such as genome editing.

Durham underscored the prospects of genome editing in bolstering leadership, development and prosperity. Double standards in promoting and regulating GM technology were identified as major bottlenecks in adopting the technology. He emphasized that South Africa is ready to share its experience, capacity and knowledge on genetic engineering with other African countries.

THEME I:

OVERVIEW OF THE GLOBAL GENOME EDITING POLICY & REGULATORY LANDSCAPE

Basics of Genome Editing and its Application in Agriculture

Dr. Leena Tripathi, Principal Scientist, International Institute of Tropical Agriculture

Genome-editing systems have been utilized in a wide variety of plant species to characterize gene functions and improve agricultural traits. This presentation looked at what genome editing is, how the process relates to traditional breeding and conventional genetic engineering, and potential limitations of the approach.

The talk outlined why genome editing is expected to provide options for simple, time-saving and cost-effective applications compared to other breeding techniques. To illustrate the technology's significance and its role towards sustainable agriculture, a case study on use of genome editing for developing climate smart banana was presented.

> There is a critical need to develop improved varieties with broad spectrum and durable resistance to various diseases and pests combined with abiotic stresses. New breeding technologies, such as CRISPR, provide new tools for the development of climate smart banana resistant to banana streak virus (BSV).

Q&A

Question: What is the progress status of BSV-resistant bananas?

Answer: The product is not ready yet; it will take a few years before it is released. Once released, the product will be available in Nigeria because that is where the plantains are mainly grown.

CRISPR for Crop Improvement: Progress, Impact and Prospects

Dr. Kevin Diehl, Global Seed Regulatory Platform Director, Corteva Agriscience

There have been efforts by opponents of gene technology application in agriculture to blur the lines between genome editing, gene drives and synthetic biology. This presentation distinguished the difference between the three different technologies and clearly outlined what genome editing is not.

The talk highlighted the technology's progress so far by outlining some of the products in the pipeline, as well as the expected benefits and potential impact of applying genome editing techniques in agriculture. The presentation also explored future prospects of genome editing in agriculture and outlined the parameters needed to advance and adopt the technology in this sector.

Some CRISPR Possibilities

- Enhanced heart-healthy soybean oil
- Low-gluten wheat
- Improved flavor and cost of decaffeinated coffee with a naturally decaffeinated bean
- Reduced vineyard fungus affecting the wine industry
- Bananas protected against diseases
- Oranges shielded from disease decimating citrus orchards

> Gene editing offers an opportunity to address some of the most challenging crop production issues. These solutions can originate from public and private researchers, from large and small organizations, locally and around the globe. Technology public acceptance and science-based regulatory paradigms will be critical to enabling the broad use of these tools to solve real problems in agriculture.

Governance of Genome Editing for Agriculture: A Global Overview

Dr. Martin Lema, Director of Biotechnology, Ministry of Agroindustry of Argentina

Globally, few countries have established mechanisms on how to govern genome editing. This presentation outlined regulatory considerations of genome editing around the world and highlighted similarities and differences in regulatory approaches to agricultural products developed by genome editing tools. The talk featured Argentina's regulatory aspects to genome editing. It also underscored some of the issues arising from lack of global harmonization in regulation of genome-edited application, and suggested how to overcome them.

Case Study: USA's Approach to Genome Editing Regulation

Doug McKalip, Senior Advisor, Biotechnology Regulatory Services, USDA-APHIS

This presentation outlined USA's regulatory approach to genome editing. It outlined USDA-APHIS' proposed revision to biotech regulation in response to advances in genetic engineering and highlighted circumstances in which the regulations do not apply to genetically modified crops i.e. the exemptions. The talk also shared tips on how regulators can effectively engage with the public to build trust.

An African Perspective on Genome Editing

Dr. Hennie Groenewald, Executive Manager, Biosafety South Africa

Conversations on how to govern genome editing are starting to gain momentum in the region. This presentation underscored how Africa can benefit from application of genome editing in agriculture and offered recommendations for successful implementation.

Expert Voices on Regulation and Governance of Genome Editing

"Africa should have national regulatory policies for genome editing as regionally harmonized as possible, and move as a block in regards to trade or technical negotiations on the subject. African regulators also may consider the real experiences of other regions regulating the technology, hearing all voices but taking into account that some voices or countries have no real experience (or have a hidden agenda). Ultimately the region should ground its regulatory policies and decisions on the vast amount of experience gathered by African regulators themselves over the last 20 years."

Dr. Martin Lema

"We have the potential to solve pressing problems in agriculture through CRISPR technology in terms of sustainability and food security. It is important that regulators on an international basis work together to share their experience and approaches. Seeking common ground and compatible regulatory approaches will benefit everyone."

Doug McKalip

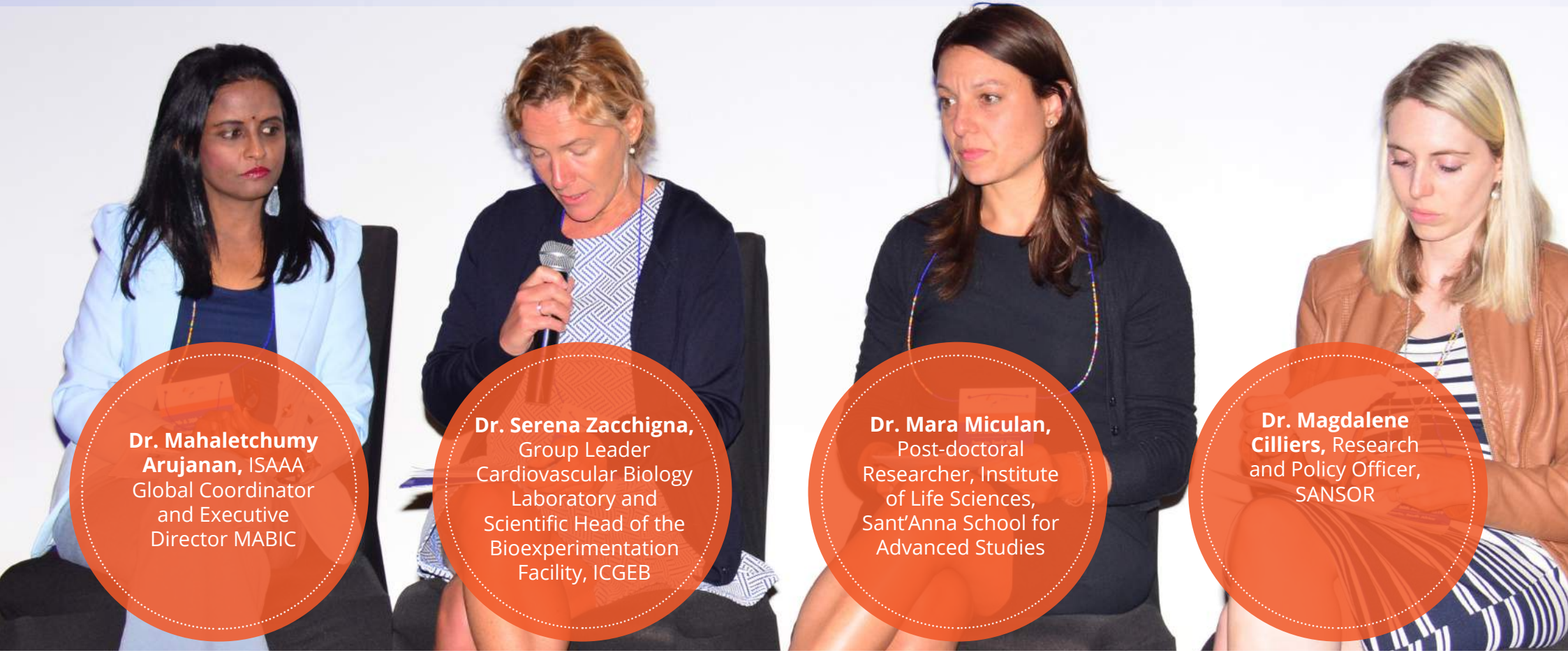
"Unfortunately, genome editing has to establish itself in a world where perceptions about any form of induced genetic variation are still influenced by the continuing, emotion-based GMO-food debate. For it to become a transformative technology and deliver on its potential, technology developers have to see societal conditions as an integral part of the innovation process. Building trust between society, technology developers and regulators/ government is essential to ensure success. Good governance of product development and deployment, better communication to address risk/benefit perceptions and, most importantly, developing products that clearly benefit the end-consumer will be key."

Dr. Hennie Groenewald

THEME II:

FRAMING THE GENOME EDITING NARRATIVE

Communicating about Genome Editing Effectively: From Lab to Market



Africa's chance to benefit from genome editing lies heavily on its ability to efficiently regulate and communicate its potential and risks. Comprising of a communicator, a researcher and an industry representative, this panel set the symposium's pace by discussing how we can effectively communicate the technology through the entire value chain and secure public acceptance and trust.

Expert Voices on Effective Communication of Genome Editing

"We need to share knowledge. The technology is infiltrating society and people have a right and duty to be properly informed about potential and risks. We, as scientists, have the responsibility to convey clear but scientifically correct messages to the global community and let people build their own opinion on real and objective evidence. As in all areas of scientific endeavor we have to provide facts to counter misinformation and scaremongering."

Dr. Serena Zacchigna

"African countries need to look at the risk of not adopting technologies and work towards national priorities that will enable them to benefit fully. They should make decisions based on science and build political will in order to facilitate development and uptake. The region needs to put science above activism, therefore, communication and advocacy efforts need to be prioritised."

Dr. Mahaletchumy Arujanan

"Disease treatment using gene editing is well accepted compared to agriculture. Better communication of genome editing in agriculture is needed at different levels to create a knowledge base that will help in informed decision making and technology management."

Dr. Mara Miculan

"There are two types of people: Those who like to read up on things and those who don't care. Majority of population fall under the latter. We need to reach that group urgently."

Dr. Magdalene Cilliers

Framing the Genome Editing Narrative: Lessons from the GM Debate

Dr. Craig Cormick, Creative Director, ThinkOutsideThe, Australia

Various public engagement approaches on GMOs, such as the information deficit model, have been called to question. This presentation highlighted some of the mistakes made during the GM debate, and outlined what experts and those tasked with engaging the public on genome editing need to do differently. The talk suggested factors experts and communicators should consider while framing the genome editing narrative.

"Narrative, not facts, are the source of our judgement."

The BIG FIVE

LESSON 1

The simpler the message the more likely you will remember it!

LESSON 2

There tend to be four key segments by attitudes to GM foods. Those who strongly support and those who strongly oppose. The "yes but..." and the "no however..."

LESSON 3

Communications about gene technologies need to directly address the "Yes buts", or the "No howevers" of the public

LESSON 4

Emotional attitudes are NOT countered by factual arguments

LESSON 5

Trust is vital to communicating effectively when information is contested

Case Study 1 – Getting the Coverage Right: An Editor's Perspective

Joe Ageyo, Editorial Director, Royal Media Services

Miscommunication of gene modification in agriculture has been attributed to the poor relationship between scientists and journalists. This presentation highlighted some of the issues that led to misrepresentation of GMOs in the media, and suggested what needs to be done differently to get coverage on genome editing right.

Discussion:

Creating a link between science and journalism: The cultural difference between journalists and scientists creates a need to translate knowledge. Majority of journalists cannot understand as much science as the scientists do. Knowledge translators are needed to bridge this gap.

Science jargon creating a barrier between science and journalism: There is little media reporting of science conferences and resolutions owing to journalists' failure to make sense of discussions in scientific conferences. This can be blamed on highly technical jargon used, making it difficult for journalists to follow through. Therefore, there is need for scientists to lower the bar and understand what journalism is about.

Recommendations:

The following recommendations were put forward as a way of enhancing science journalism;

i. Grant competitions that support journalists to cover more science stories

ii. Science journalism trainings that will contribute towards publishing of sellable and accurate science stories.

iii. Experts' contribution in newspaper commentaries discussing topical issues.

iv. Sponsoring a pullout segment on newspapers covering specific topics such as careers, education, health, and agriculture.

Case Study 2 – Promoting Effective Public Dialogue: The Message or the Messenger

Amy TePlate Church, Gene Editing Projects Lead, The Center for Food Integrity

How scientists communicate with members of the public is often misguided by many commonly held but erroneous assumptions about how people form opinions and make decisions. This presentation highlighted key factors for consideration when engaging the public on genome editing. It suggested how to develop messages that move the needle, and outlined communication approaches that will set the stage for meaningful public engagement and acceptance.

The BIG FIVE

LESSON 1

Leverage expert spokespeople who are credentialed and relatable, show integrity and shared values.

LESSON 2

Connect to gene editing solutions for human health

LESSON 3

Talk about evolution of genetic improvement, not revolution

LESSON 4

Demonstrate benefits and values that align with public desires

LESSON 5

Share analogies and visuals that explain science but are not over-simplified or condescending

THEME III:

ADDRESSING STAKEHOLDER COMPLEXITY

A stakeholder is an individual or group that has an interest in any decision or activity. A stakeholder can either affect or be affected by decisions within a system.

There are situations where stakeholders have conflicting interests, with possible stifling of progress or success of a project. This necessitates special resolutions to bring the conflicting actors to a common understanding.

Addressing such complexities entails fostering an environment characterized by commitment, competence, sincerity, network, reliability, value system, relationship and consistency.

Under this theme, extensive discussions were held on;

- Widening stakeholder networks, and;
- Managing stakeholders with conflicting expectations

> As a golden rule, it is imperative to build trust and credibility

SESSION HIGHLIGHTS

Identifying stakeholders and their values

Genome editing stakeholders range from scientists, regulators, policy makers, journalists, civil society, women & youth to religious leaders.

Their values, which influence perception and acceptance, range from research funding, assurance of biosafety, community endorsement, stories that sells, biodiversity protection, jobs, societal inclusion to respect for the natural order of things.

"It is imperative to acknowledge that different stakeholders have different perception of the truth"

Resolving stakeholder conflicts

- Communicate
- Identify shared values
- Commit to offer value
- Build personal relationships
- Forster open, transparent dialogue
- Demonstrate technology benefits and opportunity cost

> The single biggest problem in communication is the illusion that it has taken place

Group Exercise: Conflict Resolution

Conflict	Basis	Resolving the conflict
Technology developer and regulator	A stringent policy and regulatory environment	• Advocate for adoption of regulations that encourage technology adoption. • Ensure the technology developer is aware of the regulatory environment.
Technology developer and youth	Provision of technologies that are not useful to youth	• Early engagement between technology developer and youth. • Make technology exciting and demonstrate its benefits along the value chain.
Conflict between conventional breeders and modern biotech breeders	Safety of new tech Threat to natural biodiversity	• Demonstrate that modern biotechnologies are just additional tools in the breeders' toolbox.
Civil society: Conflict between technology proponents and opponents	Diverse ideologies on appropriateness of technology adoption	• Third party mediation. • Open dialogue with the two sides joined by experts, regulators and consumers.
Conflict between scientists and journalists	Journalists misquoting scientists	• Regular consultation before publishing of media articles. • Press releases. • Cultivating sustainable relationship between scientists and journalist through innovative platforms such as science cafes or science-journalists pairing programs
Conflict between policy makers and scientists	Scientists are fact/need-driven while policy makers driven by public opinions and perceptions	• Find a middle ground through policy dialogues • Address misinformation through effective communication and advocacy
Conflict between religious leaders and scientists	Science vs religion. Technology vs faith. Belief in maintaining the natural order of things.	• Dialogue to ensure concerns are addressed. • Demonstrate appropriateness of technology in solving intractable societal challenges.
Conflict between developer and regulator	Bureaucracy in approvals for research	• Regular dialogue and persistence in conducting follow ups. • Education on how research is structured and the timelines.
Conflict between academia in support of and opposing genome editing	Promoting organic lifestyle Opposing influence by donors	• Constant dialogue. • Evidence-based publications. • Transparency on the objectives of genome editing projects.

POLICY DIALOGUE

Getting Science into Policy: A Policy Makers Perspective on Agricultural Innovations and Bioeconomy

Evidence-based policies are necessary in fostering a thriving research and development environment. However, different modalities and obligations of scientists and policy makers create barriers that result in ideology-based decision-making.

These ad-hoc decisions pose a major threat to Africa's development, especially in the face of dwindling resources and growing needs.

This session explored measures needed to bridge the existing research-policy gap and overcome incompatibilities between scientists and policymakers.

Hon. Fred Bwino, Vice Chairperson, Parliamentary Committee on Science and Technology, Uganda.

Policies for Promoting Research and Innovation in Africa

- Consultation – make policy development a collective approach by government in consultation with industry and the research community.
- Identify areas where standards and regulations can make a positive difference to the bioeconomy and stimulate innovation.
- Develop policies that help overcome barriers and create the right environment for research, development and deployment of innovative technologies.

> To achieve a transformation of bioeconomy in African states, change will need to be delivered in a coordinated way by a range of committed stakeholders

SPECIAL SESSIONS:

A. ROUNDTABLE DIALOGUE WITH REGULATORS

Regulatory systems help society find a balance among the potential benefits, risks and concerns associated with new technologies. The advent of genome editing technology has spurred a global discussion on how it should be regulated.

A growing consensus is that genome-edited products similar to those of naturally occurring mutations and conventional breeding should not be subjected to the tedious biosafety regulations used for genetically engineered products.

In this session, regulators deliberated on setting up of regulatory frameworks that foster appropriate development and use of genome editing products. A consensus was that regulations should be science-based and proportional to the risk posed by the product being evaluated

"We call for regulators to focus oversight on genome-edited products rather than the process of genome editing itself."

> Genome editing allows for precise genomic changes in agricultural animals and crops without introduction of DNA from other species. Therefore, such genome-edited products should be subject to the same regulations as other food products, based on the result rather than the process

B. SCIENCE CAFÉ WITH EDITORS

(Left) Hope Mafaranga, Assistant Regional News Editor, New Vision, Uganda and (Right) Dr. Rose Gidado, Assistant Director, Agricultural Biotechnology Department, National Biotechnology Development Agency, Nigeria

Gaps in Science Communication: The Media and Scientists' Perspective

Challenges to public understanding of science have been partly attributed to inherent differences between scientists and journalists.

This session highlighted some of these challenges from the perspective of the media and the scientists.

Issues that contribute to rifts in science journalism were identified, and suggestions on how to bridge the divide between these two professions to ensure accurate coverage on new breeding techniques outlined.

Challenges:

1. Lack of locally developed products as flagship for genome editing technology
2. A disconnect between scientists and journalists; lack of constant engagements between scientists and journalists
3. Science stories are not considered newsworthy; competing with many other topical issues
4. Journalists want to report on 'breakthrough', 'final product' and 'absolute guarantees' which is not usually the case in bioscience research
5. The scientists haven't made science interesting and/or relevant for journalists

Bridging the Gap: the BIG FIVE

1. Establish healthy, consistent relationships between scientists and journalists
2. Develop consistent, clear, accurate messaging on genome editing
3. Define 'what makes news' and package science in media-appealing messages
4. Contextualize science and its impact on target communities; providing solutions to local problems
5. Building the capacity of science journalists to involve in genome editing along the research pipeline

C. AFRICAN WOMEN IN BIOSCIENCES: TOOLS FOR BREAKING THE GLASS CEILING

Women in ST&I continue to be underrepresented in leadership and decision-making. Their voices and contribution towards public discourse on application of modern bioscience techniques in food and agriculture is limited. This limitation could be partly attributed to poor science communication and negotiation skills. This session offered women with interest and passion for biosciences some tips and tools for engaging with the public. Using personal experiences, the talk disclosed what it takes to increase their visibility and break the glass ceiling.

"When it comes to food, women are the most important people in the family since they decide what food to buy, what meal to take, and how to cook it. It is a shame that women are often forgotten as important stakeholders in technology development and acceptance. It is for this reason that we must get our messages about the technology delivered to women in ways that convinces policy and decision makers. Women scientists have an advantage in doing this because they understand what women go through."

Prof. Jennifer Thomson, Emeritus Professor, UCT and President OWSD

THE PRETORIA COMMUNIQUE

Decisions and Commitments from the Africa Biennial Biosciences Communication (ABBC) Symposium, August 2019, Pretoria, South Africa

We, the participants of the Africa Biennial Biosciences Communication (ABBC) Symposium, held on 29-30 August 2019 in Pretoria, representing the academic and research community, law makers and policy advisors, civil society, the media and other stakeholders drawn from sixteen (16) countries across the world, collectively issue the following statement resulting from this symposium:

Whereas:

1. The world faces intractable challenges, as the human population increases towards a likely 9.7 billion by 2050 and climate change raises additional problems for agriculture, environment and health;
2. Progress has been made in meeting some of the Sustainable Development Goals (SDGs) on eradicating poverty, hunger, deliberate climate action and promoting human health and wellbeing. Much work remains to be done to ensure the global citizenry enjoy the full opportunities that come with healthy and sustainable societies;
3. Genome editing and other modern biotechnologies, while not being the only solution to these challenges, offer great potential in addressing specific concerns in food production, nutrition, health interventions, environmental restoration and conservation;
4. The global dialogue around precise genome editing continues with recommendations on providing regulatory clarity and distinction between transgene-free products of genome editing and genetically modified organisms (GMOs).
5. Regulatory frameworks on genome editing should facilitate access to useful and appropriate innovations with potential to improve, human wellbeing, agricultural productivity, household incomes, food security, environmental sustainability and building a thriving bioeconomy.

We hereby resolve:

i. To work together in improving bioscience communication, including the use of new and emerging strategies to ensure effectiveness.

ii. To foster open and transparent dialogue with all stakeholders, including those with divergent views on genome editing, in an effort to build consensus and common understanding.

iii. To encourage public participation in research direction and policy formulations on genome editing.

iv. To create awareness among the policy and decision makers on genome editing.

v. To establish an African Coalition for Communicating about Genome Editing.

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