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REPORT FOR 5TH AFRICAN CONFERENCE HELD ON WEDNESDAY 7TH-9TH AUGUST, 2019

TIME: 11:00am PROMPT.

VENUE: SHERATON HOTEL, ABUJA, NIGERIA.

**THEME: CLIMATE CHANGE AND CONFLICT: IMPLICATIONS FOR EMERGING INFECTIOUS
DISEASES AND BIO-SECURITY IN AFRICA.**

Meeting started by the Anchor stating that in one of the interviews where Prof. Abayomi had a couple of years ago, He stated that "Africa is the hot bed for infectious diseases" and now she is happy Africans have come together to try and find solutions to their issues.

PROF. MORENIKE UKPONG's WELCOME ADDRESS-CO-CHAIRS OF THE CONFERENCE: She welcomed everyone to the conference and stated that the:

- 1st conference held in Senegal.
- 2nd conference held in Lagos.
- 3rd conference held in Ghana.
- 4th conference held in Sierra Leone.

She further said as it is, we are moving round African countries and this is the 2nd conference that will be holding in Nigeria and hopefully we will be moving to other parts of Africa for the 6th conference in line with our dreams. She also mentioned that we are all aware of the EBOLA crisis in Democratic Republic of Congo which has instigated the closure of Rwanda borders, affecting their personal lives/development, financial system etc. and also creating fear in every one of them. This brings us to the collective efforts we need to enable us combat these diseases through technological advancement. She also mentioned that as we all know, however in GET, beyond technology, we need to Fast track a lot of things.

THINGS NEEDED TO FAST TRACK:

- Public Education and awareness- to address behavioral and structural responses and not just biological aspects.
- Translation of knowledge to plans and plans should translate to actions.

Prof. further gave a tip on the success story of Bio-bank in Lagos and Sierra Leone and would be glad if all participants can share their thoughts via the GET newsletter. She elaborated the newsletter can be accessed on GET website.

Lastly, she stated that we should be able to predict and also take prompt actions on any other infectious disease that may want to surface in the future. She encouraged all participants to make new friends, discuss, and learn and also an opportunity for them to explore the city of Abuja, Nigeria.

PROF. AKIN ABAYOMI's PRESENTATION-PRINCIPAL INVESTIGATOR GET CONSORTIUM:

WHY WE ARE HERE, WHAT IS GET AND WHAT GET NEEDS TO DO IN TERMS OF BIO-SECURITY?

Prof. talked on the BIO-security in Africa by showing a graph with a very high rate of emerging infectious disease in Africa and it's a worrying trend so we have a lot of concerns in the African environment and also we need to be alert otherwise we will be taken by these events of which we know the consequences. Prof. stated that we have threat of anti-microbial resistance, focusing on drug resistant cases to help us reduce the rate at which we use anti-biotics.

He added that WHO (World Health Organization) has the sole responsibility to declaring a fake and in the last 10 years, we have had 4 fake declarations.

- Swine Flu-2009
- Polio outbreak-2014
- Ebola outbreak-2014
- Zika outbreak-2016
- Another outbreak of Ebola has been declared in democratic republic of Congo again by WHO in July, 2019 which has set global responsive machineries into gear and has been declared the 5th fake.

In summary, this is to help us prepare for what is going to happen in the next 20-40 years. Europe is going to be moderately relatively stable in the next years from research but Africa is going to demonstrate an exponential rise in population meaning our cities in the next 20 years, Africa will be a continent of mega cities with major health and bio-security threats scenarios due to higher population.

QUALITY OF INNER CITY AND RURAL SPACE IN NIGERIA AND ACROSS THE CONTINENT.

- Planned urban city expansion-organized expansion and land use urban city planning which is not being considered and a threat all over the continents.
- Lush productive heavy forests-desolation gives rise to the unbalance of the eco-system

EXAMINING BIO-SECURITY THREATS HANDLED IN WEST AFRICA-THE EBOLA OUTBREAK.

Only insectivorous bats were found in a particular village and some children were haunting bats. Lo and behold, one of them became sick in Dec. 2013(forests of guinea), it was alleged that an index case transmission occurred. Now, traditional rulers were the main source of support to community and we all know they are not equipped to deal with such making even them contract the disease and then there was a massive outbreak in the long run in GUINEA, LIBERIA AND SEIRRIA LONE which lasted almost 3 years causing deaths. It died down afterwards but timely intervention could have arrested the Ebola outbreak.

There was a period of about 20 weeks in West Africa when Ebola was grumbling alone and we were not able to

1. Recognize what it was,
2. Bring it to an end.

REASONS WHY EBOLA SPREAD SO RAPIDLY IN 3 COUNTRIES-GINEA, LIBERIA AND SIERRIA LEONE

- Lack of human resources.
- Lack of specialized infrastructure for dangerous pathogens and also to manage or treat people.
- Inexperienced staff capable of handling a CAT A pathogen.
- Ebola unheard of in West Africa.
- Epicenter was in a remote location in a town bordering the 3 countries.
- Sierra Leone, Liberia and guinea are one of the poorest countries in the world despite their enormous mineral and natural resources.

HOW EBOLA TREATMENT WORKS- There is a test that will be carried out, once detected, there are wards of different Ebola crisis levels and a patient that gets to the final ward would either survive or perish.

THE WEST AFRICAN EBOLA OUTBREAK 2013-2016

- 8,000 reported cases.
- 1,000 reported deaths.
- 4,000 survivors
- 10 countries affected.
- Crippled economies.

Many health care officers also died in the 3 countries. It was handled on time in Lagos when it got to Nigeria and 2 clinicians were able to confirm the disease earlier. Dr. Stella Adadevoh didn't survive after being infected but Dr. Ada survived and was able to tell the horrific story.

Dr. Jide Idris, commissioner of health, Lagos state recognized that something serious was going on and as a result of fear and panic, GET consortium was born involving the likes of lawyers, professors, doctors as far as you are responsive to infectious diseases. Massive community engagement was sought by commissioner for health, of Zimbabwe and the bill gates foundation supported in big ways. There was bio-security of re-colonization of Africa also by GET consortium.

NUMBER OF BSL-3 AND 4 FACILITIES GLOBALLY.

- 1, 356 CDC registered BSL -3 facilities were identified throughout the United States.
- There are only three BSL-3 labs in West Africa.
- 15 BSL-4 facilities were identified in the USA, 10 in Europe, 3 in India, 3 in Australia, 1 in South Africa.
- No functional BSL4 lab in any equatorial country of Africa.
- Lagos state and Sierra Leone Biocontainment facility supported by the Canadian govt.

MRS BELLO SALAMI GAVE A PRESENTATION ON BEHALF OF DR. RUFUS EBEGA

TOPIC: BIOSAFETY-MITIGATING EFFECTS OF CLIMATE CHANGE.

The role of modern biotechnology plays a very important role on us as humans such as:

1. Controlling environmental pollution.
2. Reduction in CO2 emission.
3. Crop nutrition to stop malnutrition.

We also have Modern biotechnology as a panacea for EIDs:

- Modern Medical Diagnostic centers.
- Offers new medical approaches for intervention emerging diseases.
- Health, life quality and expectancy has been increased worldwide through biotechnology.

Despite the great potentials that technology offers, numerous biosafety concerns have been raised, safety in the areas of:

- Gene flow
- Invasiveness
- Non target effect
- Allergenicity
- Toxicity
- Socio economic concerns etc.

Biosafety involves everything in the earth and how they affect one another. Bio safety also involves safety in modern bio technology and dealings on GMOs.

IMPORTANCE OF BIOSAFETY

Biosafety regulations are put in to protect biodiversity and avoid effects resulting from the practice of biotechnology and use of GMOs etc. These regulations are mainly based on 2 international agreements which are (a) CBD-prevention on biological diversity (b) CPB-Antagena protocol on biosafety. Nigeria is signatory to these two agreements. NBMA is the body in charge of bio safety in Nigeria. Biosafety is assessed at every developmental stage and the process takes up to an average of 13 years to be P

PROF. CHIKWE IHEAKEZU's PRESENTATION-KEYNOTE ADDRESS

Population is growing and there are lots of internal and external migrations and we tend to skip behavioral challenges because no one wants to talk about issues like on drug use leading to sexual behavior and then they get infected with sexually transmitted diseases which becomes a big issue. The health sector may not be able to address all these issues so wherever you find yourself, ensure you have a great impact on the society.

Prof. mentioned that at this time and age, we should have passed the level of cholera (some states and countries still battle with it) and other bigger diseases needs to be focused on. He also talked about Lassa fever which continues to happen throughout the year but is being combated. He talked about Monkey pox in Nigeria as His second case study, whereby NCDC

responded immediately it came into existence. He is working together with some bodies whereby each state would have an office to always respond to infectious diseases and also manage the situation diligently.

WHY WE NEED STRONG NPHIS

1. Threats of infectious diseases outbreaks caused by climate change and weapons are increasing.
2. A public health event can go from local to global very rapidly.
3. Global health security can only be assured by a local health protection.
4. A strong surveillance and response system, managed by a public workforce organized in a national public health institute is needed.

DR. NAHID BHADELIA'S PRESENTATION-IMPROVING THE CLINICAL STANDARD OF CARE

2019-WHO OPTIMIZED STANDARD OF CARE GUIDELINES.

- ✚ Improved provider –patient ratio.
- ✚ Aggressive shock management.
- ✚ Pushes envelope on renal and pulmonary support.
- ✚ Promotes use of imaging and routine clinical labs.

JMEDICC CORE PRINCIPLES

- ✚ Integrated within Uganda national response.
- ✚ Self-supporting.
- ✚ Built on Ugandan Clinical research and clinical staff.
- ✚ Produce quality data for drug licensing.
- ✚ Continuously exercised and ready to carry out research with a consistent quality of patient care.

Dr. Nahdi buttressed that in their unit, they provide high level of care and they go on to researching, updating on treatments and vaccine use.

REMAINING CHALLENGES:

- Response in the middle of a complex humanitarian emergency
- Bringing people to care

- Prolonged alert fatigue in DRC and surrounding countries
- Wider testing menu for endemic diseases –a missed opportunity
- Occupational health
- Leveraging gains to improve quality of care for patients with other endemic infectious diseases.

MR JOHN GAVE OUT HIS POINTS AS SEEN BELOW:

- Government to take health issues more seriously.
- Interrogate how public assists health issues.
- More Creative measure to convey messages.
- Everyone must be concerned about health and do take actions.

DR. SAMUEL OYAMAKIN's PRESENTATION.

He stated that in order for math and CS to become effectively utilized we need to

- Develop new tools.
- Establish working partnerships between mathematical/biological scientists.
- Introduce the two communities to each other's problems, language, and tools.
- Introduce outstanding junior researchers from both sides to the issues, problems, and challenges of mathematical and computational epidemiology.

SOME KEY TERMS TO DESCRIBE INDIVIDUALS

- Susceptible uninfected but able to become infected if exposed
- Infectious infected and able to transmit the infection to other susceptible individuals
- Immune possessing cell-mediated or humoral anti-body protection against an infection
- Diseases and clinical infections implies the presence of clinical signs of pathology
- Latent infection and subclinical infection implies the presence of infectious agent but absence of clinical diseases
- Carrier implies a protracted infected state with shedding of the infectious agent.
Carriers may be diseased, recovering or healthy.

DR. MUSTAPHA ADAMU -CLIMATE CHANGE AND THE LAKE CHAD BASIN

- A. Frayed social bonds among families and generations and also between states and its citizens at all levels of governance
- B. Climate change are worsening the political and economic conditions that gave rise to the violence in the first place

EPIDEMICS

- 1. Majority of the IDPs about 79% are housed in IDP camps.
- 2. 54% lacked food, shelter and water.
- 3. Displaced within a period of 7 years.
- 4. Only 37% reported to have fully integrated into the community.
- 5. Family sizes are very large with 36% having more than 12 people in their families.
- 6. Half of the IDPs surveyed about 50% attended non-formal schools.
- 7. As at the time of survey, 57% were unemployed e.g. Maiduguri, Borno state.
- 8. The highest displacement occurring in Bama, Gwoza and Kukawa making a total of 50%.

REPORT FOR 5TH AFCONEID- THURSDAY, 8TH AUGUST, 2019.

DAY 2

The conference on day 2 started with plenary session which began with **Dr. Peter Tarfa**, who is the director of the department of climate change, federal ministry of environment, Abuja.

His presentation was title '**Understating Climate Change and Conflict**', he started with people's perspective as regards climate change which include change I weather patterns i.e. hotter or colder; as well as matter of survival for enough food and change I weather patter over a long period lie 50-100 years.

He describe that climate change is a natural phenomenon, however it's been quite rapid over 150 years which is defined as higher anthropogenic activities. He stated that following the rapid change, there is a need for more researchers to look into this, thus he encouraged the conference' participants to join IPCC-Intergovernmental Panel on Climate Change, simply by sending a mail to him narrating their scope of research which will be subjected to further evaluation by the panel.

He further highlighted various human activities corresponding effects on human health, nutrition, agricultural practice as well as environmental effects. He also made mention of the upcoming effects by UN o the 23rd September of the year with the goal of deliberating on way forward I agreement with the Paris agreement. He state that there is a propose mission of reducing the rate of emission by 45%, thus the country has been partnering with international organizations such

as European Union bringing in renewable energy instrument- Solar panel an with the help of United Nation inclusive. He then discussed the following with the participants:

- Climate change and infectious diseases
- Climate change and biosecurity
- Government efforts in tackling climate change which include: Adaptive land use, legislative ,senate and local committee on climate change , Global climate diplomacy , National Policy on climate change and enhanced

2nd Speaker: Dr. Bobadoye Ayodotun

Topic: Understanding the Impacts of Climate Change and Conflict on Biosecurity and EID in Africa

Dr. Bobadoye Ayodotun is the Chief Operations Officer, GET Consortium; he started making reference to Dr. Peter's presentation which he defined the term 'Climate change'. He mentioned that there is a progressive change in the climate across the world with causes such as deforestation, ozone layer depletion etc.

He continued his presentation by graphically representing the climate change in Africa- West, Central and East.

In his presentation, he also discussed the drivers of conflict in Africa which were Climate change, Bad governance and Population growth.

He further discussed the climate extreme and economic growth using Kenya as a case study, as well as climate change with respect to environmental degradation which include deforestation, drought etc. and then implication of biosecurity an Emerging infectious diseases.

Dr. Dotun also captured the distribution of Lassa fever in Africa in his presentation and ways to address the emerging infectious diseases which include the One health concept, maximization of the opportunities climate change offers and using population increase to an advantage.

He concluded his presentation with a display of an image which represents a young lady and old woman when viewed at different angles.

At the end of the two presentation, the Anchor, Bunmi Salami asked the participants to ask the presenters questions. Among the questions were:

- How do we handle land degradation and population increase- Directed towards Dr. Dotun
- How can the policies on ground reverse some of the human activities such as deforestation- directed to Dr. Peter.
- A participant asked Dr. Dotun why he selected just three drivers in his presentation knowing there are more.
- What are the measures or indicators to measure the impacts made so far.
- Highlight specifically what the government of Nigeria is doing to alleviate the poverty.

The questions were answered by the presenters directed to and the conference continued with the next speaker.

3rd Speaker: Dr. Michaela Myhoffer- Making New Treatments Possible

Dr. Michaela is the Chief Coordination and Policy Officer at BBMRI-ERIC; her presentation revolved round making the participants understand the operations at the BBMRI-ERIC which include:

- How they work across the 21 countries they exist
- BBMRI ELSI Helpdesks/Support Service Meeting
- ELSI, which include Research, Service and Training

After her presentation, some of the participants asked further questions as regards the successes achieved so far by the agency. She answered their questions and concluded her presentations by putting up her email address for further enquiries on BBMRI-ERIC

4th Speaker: Dr. Melanie Goisauf- STAKEHOLDER ENGAGEMENT IN CINECA

Dr. Melanie is a research scientist at BBMRI working on a project called CINECA which means Climate

In her presentation, she described the project to involve 18 partners from 10 different countries bringing together a diverse collection of human cohorts consisting of 1.4M individuals in Europe, Canada and Africa.

She made mention that BBMRI is working with stakeholders to be involved in the improvement of the government structure in their communities.

She further discussed the ECOUTER methodology for Stakeholder engagement making reference to Murtagh *et al.*, 2017.

Dr. Melanie concluded her presentation by informing the participants about how they can get more information on the project by visiting the website as well contacting her via email address.

5th Speaker: Prof. Williams Kwabena-Update on Vaccine Manufacturing in Africa

Prof. Williams, who is currently the chair of the African Vaccine Manufacturing Initiative (AVMI), started with the mission of the initiative which is to promote the manufacturing of vaccines in Africa. His presentation covered the following:

- Why Vaccine production in Africa is vital
- The efforts made so far by AVMI
- The three important products
- The effect of market so far

He made mention of the fact that Africa only produce just 1% of the vaccine consume while the rest are bought from US companies like GSK. He also emphasize that the production of vaccine

is usually a complex and multi-facet steps which are usually expensive worth millions of dollars and not as fast as describe on paper; requiring decades for validation before generally accepted.

Speaking on why Africa is still lagging behind, he made mention of factors that led to that which include: Transition of government, unavailability of funds, inability to attract investors that ca wait for the length of validation.

He also made mention of inadequate human capital which when available is expensive thus a need to adjust African's institution curriculum in order to meet industrial demands

He concluded his presentation that there are ongoing discussions on how to improve the situation of things in Africa, however we might need some times to effectively compete in the global market especially with regards to price.

6th Speaker: Dr. Samuel Oyamakin

He represented the working groups on Intelligence and Modeling in GET, standing on behalf of Dr. Andela Chukwu, who is the head of the group. Dr. Samuel is a Mathematician at the University of Ibadan and has worked on modeling of infectious diseases.

He started that infectious diseases such as HIV, Ebola are responsible for morbidity across the world.

He then shared a mathematical model which is $E=mc^2$; which is with respect to diseases determination. He emphasized that the formula is useful in analyzing and control and spread.

Dr. Samuel stated that mathematical model can do things such as decisions making, guide risk assessment, comparison of alternative, policies, predict future trends and interventions.

He continued by explaining the needs for collaboration between biological and mathematical scientists which will lead to a multidisciplinary research.

He also highlighted **types of model** which are Static/dynamic, Discrete/continuous and Deterministic models.

He concluded his presentation by describing some models, which are:

- Susceptible Infectious (SI) model
- SIR model
- SIR endemic model
- SEIR model

His session also ended with Questions from the participants which he answered.

The conference continued to the next agenda which was Abstract Presentations which included four (4) presenters:

- Meghan and Benjamin from Global Health Division Chemonics International; they both presented on **Achieving Global Health Security through Improved Supply Chains**.
- Dr. Mustafa Adamkolo, a senior lecturers at the University of Maiduguri, he presented on the **Lake Chad Basin**

- Dr. Owusu, a research fellow, presented on **Safety and Immunogenicity of 2-dose of monovalent vaccine.**
- Dr. Ishola presented on **Hypertension Prevalence in Ebola Vaccine Trials in Northern Sierra Leone.**

The presenters were arranged on stage and participants asked them some questions which were answered as directed to each presenter.