REPUBLIC OF KENYA
Ministry of Agriculture, Livestock and Fisheries

GODAN
Global Open Data
for Agriculture & Nutrition

Conference Bulletin

14-16 June 2017
KICC, Nairobi Kenya.
www.godan.info

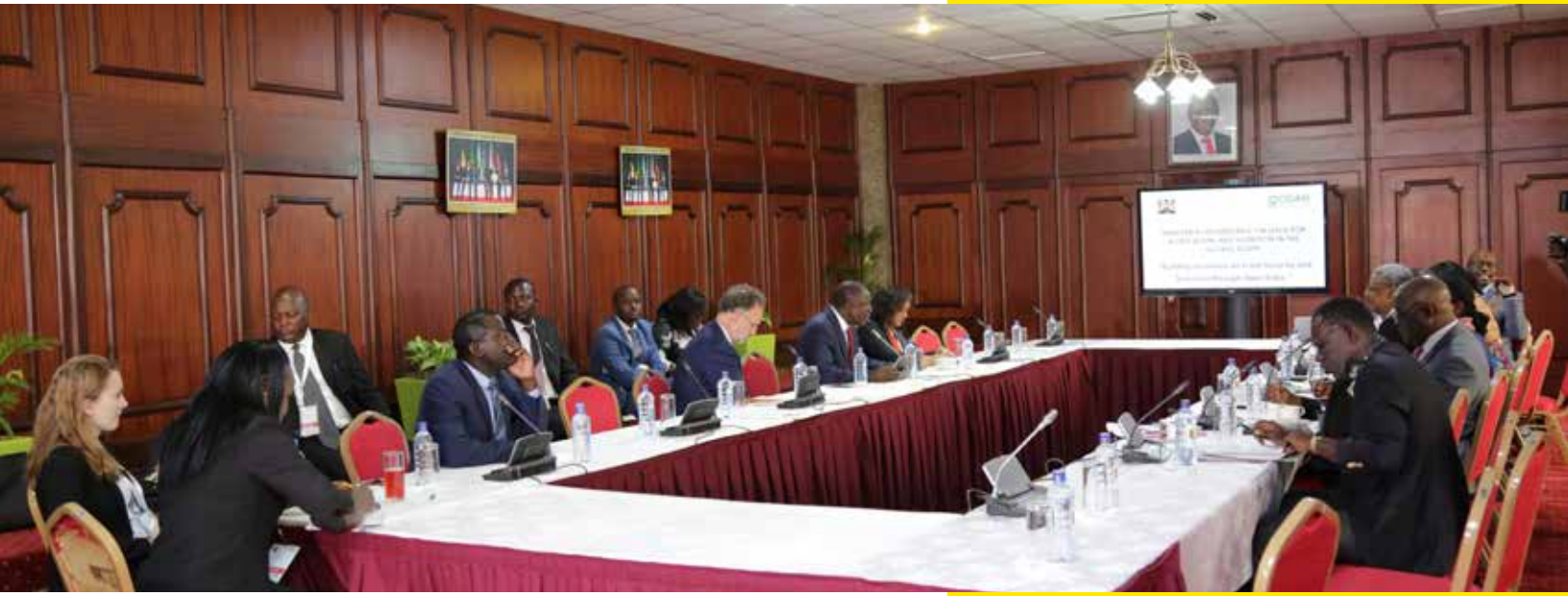
MINISTERIAL CONFERENCE ON AGRICULTURE AND NUTRITION DATA & 4TH AGRITEC AFRICA INTERNAITONAL EXHIBITION.

Statement of the Ministers.

Building resilience on Food Security and Nutrition through Open Data

DAY II SUMMARY

1. Strengthening Agricultural Statistical and data Systems in Kenya.
2. South-South Dialogue: How Data is Enabling Innovations in Agricultural Value-Chains.
3. Mutual Accountability for Consolidating Gains & Delivering Actions To Achieve CAADP Goals.
4. Ministerial Roundtable Meeting on Data for Agriculture and Nutrition in the Global South.
5. International Collaboration on a Minimum Open Data Package for Agricultural Transformation.
6. Improving Productivity Through Better Crop Nutrition Data.
7. Improving Coordination for Data for Agricultural Transformation.
8. De-risking Agriculture for Financial Services.
9. Creating an ICT for Agriculture Paradigm Shift Using Open Data.
10. Mobilizing Stakeholders to Improve the State of Nutrition and Data in the Global South.
11. Investing in Agriculture Data in Growth and Development.
12. Capacity Building for Evidence Based Decision Making in the Global South.
13. High Level Closing Panel.



We recognize that data and innovation creates opportunities for people to influence their lives and future, reduce poverty, increase productivity, create jobs and participate in decision-making.

We underscore that sustainable agriculture can only be achieved with a broad alliance of people, particularly women and youth, governments, small holder farmers, civil society and the private sector, working together to secure a world that is food secure, without hunger and malnutrition.

We therefore resolve to take urgent actions to achieve sustainable agriculture, reduce food insecurity and nutritional challenges by constituting an African Intergovernmental Network on Open Data for Agriculture and Nutrition, under the auspices of GODAN.

We therefore decide to establish an Intergovernmental coordination mechanism to support the network.

The Intergovernmental Network on Open Data for Agriculture and Nutrition will hold an annual meeting. The next conference will be held in Uganda.

South-South Dialogue: How Data is Enabling Innovations in Agriculture Value-Chains

In this Panel:
Dr. Andrew K. Tuimur
Dhairya Pujara
Muchiri Nyaggah - for Nanjira Sambuli

- **There is need to strengthen agricultural statistical and data systems in Kenya**
- **Agribusiness needs government and private sector support:**
- **We don't have similar policies and infrastructure/technology as other Asian countries have.**

So what would we do for North Eastern Kenya agriculture?
(Human Centered Thinking)

Innovations Showcase:

1. **An SMS based breeding product (icow)** where farmers are able to access AI services and natural fertilization from farmers who have bulls.
2. **Farm drive:** Engage with farmers directly and guide them on farming basics
3. **Grow intelligence:** Provides data via satellites, using platforms that show trends of commodities, predict droughts etc

Dhairya Pujara Y center. CEO USA
After a visit in Kenya, the organization creased a platform to reach out to young people to bring content to reach out to these youth. Based on our experience, we make these points and recommendations:

- **Train** them, introduce them to open data and create a relationship with the farmers.
- Ensure there's **evidence-based data** and not passive based data.
- We need to **setup extensive research hubs**/agricultural institutes to supplement agricultural education.
- **Provide capital & mentorship** to these young people.
- Build apps during hackathons **defining the problem statements** for (75%) of the time.

My Quote: If we take collective responsibility we can lift human consciousness.

Audience Contribution to the innovation showcase.

- There is need to encourage **the use of solar** drying food as in preservation, there are successes in Uganda.
- Have a **step-by-step led process** for farmers venturing into tech and those already in agri-business.

- Encourage formation of more agri-business projects for the rural youth that have migrated to the city for employment.
- Provide extension services from the government readily.
- Access to capital, mentorship, training tie together.

Dr Andrew K. Tuimur – Principal Secretary, Livestock – Ministry of Agriculture Livestock and Fisheries.

Some key points on how the government is addressing this issue of Data and Agribusiness.

- 80% of Kenyan agriculture was devolved to the counties including extension services.
- We have policies that are disseminated to the counties to direct them in matters agriculture.
- We should have a systematic method of giving farmers information: sales and marketing statistics, climate trends etc…
- We have a free market in East Africa now you can sell your produce anywhere you want.
- We have to amend public procurement laws to better impact the youth on time.
- We will advocate for data to be used fruitfully across all agriculture value chains.

Dr Muchiri Nyaggah - closing remarks.
Let's work to encourage cross border networking and sharing, explore formation of South-South data sharing with other nations.

Mutual Accountability for Consolidating Gains & Delivering Actions to Achieve CAADP Goals

In this Panel:
Hon. George Boahen Oduro - Keynote
Dr. Agnes Kalibata
Hon. Marie Jalloh
Hon. Vincent Ssempijja
Mr. Andre Laperriere
Moderator: Boaz Blackie Keizire

A background on CAADP
In 2003 African leaders and developed a continental agricultural framework called the Comprehensive Africa Agriculture Development Programme (CAADP). This set of principles to aid governments on how to set up clear plans goals and targets to achieve their national transformational agenda.

- The governments will sit after every two years to review the progress they are making against the targets they set.
- The next gathering will be in Ghana in Jan 2018 to discuss progress.
- Today's discussion will be around this progress.

George Oduro Deputy Minister for Food and Agriculture, Ghana

A highlight on current progress:

- Every step in agriculture will be centered on data: Registering farmers and putting them in the database by taking the bio-data so that the Government can subsidize inputs by 50%. This is being done through AGRA's Consultant on the ground.

- Managing post-harvest loss: to know when and where harvesting is taking place and helping farmers to buy what they require. This goes further to issues of storage and warehousing and access to local financing though local banks.

- Inputs: The Government is giving free agro-chemicals, like in the case of managing army worm infestation. Since the Government knows the farmers, it is now easy to know where to supply the chemicals. Another example is in the case of the Government procuring fertilizer to issue to farmers.

- Improving Infrastructure: The government has committed 10% of the budget to build construct feeder roads.

- One dam one village initiative. Farmers depend on rain, in case of failure, there's famine or drought. We know how many people in the north are engaged in farming and the dam can be constructed based on data. Farming is a priority and without data we cannot achieve this progress.

Based on real data available, the government is:

- The Ghanaian government is advocating for Financing from banks to local farmers
- Free agro-chemicals for outbreaks
- Infrastructure surrounding farmers in allocated 10% of govt income.
- Building a dam-a-village based on need especially the arid area

Recommendation:

1. Africa and rest of world need to use data in agriculture and transform our economy. If we want our economy to be strong, I recommend you use farming but without data there is no way to do that. Use data to improve our economy and make agriculture our number one priority.
2. Use the data we have to transform our economies and make agriculture the number 1 priority.

Speaker 2: Hon Marie Jalloh, Deputy Minister for Agriculture, Sierra Leone

Its 14 years since CAADP, how relevant is it to Sierra Leonne? How can you help us to demystify it and any other perspective?

CAADP in not a foreign thing: CAADP is here to accelerate partnership for Africa's development - to prevent food and nutrition insecurity, reduce poverty, promote production in Africa as a nation.
It also has the potential to increase youth development in agriculture.
CAADP is there to align diversity stakeholder involvement. Because of the country benchmark element, there is a government advisor in charge of developing benchmark for development.
The planning, monitoring and evaluation unit looks at all agricultural activities. In 2016 FAO/WFP supported the ministry in putting the assessment data into perspective looking at gender issues, the kind of products, and the kind of activities done in the ministry using data.
We already have computers and GIS systems that do monitoring and evaluation.
There is need to move together (different countries) and to put national plans into a coherent report to ensure our goals are achieved.

Keypoints and Recommendations

1. We have planning, monitoring and evaluations units for Agricultural programs.
2. Putting efforts for data access.
3. Build capacity locally for coordinating national plans to achieve goals.

Speaker 3: Hon. Vincent Ssempijja – Minister for Agriculture, Animal Industry and Fisheries, Uganda

Lessons and experiences from Uganda on how you see data and how you look at data and progress on biannual review. How ready is Uganda?

Uganda has 3 major principles in agriculture:

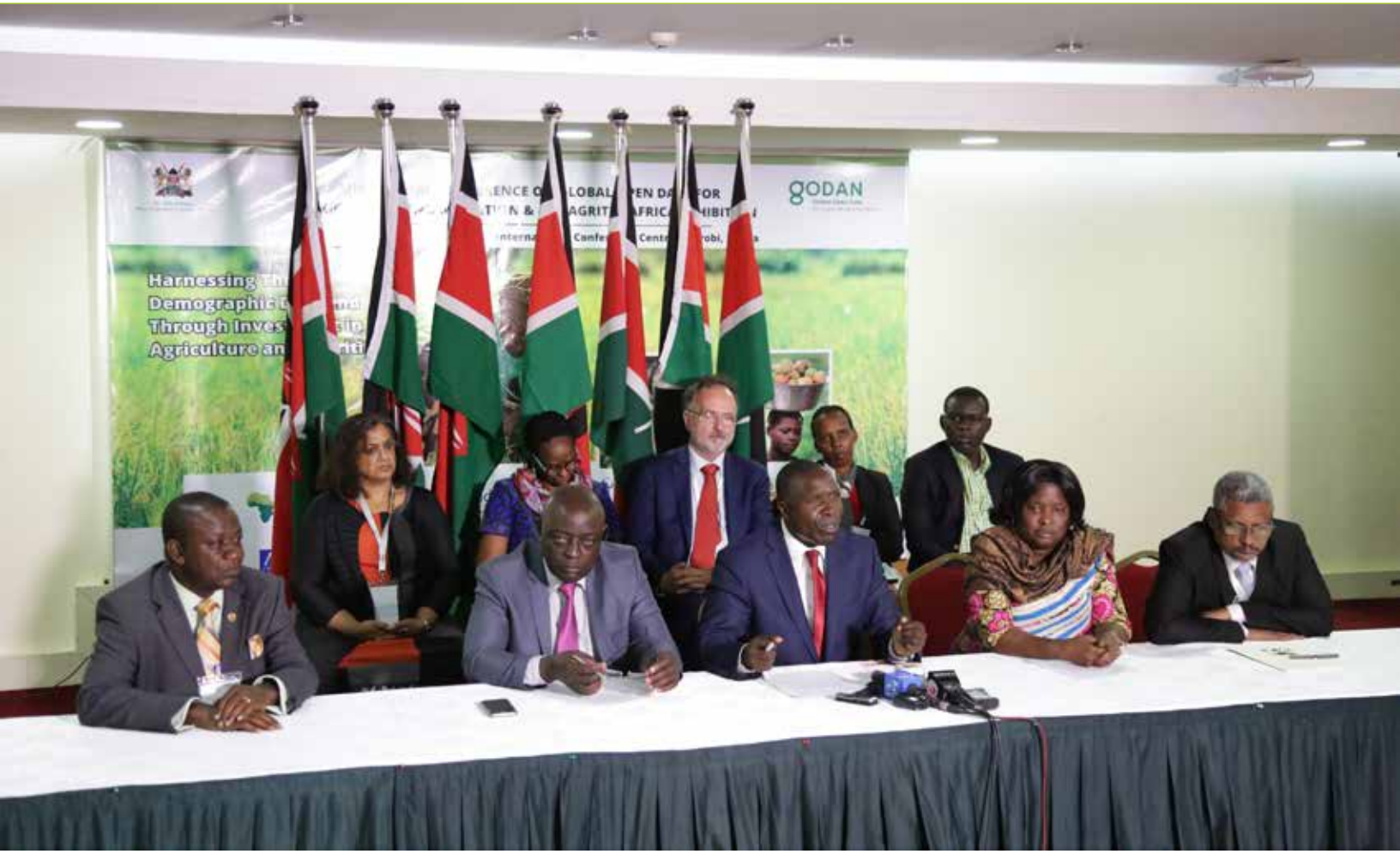
1. **Food security for our people** - we need to plan ourselves and ensure the country is food secure. We are also a food basket for our neighbors.
2. **Income for our people** - farmers must earn a good income from their sweat. We have to prepare and plan to ensure that farmer move away from subsistence agriculture. We are working towards converting subsistence farming into commercial by addressing, among other things Land fragmentation, which is an impediment to commercial farming.
3. **Producing for export** - bring our people into clusters to cooperate in order to be able to compete and to produce for export.

The issue of data centralization is of great consideration as we need to be able to access data concerning market and production, monitor entire value chain and government also need to be able to monitor and plan for the system.

Projects for data gathering.

1. In four years, increased coffee production from 3.5 million bags to 20 million bags by organizing farmers, getting soil status, and avail data to farmers and input dealers. We now register farmer through organized data.
2. Increase productivity by finding varieties that will work and produce more. Through data, extension is being organized (single spine extension) by remobilizing extension teams to understand things that happening all through the value chain so that the farmer knows how much to plant, where to get seeds, fertilizer, how much it costs in the market, e.t.c..
3. Working with fisheries and fishers to improve breeding using data. By using data in the fishery sector, we are able to provide useful data. For instance, because fisheries had attracted many youth and women, the number was so large that they have almost depleted the lakes. This is one case we are managing using data.

Continued on Page 27.



Statement by Ministers Responsible for Agriculture attending the GODAN Ministerial Conference Held at the Kenyatta International Convention Centre, Nairobi, Kenya on 15th June, 2017

Building resilience on Food Security and Nutrition through Open Data.

We, the Ministers for Agriculture and high level representatives of Governments, having met in Nairobi, Kenya, from 14 to 16 June 2017, with the full participation of private sector, academia and civil society, renew our commitment to the Sustainable Development Goals (SDGs) in pursuit of Ending hunger, achieving food security and improved nutrition, and promoting sustainable agriculture:

1. *Noting with appreciation*, the request at the Global Open Data for Agriculture and Nutrition (GODAN) Summit in September 2016, to Kenya, to host a Ministerial Conference on Agriculture and Nutrition Data;

2. *Expresses* its profound gratitude to the Government and the people of Kenya for hosting the Ministerial Conference on Agriculture and Nutrition Data in Nairobi, Kenya, under the theme: Harnessing the Demographic Dividend through investment in Agriculture and Nutrition Data and for providing all the necessary support;

3. *Recalling* the report of the Secretary-General's High-Level Panel of Eminent Persons on the Post-2015 Development Agenda calling for a data revolution for sustainable development, with a new international initiative to improve the quality of statistics and make information available to citizens;

4. *Recognizing* that poverty eradication, changing unsustainable and promoting sustainable patterns of consumption and production and protecting and managing the natural resource base of economic and social development are the overarching objectives of and essential requirements for sustainable development;

5. *Taking note* of the Comprehensive Africa Agriculture Development Programme (CAADP) that has inspired and energized African Governments, African agricultural research institutions, farmers' associations and the private sector to increase investment, improve coordination and share knowledge on Agricultural Transformation;

6. *Taking note* of the Global Open Data for Agriculture & Nutrition (GODAN) as a network that supports public and private global efforts to make agriculture and nutrition data more available and easier to access by all;

7. *Further recognizing* the commitments voluntarily made by the Global Open Data for Agriculture and Nutrition Network at the GODAN Summit and throughout 2016 to implement concrete policies, plans, programmes, projects and actions to make agricultural related data more accurate, available and accessible for all.

8. *Bearing in mind* that open data policies in both public and private sectors should respect and work to balance openness with legitimate concerns in relation to privacy, security, community rights and commercial interests.

9. *Acknowledging* that open data can be a driver for agricultural transformation by making data available and accessible to smallholder farmers, giving the insights and services they need to improve productivity and build resilience;

10. *Convinced* that women and youth are majority of developing world's population and therefore require motivation and support for agri-business enterprises through resource mobilization, data, research and innovation;

11. *Aware* that women and youth are at the center of sustainable development and, in this regard, strive for an equitable and inclusive agriculture.

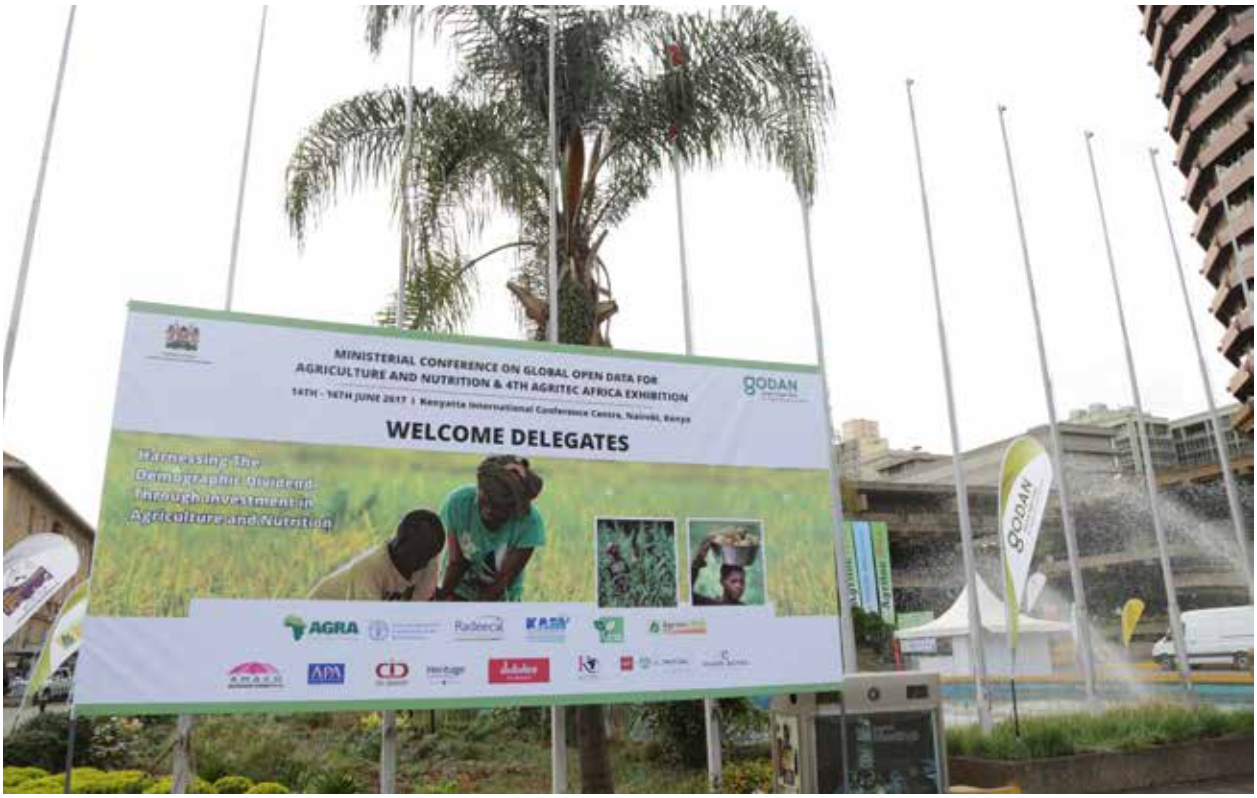
12. *Fully Convinced* that making data and statistics on agriculture and nutrition available, accessible and useful to smallholder farmers and intermediaries is essential to development of inclusive value chains, building resilience in farming communities and strengthening food and nutrition security;

13. *Recognizing* that data and innovation creates opportunities for people to influence their lives and future, participate in decision-making and amplify their concerns more than before.

14. *Emphasizing* that sustainable agriculture can only be achieved with a broad alliance of people, governments, civil society and the private sector, working together to secure a world that is food secure, without hunger and malnutrition.

15. *Reaffirming* the need to be guided by the purposes and principles of the Charter of the United Nations and the Fundamental Principles of Official Statistics.

16. *Reaffirming* our commitment to strengthen international cooperation to address the persistent challenges related to sustainable Agriculture, in developing countries.



Building resilience on Food Security and Nutrition through Open Data.

The Ministerial Conference therefore resolves to take urgent actions to achieve sustainable agriculture, reduce food insecurity and nutritional challenges:

1. **Renew** our commitments to achieving the Sustainable Development Goals by endeavoring to make more open data available as a means of assessing the progress on the implementation of the 2030 Agenda.

2. **Agree** to work together with women and youth and women and youth serving organizations to promote sustained and inclusive agriculture that focuses on creating decent jobs and economic growth for all.

3. **Reiterate** the need to strengthen South-South Cooperation and triangular collaboration as means for building capacity, technology transfer and knowledge sharing, to enable us collectively address the challenges of data-gaps in food security and nutrition.

4. **Commit** to harnessing power of new innovations, technologies and techniques, especially the data revolution to solve the challenge of extreme poverty and hunger.

5. **Urge** countries to adopt the use and release of data for decision-making and action at all levels in Agricultural Value Chains, so as to increase agricultural productivity to achieve sustainable development and environmental protection in all its dimensions.

6. **Commit** to investing in the proactive use of data in support of the CAADP Review Process and Leaders Scorecard, in the Context of commitments made by Governments under the auspices of the African Union.

7. **Resolve** to strengthen the acquisition and application of science, technology and innovation; Improving uptake of data-driven youth innovation and promote entrepreneurship; Support partnerships that leverage on youth innovation that enables agricultural producers access skills, new markets and financing; Attracting youth into agri-business.

8. **Further resolve** to increase financial allocations and human capacity towards strengthening statistical departments within the Ministries of Agriculture to improve the production of open data in Agriculture, making such data more usable, timely and comprehensive, comparable and interoperable.

9. **Decide** to establish a voluntary Intergovernmental Network on Open Data for Agriculture and Nutrition, under the auspices of GODAN.

10. **Further decide** to establish a coordination mechanism to support the network activities, to be hosted by network member countries on an annual rotational basis.

11. **Invite** the Government of Kenya to host the first coordination mechanism, with the support of the Alliance for A Green Revolution (AGRA).

12. **Request** the Government of Kenya, United Nations Office for South-South Cooperation (UNOSSC) and the GODAN Secretariat to organize a High-Level Panel of the Intergovernmental Network on Open Data for Agriculture and Nutrition at the margins of the UN General Assembly in September 2017, as a follow-up to commitments at the GODAN 2016 Summit and the Nairobi GODAN Ministerial Conference;

13. **Further request** the Food and Agriculture Organization (FAO), the Alliance for a Green Revolution (AGRA) and other partners to support Governments ascribed to the Intergovernmental Network on Open Data for Agriculture and Nutrition, to strengthening their internal systems to produce timely, accurate and reliable data for Agriculture and Nutrition;

14. **Request** the Secretariat of the Global Open Data on Agriculture and Nutrition (GODAN) to continue their support in the aspects of and not limited to:

    a. Ensuring that developing countries are supported to benefit from the network and those that are not yet members, encouraged to join;

    a. Avail network capacity and capabilities on agriculture data that is responsive to the contexts and challenges of the developing world;

    a. Equip developing countries with insights and guidance to allow them to release and reuse data in support of Innovation and Economic Growth, Improved Service Delivery and Effective Governance, and Improved Environmental and Social Outcomes.

    a. Provide support for developing countries to sustain national level platforms for agriculture open data that are interoperable.

15. **Invite** all participants to this conference to note these commitments and make them available to all.

Parallel Session 1: International Collaboration on a Minimum Open Data Package for Agricultural Transformation.

Panelists:
Andre Jellema
Muchiri Nyaggah
Dr. Joseph Karugia
Kevin L. Sage

Defining Open Data: ***This is data that anyone can access, use or share. It can help shape solutions by enabling more efficient and effective decision-making at multiple levels across the agricultural value chain, fostering innovation via new services and applications, and driving organizational change through transparency.***

A wide range of data is needed by a variety of agricultural actors to meet different needs: to empower farmers, optimize agricultural practice, stimulate rural finance, facilitate the agricultural value chain, enforce policy, and promote government transparency and efficiency.

The Agriculture Open Data Package has been designed to help governments get to impact with open data in the agriculture sector. This practical resource provides key policy areas, key data categories, examples datasets, relevant interoperability initiatives, and use cases that policymakers and other stakeholders in the agriculture sector or open data should focus on, in order to address food security challenges.

The Package identifies fourteen key categories of data and the effort it will take for a government to make this data available in a meaningful way. The categories include data on:

- Pest and disease management,
- Production advice,
- Soil,
- Hydrology,
- Elevation,
- Meteorology,
- Markets,
- Infrastructure,
- Value chain,
- Land use and productivity,
- Rural projects,
- Government finance,
- Official records and
- Regulations.

The Package also highlights more than ten use cases demonstrating how open data is being harnessed to address sustainable agriculture and food security around the world. Examples include: mapping water points to optimize scarce resource allocation in Burkina Faso; surfacing daily price information on multiple food commodities across India thus bypassing the middleman; benchmarking agricultural productivity in the Netherlands; and setting up a one-stop-shop for aid data in Bangladesh. Applicable interoperability initiatives, such as open contracting, international aid transparency initiative (IATI), and global product classification (GPC) standards are also highlighted.

GODAN also recognizes that the agriculture sector is diverse, with many contextual differences affecting scope of activities, priorities and capacities. Therefore, the Package is meant as a source of inspiration and an invitation to start a national open data for agriculture initiative. In the full version of the Agricultural Open Data Package, important implementation considerations such as inter-agency coordination and resourcing to develop an appropriate data infrastructure and a healthy data 'ecosystem' for agriculture are discussed.

Muchiri Nyagah, Executive Director, Local Development Research Institute (LDRI)
Recommendations on tangible actions that would enable Governments to achieve the Open Data Package.

1. Align Open Data targets to National and Global Commitments
When countries have to argue for the justification of open data, they have to link it to the existing obligations both at the national and global levels. In order for Governments to achieve the minimum package on open data, it is crucial to demonstrate how open data addresses issues that countries have made commitments to.

It is therefore important to speak a language that governments understand, and by linking to the global commitments, such as the SDGs and linking the open data initiative to specific indicators, for instance showing how inequality is manifested and where it is, the open data agenda becomes a priority for governments.

GODAN invites policymakers, agriculture specialists and members of the open data community to:

1. **Add comments** on the beta version of the Agriculture Open Data Package (available at http://www.agpack.info/).
2. **Adopt the international Open Data Charter.** Become a champion of the Agriculture Open Data Package, and be involved in shaping future versions of the resource.
3. **Host national and local-level consultations** to landscape your national agriculture data infrastructure, define your policy areas, and plan your open agriculture data strategy.
4. **Prioritize relevant government agriculture data for release** based on the 14 recommended data categories and sample datasets contained within the Package.
5. **Contribute your use cases to the Package.** Send comments and use cases to enquiries@godan.info.

The GODAN Secretariat and network can provide support to governments that are working to put the package into practice via the Open Data Charter Resource Centre

2. Take advantage of existing Government frameworks
It is easier to mobilize data through an already accepted platform such as the Vision 2030 in Kenya. The Kenyan president launched the Open Data initiative in 2011, but there is currently no way to get an update on the status of open data in Kenya.

However, had it been linked to the Vision 2030 and within the Mid-Term Implementation Plans (MTIPs) with baselines and intermediate goals being developed within an already established government structure, all civil servants would not only be well-informed on open data, but they would have their performance contracts adapted to ensure that every office is making a specific and significant contribution to open data. Whereas there has been goodwill by the Kenyan Government to champion the open data agenda, moving towards the practical application would require embedding open data to existing frameworks.

3. Regional and International Collaboration
There is a challenge with the available data and capacity of different countries. Most governments are collecting very specific data e.g. Ethiopia's investment has been in collecting data on the extension system. Additionally, no one in any government has a job description tailored to opening up available government data.

Current efforts are based on the goodwill and support of developing partners. There is a great need to coordinate different efforts and to replicate what is already working. Building on from the global commitments, once open data is integrated into the indicator framework, it becomes easier for different countries within a region and even globally, to track progress on the same indicators.

The GODAN initiative is pushing for open data for Agricultural development and food security, however, agriculture in the broader sense is also linked to trade, licensing of businesses, resource allocation, infrastructure development e.g. feeder roads and other broader functions that have a direct link to agriculture. Collaborative action enables countries to quickly adapt best practices, enabling countries within a region would move faster together. For instance, having Nigeria, Ghana, Kenya, Uganda, Tanzania end so on, track the monetization of farmers, or how many miles of roads have been developed collectively and individually along SDG 1. Collective efforts address the challenge of disaggregation of data, making open data the more impactful.

Being able to monitor the same indicators at the global level while being able to report on the same at the local level is empowering and allows for local public participation because open data should also have utility at the grassroots level just as it does at the Global level.

Dr. Joseph Karugia, East & Central Africa Coordinator, ReSAKSS
The Regional Strategic Analysis and Knowledge Support System (ReSAKSS) is an initiative of the African Union Commission (AUC) and NEPAD to support the successful implementation of the Comprehensive Africa Agriculture Development Programme (CAADP) by providing policy-relevant data; facilitating dialogue among stakeholders; monitoring progress in reviewing goals; and strengthening mutual accountability processes at continental, regional, and national levels.

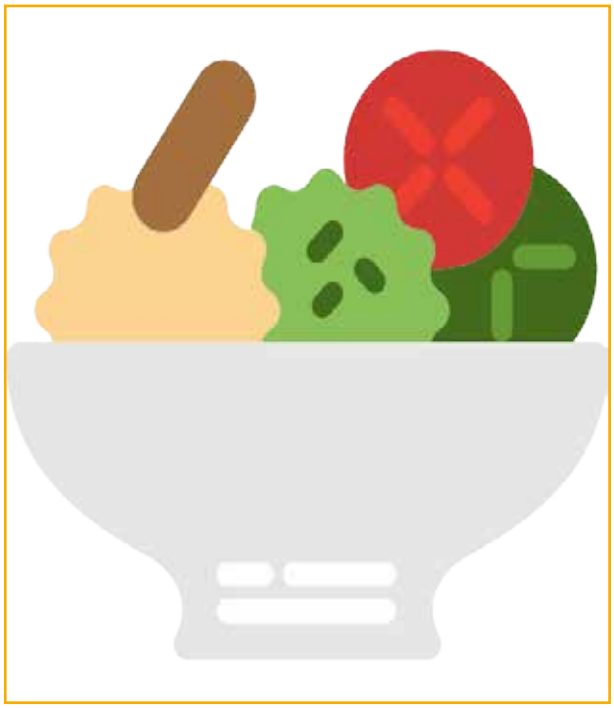
It provides a platform for cross-monitoring and evaluation of over 40 indicators. The initiative also has the mandate of prepare the CAADP annual trends and outlook report. Data is analyzed and published on the website for peer leaning and peer review, compare the performance of regions e.g. EAC vs. ECOWAS and countries according to level of economic development or whether agriculture is dominant sector so that the same aspects are measured for different countries.

The website is very interactive and can be manipulated by users. It has the country eAtlas feature for 21 countries including Kenya,

although there are efforts to create eAtlases for other countries. The eAtlases showcase where gaps exist and highlight priority interventions and evaluate performance over time.

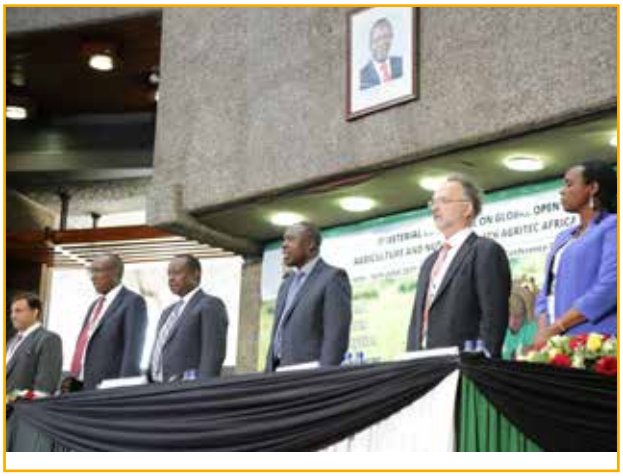
Aginvestafrica.org is another interactive map showing locations and partners and the type of interventions. It is developed based on public information and shared information by development partners. Since the data is provided by partners and governments, it is imperative to continuously invest in trust-building and cooperation to maintain the goodwill. To ensure this, all the data published on the website is acknowledged by citing its sources.

IT infrastructure is very important for the collection and management of the data, therefore the AUC recognizes that the key to success is in building the capacity of the governments in the relevant ministries to put the data together, manage and analyses and to publish it in various media.



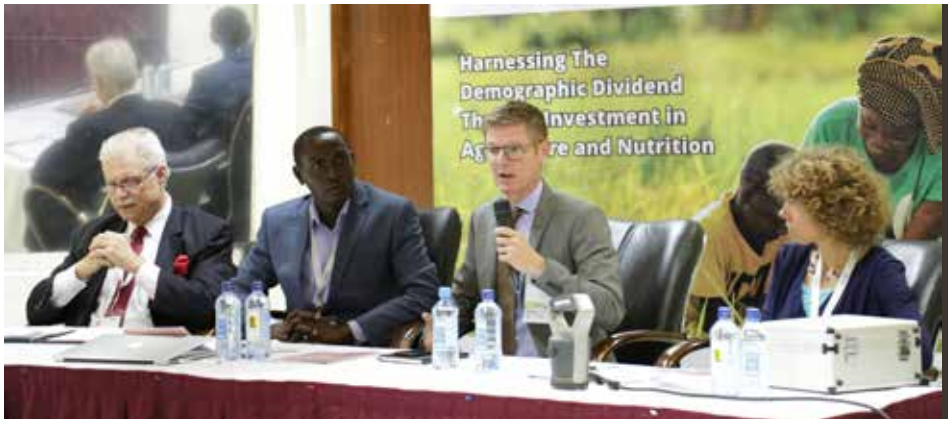
There have been unsuccessful efforts to transfer the ReSAKSS mandate to the country level through NEPAD. Regional nodes have currently been set up in 12 countries to begin the technology and skills transfer process. The SAKSS have been set up and should be functional within the next 24 months. The country SAKSS have the mandate to ensure that institutions generating data (universities and national bureaus of statistics) have the capacity and that the data is analyzed and used by policy makers.

It is also designed to encourage two-way communication, so that data users can also demand data to be collected. Data generators are motivated by adoption and use, so they are always open to suggestions on how they can generate more impactful data. If it is not used, there is no incentive to collect it.



The AUC and member states have been working on dialogue platforms to review progress using the data and plan together. The institutionalization process and biennial review mechanism also helps to reinforce CAADP's accountability mandate by member states.

Parallel Session 2: Improving Productivity through Better Crop Nutrition Data



Panelists:
Dr. Eric Towett
James Craske
Christy van Beek
Kevin Mulvhill

Moderator:
Andrew Sila

Erick Towett, Spectroscopy Scientist, World Agroforestry Centre.

Provision of accessible open data for farmers on better crop nutrition data has the potential to maximize crop productivity. Advances in technology have lowered the costs of collecting data in many fields and there are new opportunities for data in crowd sourcing and telecommunications. But there is a need to make this data available at every level, even down to the level of smallholder farmers.

There have already been examples which have helped increase yields in the form of providing smallholders with access to market prices and weather information. More however, needs to be done, as was acknowledged by the meeting of ministers, to ensure sustainable development and increased profits for farmers.

There is a need to facilitate a data driven transformation in this sector. Gathering data is not enough, it must be managed, evaluated and disseminated properly, and this is often more expensive and difficult than collection.

There is a need to ensure that stakeholders work together, including the government and private sector to ensure good practices in data analysis are followed. In the past, large data sets that are mined can often be defective and make recommendations that are too broad to be useful.

Soil testing was previously slow, out of reach and provided unreliable data in Africa and laboratories often lacked necessary equipment and quality control testing. Soil testing today serves as means to improve decisions and reduce risks when planting crops, informing farmers what to plant, when, and how much fertilizer should be applied.

To overcome the technical challenges with soil testing, firms are collecting data to create digital soil maps in Africa which are accessible to all. Preexisting soil maps cost millions to make, were slow to create and often unreliable. Due to new technology it can be done cheaply (was $50 now $1), more accurately and in around 30 days.

This technology includes using infrared or x-ray sensors which provide fast and reliable information about soil mineralogy which can then ensure soil can be mapped, and from this farmers can be advised what to grow and what fertilisers to use based on the nutrients present in the soil. The second part of the system is a virtual open data online library containing tens of thousands of different samples to provide data for farmers to make informed decisions to maximize their productivity.

Christy Van Beek, SoilCares Foundation Director

SoilCare have utilized infrared soil analysis technology to create a hand held scanner which can be used to develop an on-the-spot soil assessment and fertilizer recommendations, which is connected to an app. Whilst data is important, people need to uptake recommendations. This will only occur if farmers are involved in the recommendation process.

This tool maximizes involvement of the farmers. The handheld device takes samples on site with the farmers, and provides necessary data immediately. Farmers are now fully involved in the data collection and information provision process, ensuring understanding and collaboration with recommendations which leads to increased yields. These devices lower cost of sampling- only 1,000 Ksh. per sample and takes a matter of minutes, whereas laboratory sampling can take weeks and cost 5,000 Ksh. per sample.

James Craske, Country Manager, YARA

Yara, a chemicals firm specializing in fertilizer production recognized that before collecting data to improve yields, it is necessary to know what the farmer is trying to achieve.

The main goal of all stakeholders is to improve profitability while ensuring sustainability, but it is necessary to ensure small farmers do this not because someone is telling them to do it, but because they want to.

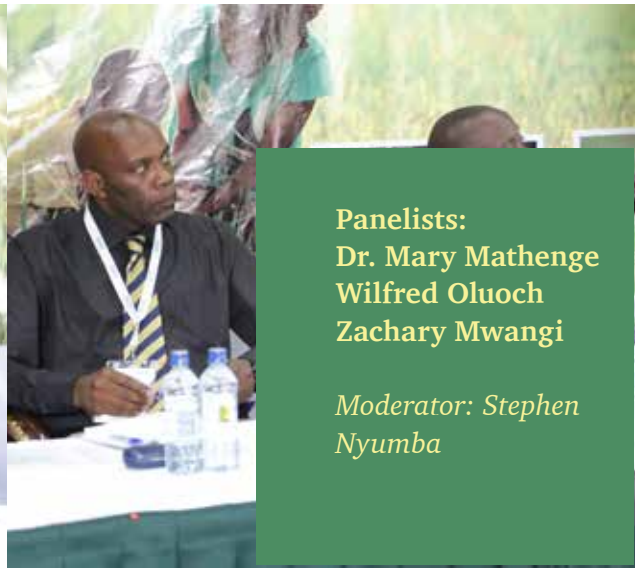
There is also a need to ensure farmers have access to a solution. He highlighted the example of when Yara surveyed 10,000 farmers about their experience of Yara's products, about half did not know where to find their products. There is a need to empower the supply chain more to ensure availability and access of solutions by the farmer.

Kevin Mulvhill, CEO JSH International

JSH international has developed a product which takes 10,000 year old vegetation to create a peat extract that is used to increase microbial activity and population within the soil. They work closely with fertilizers to increase efficiency in crop output and to increase yield. In Kenya, farmers using this product have seen double and even triple yields. There is a need to carry on implementing new technology to meet the challenge of a growing population which will reach 9bn by 2050. To effectively use open data to be able to make recommendations and create innovations to increase yields and sustainability of agriculture it is necessary to:

- **Have continuity of data**- too many different places providing data, and much of it is conflicting data on the same topic. Need a greater degree of standardization and regulation of data which could be achieved through GODAN
- **Ensure data can be distributed to all farmers**, especially those without access to technology such as mobile phones
- **Have an increased ratio of Extension Centers** to farms which provide valuable advice, training, data and technology for farmers to sustainably maximize yields. Within this there is a need for Public-Private Partnerships to ensure the necessary funding is available for this and associated schemes aimed at improving efficiency
- **Introduce input packages quickly** to ensure that food supply can respond to increasing demand.

Parallel Session 3: Improving Coordination in data for agricultural transformation



Panelists:
Dr. Mary Mathenge
Wilfred Oluoch
Zachary Mwangi

Moderator: Stephen Nyumba

Dr. Mary Mathenge, Director at the Tegemeo Institute Kenya.

The process of data collection, assessment and dissemination is largely undermined by a lack of coordination of data, especially on Agricultural and Rural Statistics (ARS). In addition, the lack of integration of ARS into the National Statistical System (NSS) further undermines the process. Data is very difficult to coordinate from different sources and is often of poor quality and is quite often duplicated. This session explored the importance of integrating the Strategic Plans for Agricultural and Rural Statistics (SPARS) into the National Statistical Systems and the best way to ensure collaboration and standardization of data collection, analysis and dissemination.

Agricultural data, and coordination of agricultural data in developing countries is of the upmost importance to ensure the transformation of agriculture. This transformation needs to entail a shift away from subsistence agriculture to commercial oriented agriculture to ensure food security and incomes for farmers. This also requires a fundamental shift away from diversification to a specialized portfolio.

Operationally, to achieve these goals, efforts need to be made to increase agricultural productivity through technology generation and adoption. Proper access and participation within markets also needs to be insured. Countries also need to work towards improved food security and increased incomes from agriculture to form the basis of agricultural transformation. In the context of developing nations, many of the economies are largely based on agriculture, so the fortunes of the agricultural sector are directly linked to economic fortunes within such countries.

By transforming the agricultural sector, the economy can essentially be strengthened and developed. Agriculture is a major source of food and livelihoods, so transformations within the agricultural sector can help increase food security and decrease poverty rates. Agriculture is also linked to other sectors in the economy, such as the industrial sector which provides inputs, so by improving the fortunes of agriculture, it can

serve to enhance the multiplier effect which can ensure growth in other sectors of the economy.

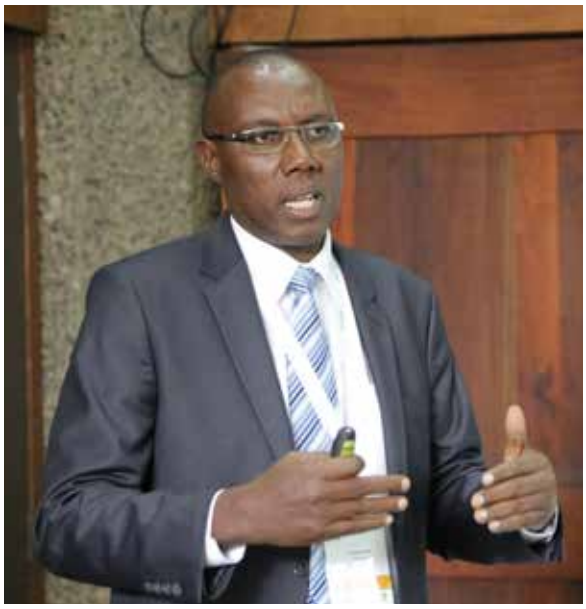
Transformation in agriculture can help African countries achieve key development goals, such as CAADP goals, Agenda 2030 and the SDGs. It can also help to improve investment decisions, policy formulation, planning and decision making across the board. It is clear that the agricultural transformation can only occur by using data to inform decision making to help develop the sector. However, there are some key problems with this approach:

1. There is a lack of coordination in data which could be utilized in transformations.
2. There is no single source of comprehensive data, and no publicly available data.
3. The processing of data into readily available information that can inform decision making is very irregular and processing tends to take a long time.
4. The numerous data generators tend to act independently, utilize multiple, often conflicting sources and they vary in the objectives they are trying to achieve, the methodologies utilized and the data formats.
5. In less developed countries, there is a scarcity of reliable and good quality data, which tends to be limited in scope and content due to a lack of collaboration between stakeholders which collect data, which has led to a lack of comparability and harmonization of data in lower developed countries (LDCs).
6. There is also the issue of limited access to data, with very few avenues for access to open data existing currently.
7. There is also a pronounced unmet demand for specialized data within the agricultural sector. For example, there is a lack of specialized data for the purposes of the provision of agricultural insurance, and much of the specialized data that does exist is locked away in non- public sources.

As a result, data in LDCs is largely fragmented and uncoordinated and this has serious implications for efforts in agricultural transformation. The lack of coordination within data in LDCs is restricting the potential for agricultural transformation. There is a low appetite for evidence based decision making which could kick start the transformation because of lack of data. A well-coordinated national statistics system has the potential to achieve greater efficacy, consistency, and cost effectiveness in data collection and analysis. It can also ensure higher standards of data, more access for all stakeholders and better timeliness in the provision of data.

This is not to say that data coordination cannot be improved. There is a global imitative to improve Agricultural and Rural Statistics through incorporated Strategic Plans for Agricultural and Rural Statistics into the National Statistical System. Kenya has also put a legal framework in place to improve data collection, collation and dissemination in Kenya. The Government of Kenya enacted the Statistics act. 2006, which has since been revised in 2012. It has led to the development of National Statistics systems, better data management infrastructures and institutional arrangements which foster data sharing. It also led to the creation of the Kenya National Bureau of Statistics which plays a role in coordinating statistics.

Since 2015, the Government of Kenya has been working to implement its Strategic Plans for Agricultural and Rural Statistics by ensuring they have a minimum core of data regarding agriculture which is to be achieved through the implementation of an agricultural census. Additionally, they have agreed to ensure that they implement a sustainable agricultural statistical system by 2022. But it is clear that more needs to be done to improve coordination in agricultural data. For all LDCs, there needs to be an institution or stakeholder which is identified for the purpose of coordinating data, and it needs to be provided with the appropriate resources to perform this role.



There also needs to be greater capacity building efforts within national statistical organizations and within the data producers to ensure that agricultural transformation can take place. Lessons can be learnt from other countries with more extensive capacities in the collection, analysis and dissemination of open data. More economically developed countries' (MEDCs) data coordination schemes have yielded a better quality of data, more efficient methodologies and effective methods of data validation. They also tend to manage their resources in a much more effective way than LDCs.

For LDCs to improve their data collection and coordination efforts they can also create centers of excellence (COEs) specializing in specific areas Agriculture and Rural Statistics such as agriculture, livestock and nutrition.

Data producers can also play a role in improving coordination and collection of data. They can offer advice on reliable and tested methodologies and processes and they can engage in continuous capacity building of other stakeholders involved in the coordination process, and they can contribute to the process of the provision of open data by sharing the data they have collected with stakeholders, and they can provide systems which make data more user friendly and accessible to all.

Zachary Mwangi, Director General, Kenya National Bureau of Statistics (KNBS)

From the Kenyan perspective, agriculture is an incredibly important sector of the economy. It is the source of income for 80% of the rural population, contributing 25% of Gross Domestic Product, accounting for 65% of total exports. It is a key driver of growth in the economy, contributing to development and it is key to food security in the country.

The Kenyan national statistical system is vital for ensuring data driven development. The Statistics act 2006 provides the legal and institutional framework for the production and management of statistics in Kenya and it established the KNBS as a semi-autonomous agency of government for production and dissemination of official statistics. It also works to supervisor and coordinate Kenya's national statistical system. It oversees the collection of official statistics through such methods as conducting surveys, censuses and through the compilation of records collected by various government agencies.

They ensure the statistics are produced in line with agreed international and national standards and in a way that conforms to the United Nations Fundamental Principles of Official Statistics. It also serves as a means to foster coordination in data collection and organization by including all ministries, departments, agencies and non-state actors involved in data collection in the National Statistics system.

The National Statistics System also coordinates it's planning with the KNBS to ensure that international standards and norms are implemented and that methods, concepts, definitions and classifications are harmonized across stakeholder agencies. They work closely with the ministry of agriculture and oversea three inter dependent components comprising data users, data producers and data suppliers to ensure more effective coordination of data.

Kenya is also at the forefront of implementing its Strategic Plan for Agricultural and Rural Statistics (SPARS). The development of SPARS in Kenya is based on the main recommendations of the Global Strategy adopted by the international community in February 2010 at the United Nations Security Council. The Action Plan for Africa within the Global Strategy encouraged many developing countries, including Kenya to develop their own SPARS which would be integrated into their national statistics systems.

SPARS is essentially a framework for coordination of statistical activities within the agricultural sector through its vision of the long term development of agricultural statistics.

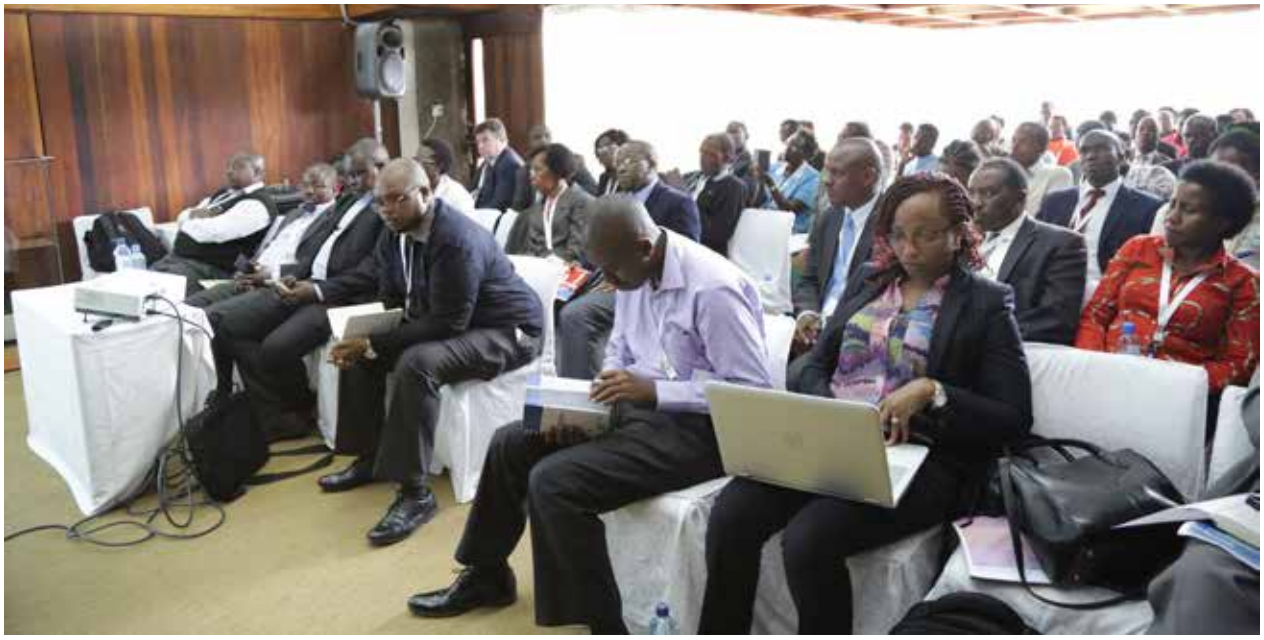
The Kenyan SPARS contains a plan of action for the period of 2015-2022 which contains five strategic goals:

- Review the statistical legal frameworks in line with the Kenya Constitution and emerging data needs;
- Develop and improve physical, statistical and modern ICT infrastructure;
- Strengthen human capacity and enhance statistical operations across the ARSS;
- Address agricultural statistics data gaps; and
- Secure adequate financial resources on a sustainable basis for agricultural statistical activities

The Government of Kenyan has been able to make progress on implementing some aspects of SPARS. For example, a census of commercial farms and green-houses is well under way.

The State Department of Fisheries has also been able to conduct a Frame Survey in both 2015 and 2016. However, the implementation of SPARS in Kenya has met some challenges. There is, at present, limited funding available to fulfil the strategic goals of SPARS. Getting all key stakeholders together, and ensuring commitment and implementation is delivered by the appropriate stakeholders is also a challenge. There also needs to be a devolution and streamlining of the activities regarding data collection in agriculture.

The proposed solution to this issues includes implementing a more devolved government structure involving the council of governors to help implement the SPARS. Expanding the NSS to ensure all players are involved including non-state actors can also ensure that the funding issue is resolved and that the implementation of the goals can occur at a faster pace.



Parallel Session 4: De-risking Agriculture for Financial Services

In this Panel:
Keynote: Edwin Macharia – Managing Partner, Dalberg Development Advisors
Alison Root – Country Expansion & Government Relations Manager, One Acre Fund
Matt - Africa Enterprise Challenge Fund (AECF)
Bimal Kantaria – Director, Elgon Kenya and Director, Kenya Association Manufacturers
Cale Ettenberg – Product Manager, Farm Drive
Ashok Shah – Managing Director, APA Insurance

Moderator: Leonida Mutuku.

Panelists to discuss on how to leverage on open data in the agricultural value chain and how to get players in the agricultural value chain involved.

Moderator: The panelist will touch on the agriculture value chain and how open data is likely to de-risk players in the value chain.

The smallholder farmers are the largest producers in the value chain and also require financial services, loans, and insurance. Yet they remain as very high risk due to the seasonality of their incomes and that they are largely unbanked.

According to Farmdrive, de-risking smallholder farmers for credit from financial risk using data sources and input from farmers to establish an alternative credit program to ensure credit. This data would be either proprietary or open.

One Acre Fund has been able to demystify the premise that the smallholder farmer is high risk. They have achieved this by ensuring financial services are coupled with other services including: up to walking distance delivery of farm input, extension services, and market facilitation.

Dalberg advises clients and helps to identify opportunities for expansion while working with governments and bilateral agents. They also work in the social sector space and with private sector players.

APA has offered agriculture insurance for the past 6 - 7 years and looking to scale it up. They have collaborated with government and the World Bank

to bring insurance to smallholder farmers: area yield index insurance for crop farmers and Kenya livestock insurance program for pastoralists. The challenge is to ensure crop farmers and pastoralists know what insurance is all about. The advantage is that insurance will be able to bring a cover that will enable farmer to get credit from formal financial institutions – their cover assures 80% of yield. Their target is about 2 million farmers in Kenya.

Kenya Association of Manufacturers represents processors and manufacturers involved in various aspects of the agricultural value chain. Elgon Kenya is largest agro inputs supplier in the country; most of the supplies are done on credit. They have been able to achieve a default rate of one percent.

How do you achieve less than 1% default?

AECF provides service to agriculture-based businesses but not generate information on how the business perform in terms of credit. Farmers are making good repayments but there's no direct link to them creating a good credit history that they can take to formal financial institution.

Moving credit information from one institution to another is important in determining the repayment potential of the farmer. The smallholder farmer has no record of paying out past loans. Therefore the ability to collect data and use that together with proof of insurance is a powerful thing to help the farmer access financial services.

Is the data available?

Cale: Some of the data is available, however we need to have models on the ground which could be difficult to find. Important questions to ask would be why isn't the info available online? Why is it so hard to find?

Ashok: Insurance companies need to know your risk to be able to insure you. There's lack of proper availability of data to properly develop a product and price it. Yield data varies from areas of county depending on many factors and also depending on government to get data. We don't know where the actual farmers are. Therefore relying on Swiss companies to provide data on precipitation of the Northern Kenya.

In relation to insurance, the question then becomes who would be insured? The number of livestock that the pastoralist have is important in determining the price of the product. Such data is at the infantile stage and insurers cannot price the product. There's need for much more data for better pricing in the pastoralist communities especially in the Northern region.

Edwin: Data exists in silos (most times someone's laptop). There is little incentive to share data whether positive or negative. Data is power however census data is almost impossible to get in most emerging markets. Satellite data and mobile telephony data is where we should be focusing on as it is much more readily available.

How do we incentivize those who are holding the data?

Cale: Data exists if you ask for it. At the national level data is disaggregated to the point of being useless. Other stakeholders wouldn't share client data for confidentiality purposes. Insurance products are expensive to the smallholder farmer as it were. However, disaggregating the data at a ward or sub-location level, would be vital.

Greatest inhibitor of private sector players to share information with other players.

Alison: Banks don't track properly especially in agriculture, banks should understand better where the funds are going to agriculture.

Cale: Privacy issues on big data and available data. Smallholder famers are also aware of privacy issues. Therefore you end up calculating yield from satellite data. Yet there is need to be accurate in our data.

Edwin: Moving towards getting private sector companies to generate much better information the question should be more of how do you share that data? It difficult to motivate the companies to bring out the data in a useful manner. The questions that arise are how does the company benefit by sharing the data? In developed nations, there's a huge involvement by the national government in putting the information out there.

The role of state and where data sits. Governments have written laws that is protected and can only be released with a change of the law. Some of the data elements are not rationalized – creating bio-data and analytics that are important and other stuff like what data is being covered? Who is covering it?

Kantaria: private companies will share information if there is a win-win – both make money.

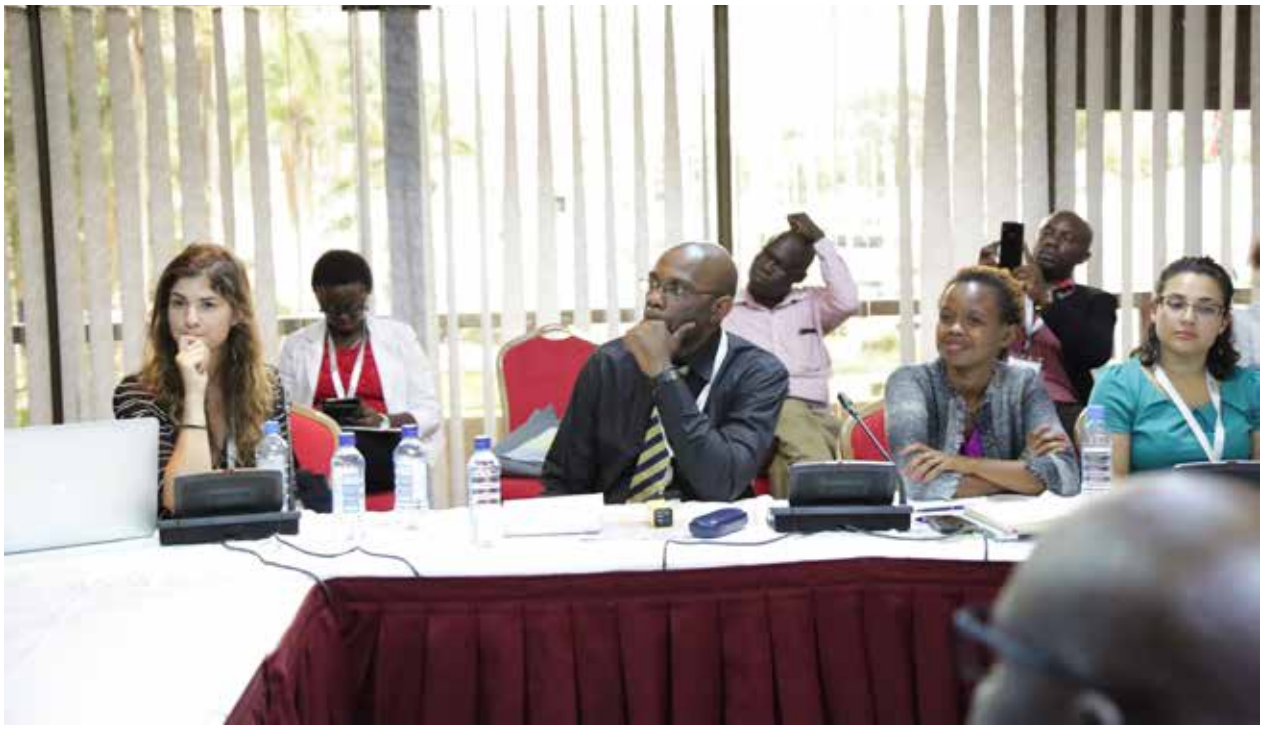
Conclusions: by the moderator

There's need to use data to form the right data. The bankers need to get information from all players in the value chain in order to develop winning partnerships to share information that is out there.

Data is used for production and index insurance. Challenges faced from imported data relate with authenticity of data – it could be against the law; type of data (rainfall and yield). We need to develop a way of narrowing data cells and compensate where due.

Open data is not free data. Data has its own power dynamics, who can ensure there is credible data? The state plays n important role in ensuring that data is credible. They also should establish frameworks to ensure privacy.

Parallel Session 5: Case Studies on Creating an ICT-for-Agriculture Paradigm Shift Using Open Data.



In this Panel:
Nico Broersen
Sara Menker
Charity Wayua

Moderator: Philllip Thigo

AgriPlace
Nico Broersen, Managing Director
AgriPlace is a global platform for farm compliance which seeks to make managing farm compliance data easy by enabling data and technology accessible.

The technology is simplified with the aim of guiding farmers into the world of certification and compliance and to preparing them for a future in which data and technology is key and offering concise and understandable information. It is a farmer-owned information platform developed for farmers, auditors, standard setting organizations such as GLOBAL G.A.P. and food companies, designed with farmers in mind to simplify the collection, management and sharing of standard compliance data, farm management and administrative data. It is an independent initiative with a mission to make the food chain transparent and sustainable. All parties benefit by linking into a centralized platform that makes compliance easy.

Want AgriPlace implemented at the local level by local organizations, cutting out middlemen, and attracting youth by using IT and providing markets at good prices for produce. Through AgriPlace a newer model of cooperatives can help groups of 30-40 to be better organized and integrate the use of IT. Young people can also become the tech-preneurs to be able to bridge the gap between farmers, cooperatives and governments.

Gro-Intelligence
Sara Menker, CEO

The problem that Gro tried to address is the lack of a common language or centralized place for aggregation of agriculture and food data.

Gro has built a new ontology that organizes and connects the world's fragmented food and agriculture information making it possible for decision makers to make informed decisions within a shorter timeframe than previously possible. Sources include government agencies, international trade organization, NGOs and other types of data providers.

Gro believes that the cost of capital for agriculture should play a central role in discussions on food security. Systematically contextualized and normalized information is the infrastructure needed to increase efficiency in agricultural markets and drive down the inherent cost of capital and transform farmer organizations.

IBM Research Africa hub Nairobi
Charity Wayua, Manager – Public Sector

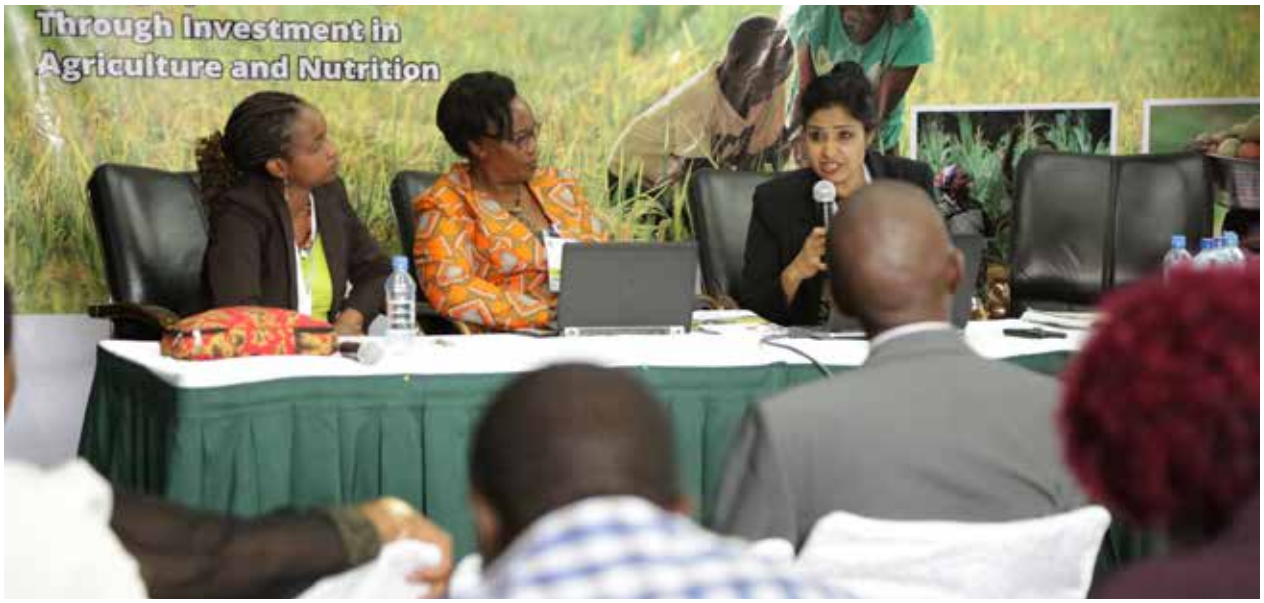
IBM Research brings expertise in developing technology for the latest data application and analytics and creating new data. They try to understand every sector with its unique data needs, with the aim of understand and providing data to drive informed decision making.

They then determine what methods to use, whether cognitive or machine learning methods, and how to present it in a manner that the user can find it useful. Collaborate with stakeholders in the respective industries for each project. The first question is availability of data.

In Agriculture the advent of much more Affordable Census e.g. Soil Moisture, weather Census e.t.c. much has created tremendous opportunities. IBM research tries to capture data without involving third party intervention or adding to the farmer's day to day tasks, for instance, instead of asking a farmer to fill in a questionnaire on their choice of inputs, collecting the information at source (when the farmer is buying inputs).

As a dividend, if farmers understood that their choices on market decisions could be tied to their access to credit, they would be willing and ready to increase their digital footprint. There should be an emphasis on teaching farmers on the utility of digital transactions by showing them the value. IBM is currently developing risk models that can be used by farmers to access credit.

Parallel Session 6: Mobilizing Stakeholders to Improve the State of Nutrition in the Global South.



In this Panel:
Keynote: Dr. Minha Rajput-Ray
Ms. Angela Kimani
Gladys Mugambi

Moderator: Muchiri Nyaggah

Dr. Minha Rajput, Cambridge University, Medical Director Nutrition Education/ Innovation Programme NNEdPro

NNEdPro operates as a not for profit global think tank, training academy and knowledge network which works in collaboration with other stakeholders to find ways to improve nutrition and health via education, research, evaluation and advocacy.

NNEdPro works to assess and identify knowledge gaps in the area of nutrition by collating and synthesizing data. Additionally, they develop and deliver education and training intervention at grassroots level programs.

At NNEdPro, they attempt to mobilize stakeholders to improve the state of nutrition data in the global south through training courses and evaluations, monthly nutrition articles, peer reviewed journal papers, and by fostering links with international organizations. For example NNEdPro have partnered with GODAN to facilitate greater development of nutrition data, particularly in the African context, to improve nutrition.

This collaboration has led to the development of a data system connecting evidence bases which bridge human nutrition with agricultural nutrition by advocating for open nutrition data to identify areas with issues regarding nutrition. This partnership has further pushed the goal of spearheading the education of healthcare professionals and has looked to engage with agricultural practitioners to manage nutritional issues.

One of the key issues linked to poor nutrition in the contemporary era is stunting in children. By improving data collection, analysis and dissemination on this topic and the wider area of nutrition, stakeholders can more adequately engage in evidence based decision making to ensure that they can effectively pursue programs which can address the issue of stunting in children. However, there several improvements which need to be made to the process of data collection to ensure evidence based decision making can occur to improve the nutrition of children.

At present, there are weak linkages with nutrition sensitive data. For example, within data in the agricultural sector, there is a limited capacity on indicators to monitor nutrition sensitive components. There is also a lack of national level estimates for key nutritional values, such as women's dietary diversity. Though there have been key inroads in improving data quality, issues still exist, such as incomplete or delayed reporting with regards to data.

To improve the situation, there needs to be an improved allocation of resources to collecting nutrition information, particularly on behalf of governments. Capacity strengthening on data analysis is also important to facilitate effective decision making. Data also needs to be of a good quality, which is assured by relevant stakeholders. These issues can be addressed through the use of new technology, through supporting and focusing efforts on vulnerable groups in society and ensuring effective regulation of data collection efforts.

Gladys Mugambi

In Kenya there has been extensive challenges relating to nutrition with stunting and wastage being top of the list. Adverse weather conditions such as drought represent a barrier to providing adequate nutrition for vulnerable groups in the society. It is clear that to tackle the issue in Kenya, it is first necessary to collect data on nutrition to ensure relevant stakeholders can help those who are at risk of malnutrition.

But there are key challenges facing data collection in Kenya and a lot of room for improvement.
For instance, there appears to be a lack of collaboration to ensure that a clear picture emerges on nutrition in Kenya. Weak linkages between nutrition, agriculture and education and other sectors that have a role in improving the nutrition of the people. It is therefore difficult to ensure that adequate data and an adequate response occurs.
There is also a lack of clarity and limited capacity in developing nutrition indicators to monitor nutrition on sensitive components. Most information on certain nutrition indicators are incomplete and there is a lack of national level estimates on nutrition, they tend to focus on children and pregnant women, forgetting about other people who may suffer from malnutrition. It is necessary to look at the full picture regarding malnutrition in order to comprehensively address nutrition challenges.

So what needs to be improved to ensure data on nutrition can be enhanced?

- Firstly, **leadership.** Concise and deliberate efforts need to be made to ensure the necessary political and logistical will to make things happen.
- Secondly, the **use of technical working groups** on nutritional information that deal with creating common plans, could help bring focus the situation and foster collaboration on data collection.
- The **use of technology for data collection** is also important, such as mobile phones and the internet.
- **Data quality** needs to be ensured and continually improved and
- the **speed** at which data is released also needs to be addressed.

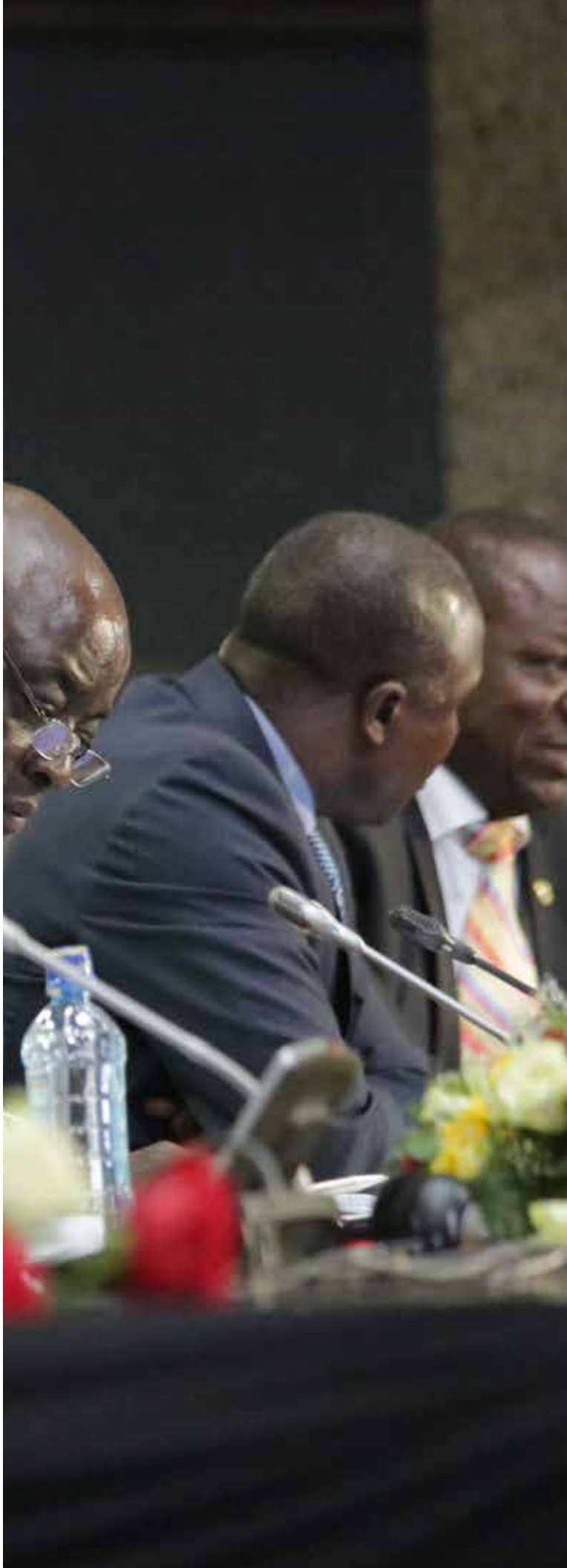
Angela Kimani, Nutrition Officer at the FAO Sub-Regional Resilience Team for Eastern Africa

To address issues surrounding nutrition it is necessary to collect more in-depth food data about the nutrient values and quality of foodstuffs that are grown in Kenya and around the continent.

The creation of food composition tables could be vital in addressing nutritional issues. Food consumption data could also be collected, which could determine the eating pattern of populations and this can enhance decision making in agriculture to produce crops which enhance nutrition. There also needs to be a coherent plan on how to utilize food indicators, such as by focusing on the entire system, from production to the market and supporting the integration of activities. The creation of a food consumption database that could be used to address nutritional issues would also be greatly beneficial.

One of the ways forward is to ensure collaboration amongst stakeholders. This could occur through the use of technology, such as collecting groups of phone contacts of interested parties to form productive groups or interests parties for sharing open data and sharing stories on issues that need to be addressed. Online portals could be developed for NGOs so that data can be collated and utilized in order to curb poverty and hunger. It is also necessary to ensure that the nutrition agenda is promoted to ensure progress can be made.

However, there do remain some barriers to progress. At present, there is some nutrition data available, but it is inadequate which means that action on issues takes long without adequate information. Food might also be available that has little to no nutritional value, and this needs to be researched and shown to relevant stakeholders (including the population in order to promote more nutritional foods in their diets) through the provision of open data. To overcome these challenges in nutrition, food loss must be controlled and data collected on nutrition should not be as per consumption but as per production, so that a comprehensive picture of wastage is available.




Continued from Page 5.

Key points:
Sustain food security for everyone.
Sustain a good income for our farmers – ensure to commercialize subsistence farming.
Produce for exports, understand the agricultural systems and value chains.
Monitoring the entire value chain so that the government easily helps in, if need be.

Andre Laperriere - CEO GODAN

In addition to fellow panelists' comments, I'll stress on: Empowering farmers in gaining better control of their own farming by making better decisions via easily accessible data.

Dr Agnes Kalibata, President AGRA.

We should make sure we don't keep data and information we have or obtain to ourselves.
Let's develop a culture of sharing what we have in terms of data access.
We need to appreciate that the biannual review process will be useful to gauge progress.
Data needs to come from our institutions.

Recommendation on Data visibility:

1. Ensure the information you are generating is visible to the world.
2. Use political frameworks to our advantage e.g. in terms of productivity explain and dialogue with the leaders and make them aware where they can support or help in other input.
3. Ensure research departments are strong and always supported by the govt for instance support from the Finance ministry.
4. Track progress and be accountable using our own score cards.
5. Provide services to farmers; extension officers from all sectors public and private.

Contributions from the audience:
What analytical tools are available? How do we ensure more countries put more funds into agriculture? Which country has demonstrated youth involvement?
Ghana: The government can prioritize investment in agriculture like in Ghana. Data will provide output which will help tackle production shortfalls.
Ghana uses TV and radio stations in regional languages.
We have invented and linked with national data services and will use every year to monitor the process.
Packaging data: One of the telecommunication companies is doing all the packaging of the data.

We should establish infrastructure that will reuse, preserve, and simplify data access.
Analysis capability and module are ongoing and there are institutions that are supposed to help countries to generate evidence to plan and attest.
Also consistency… we believe and promote a good relationship between agriculture institutions.

Parallel Session 7: Investing in Agriculture Data for Growth and Development.

In this Panel:
Keynote: Sangita Dubey, Senior Statistician & Team Leader, Economic Statistics, Food and Agriculture Organization (FAO)
Ademola Braimoh, PhD., Coordinator, Climate Smart Agriculture Africa Region, World Bank Group.

Moderator: Valentine Miheso

Ademola Braimoh, PhD., Coordinator, Climate Smart Agriculture Africa Region, World Bank Group.
The World Bank works to do 3 things in agriculture: increase productivity; enhance resilience to climate change; reduce remittance of agricultural activity. But without good statistics and data there cannot be good development on reaching these goals.

Agricultural development is one of the most powerful tools to end extreme poverty, boost shared prosperity, and feed a projected 9.7 billion people by 2050.

Growth in the agriculture sector is 2 to 4 times more effective in raising incomes among the poorest compared to other sectors. Data and statistics play a fundamental role in fostering such agricultural development. Agricultural data is critical in informing policy, decision making and investment in the sector to ensure sustainable growth which boosts incomes. Better data and statistics will assist governments in taking transformative actions to respond to complex agricultural development agenda. It will also help to track progress and ensure government engages in evidence based decision making.

There are some key challenges to using statistics to enhance agricultural development. For example, there are issues with the data itself, as much of it is not up to date due to lack of regular surveys. The lack of data collection is also partly due to the high costs of methods of data collection, including conducting surveys, so stakeholders either need to find a more cost effective means to collect more data or commit more funds to the process. There is also a lack of standardization in data. There is a lack of a standardized methodology or system of for collection, analysis, dissemination and storage of agricultural data. There are also issues in terms of

policy, with statistics not being an area of focus for many economies.

For example, only 10% of IDA countries include agriculture in their National Strategy for Development of Statistics.

Additionally, there are often issues with the personnel engaged in data collection. Often there are low skills amongst personnel, coupled with a low application of technological data collection techniques such as through the use of ICT and satellite/geospatial data collection techniques. The catalyst for successful data collection, financing is also restricted in its availability through shrinking budgets which constitute a major constraint in meeting statistical demands.

There is also the issue that Global commitments to Statistics in agriculture is negligible compared to other sectors such as Education or Health. The World Bank is attempting to change this through its commitment which insists on evidence based climate smart agriculture. Projects in Kenya, Niger, Tanzania, and Zambia encouraged by the World Bank have substantial components dedicated to disseminating data tailored to specific farmers in the area. They provide not only climate information but also market information which is important in ensuring evidence based decision making to encourage agricultural growth and development.

However, extensive improvements are required to maximize the utility and effectiveness of agricultural data collection, analysis and dissemination. There needs to be a greater degree of leadership in data programmes, awareness of the need for better and more data needs to be backed up with clear commitments to improving statistics for sustainable agriculture.

The issue of inadequate financing also needs to be addressed. There needs to be increased national investment in statistical capacity at national and sub-national levels, especially where the information is at its weakest. Financial support should be boosted for statistical capacity with a blend of public, private, philanthropy, and development finance to improve statistical capacity. Finally, improved coordination between all necessary stakeholders is required to ensure maximization of the outcomes of data collection efforts.

Sangita Dubey, Senior Statistician & Team Leader, Economic Statistics, Food and Agriculture Organization (FAO)

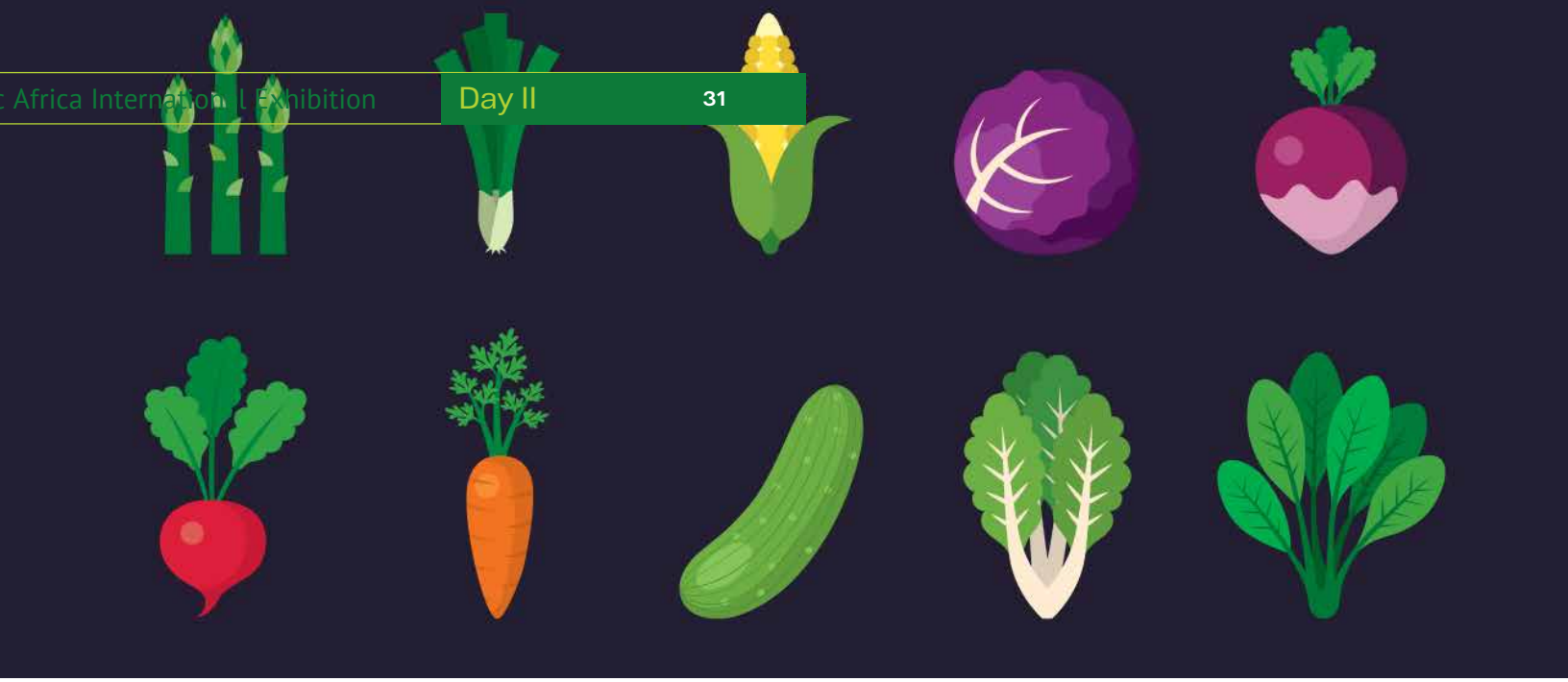
The framework around agricultural data has many challenges and opportunities.

For agricultural data to ensure growth in the sector, data needs to be relevant and timely, as most data available at present is historical, whilst policy is futuristic or current, so it requires up to date, contemporary statistics to inform it effectively.

There are challenges regarding data quality and inter-operability. There needs to be a standardized methodology for data collection, analysis and dissemination.

At FAO, there are clear methodologies and guidelines in collaboration with governments and other agencies, and many of these guidelines help reduce data collection costs, such as their guidelines on conducting national censuses. They also encourage individual capacity development support in price statistics and compilation of food statistics, utilizing e-learning facilities for capacity development. There also needs to be greater availability and accessibility of data, as well as awareness and use of data. The FAO provides a stat portal where data specific data can easily be located. But more needs to be done on data dissemination.

The FAO is currently working on maximizing the availability of open data by imitating pilot schemes to help countries create open data sources in agriculture in collaboration with GODAN. They are also working towards the creation of various training packages and anonymization of data.



One substantial issue with agricultural data is there is a lack of coordination and collaboration within the agricultural data sector. This has unfortunate implications for the process, as it leads to too much duplication within data collection. There is also no willingness of nations to collaborate and disseminate information with other relevant stakeholder organisations.

Data is also taken and compiled by different agencies and department in organizations and government creating silos and data gaps. There is also a distinct lack of capacity and resources in the data sector. This would be countered by opening up the already available data. The importance of having strong individuals across silos who are committed to open data is vital. Lessons can be learnt from these challenges.

There needs to be more discussions on formulating quality data frameworks, such as data quality assessment platforms to improve the quality of data.
Relevance and timeliness of data is also an important aspect which needs to be considered moving forward.
Coordination and collaboration has not occurred in the past, which can help limit costs and the burden of individual stakeholders. Collaborative partnerships in open data need to be encouraged.

There are many challenges that lie ahead in terms of data gaps in agriculture, but one of the first things stakeholders can do is exploit the data that they already have.

Many countries are sitting on a host of survey data, and these silos need to open to ensure the provision of open data to inform decision making in agriculture to foster growth and development.

While the World Bank and the FAO have had some successes in improving data collection, analysis and dissemination in the agricultural sector, more needs to be done in improving statistics in the global South. Take Kenya and Uganda for example. Improving statistics for Kenya and Uganda begins with needs assessment. We need to move away from extrapolation to evidence based models by training in modern techniques for colleagues in Kenya and Uganda.

These countries should also focus on disseminating personally relevant information to individual farmers to help them make decisions. Business as usual is no longer possible, you need data in real time. Farmers need you to tell them what to anticipate and what to do. FAO has a series of portals that offer open data. The solution is to come up with a site that is more visual. The solution is not a single platform and can come in many formats. Also it is important not to forget your clients, and to form partnerships with the farmers and the households in the process.

Parallel Session 8: Capacity Building for Evidence Based Decision Making in the Global South.

In this Panel
Keynote: Kiringai Kamau, Executive Director, CANIS,
Dr. Robinson Mugo, Program Manager SERVIR, Regional Centre for Mapping of Resources for Development (RCMRD),
Martin Macharia CABI UK,
Prof. Janssen Sander, University of Wageningen, Netherlands
Dhairya Pujara, founder Y-Center USA,
Chris Addison, Senior Program Coordinator, CTA Netherlands,
Dr. Mulat Demeke, Senior Policy Adviser, FAO

Kiringai Kamau, CANIS Executive Director
The Center for Agricultural Networking and Information Sharing (CANIS) is an agricultural network of agricultural value chain actors that address the challenge of Food and Nutrition by ensuring the right knowledge among the sectoral actors is delivered to those that deserve it. While hosted as an institute of the University of Nairobi, it offers training programs certified by the university. It strives to address sector-wide challenges that if addressed, would unlock the performance of the agricultural sector particularly within the evidence based thinking of sustainable development. It aligns its thinking to the CAADP framework as clarified by the Malabo Declaration and in line with Africa's Agenda 2063.

CANIS has identified that there are huge capacity gaps within the agriculture value chain and there is a need to ensure farmers are involved in capacity building efforts in open data to ensure capacity building is maximized at all levels in the supply chain and suggests farmers owning data infrastructure and facilitating data hubs. Across the supply chain, from farmers to consumers, stakeholders need appropriate data to maximize efficiency and inform their decisions. But the only way to build capacity in terms of open data is through collaboration of the different stakeholders. There is a need to bring together all stakeholders with a wide range of skills to create an African framework of collaboration to build capacity in collecting, analyzing and disseminating data to inform sustainable decision making in agriculture. CANIS seeks that this GODAN conference issues a collaborative statement on what needs to be done in future in terms of cooperation to increase capacity building in terms of open data.

Robinson Mugo, Program Manager SERVIR, Regional Centre for Mapping of Resources for Development (RCMRD)
NASA and the U.S. Agency for International Development (USAID), have strengthened capacity by working together with regional bodies to provides state-of-the-art, satellite-based Earth monitoring, imaging and mapping data, geospatial information, predictive models and science applications to help improve environmental decision-making among developing nations in eastern and southern Africa, the Hindu-Kush region of the Himalayas and the lower Mekong River Basin in Southeast Asia.

The Eastern and Southern Africa hub seeks to address capacity gaps and inform decision making in agriculture in an African context and is focused on better hydrologic estimation in the region, delivering data to aid flood forecasting, flood relief and post-event flood mapping. It works to manage precious natural resources and to promote sustainable development through dissemination of satellite information and services among participating nations across the region and throughout the continent as a whole. The end result -- reducing risks associated with famine and disease epidemics springing up in the wake of drought and flood cycles to devastate the population. For example, the use of frost monitoring and mapping is important to build the capacity

to predict which areas will suffer from frost to enhance decision making in agriculture. Tea crops for example, are wiped out by frost. By creating daily or weekly weather timescales which can predict which areas are susceptible to frost, it can ensure farmers don't plant crops which are vulnerable to frost in these areas. Without this monitoring system, frost sensitive crops would fail, causing declining food security and incomes.

Dhairya Pujara, founder Y-Center USA
It is a programme focused on creating enterprises through building entrepreneurship and life skills for the youth. 5 ventures have so far been created, but within a few months these ventures had died off due to a lack of business development capacity and capital. To enhance the capacity of future efforts and the provision of support, open data needs to be harnessed to inform their decision making. Y Centre is currently building a digital platform that seeks to build the capacity of young entrepreneurs to ensure they could enhance their decision making and implement sustainable businesses and solutions in agriculture.

Dr. Mulat Demeke, Senior Policy Adviser, FAO
Data is needed to implement a transformational agricultural development strategy which fundamentally ensures food security and sustainability for future generations in Africa. Basic production data in terms of yield, total production, land use patterns to monitor the performance of the sector and develop policy recommendations. The best way to do this is through annual agricultural sample surveys, which are not yet undertaken in Kenya on a large scale. Data in Kenya is often unreliable and untraceable, and such surveys need to be handled professionally in a systematic and managed methodology at both national and county level. But to be able to do this data collection, there is a need to address the capacity gap in terms of human and financial resources.

Chris Addison, Senior Program Coordinator, CTA Netherlands
Youth driven data initiatives need to be created and promoted to enhance capacity building and decision making in Africa. The utility of tech data hubs was highlighted and initiatives such as Farm Drive, where groups come together to harness data to manage financial risk and engage banks in the agricultural sector in ways that were not possible before. To ensure initiatives are successful, organizations have to cooperate on listening to the needs of farmers and creating better data systems for collection, interpretation and dissemination of data. Value chain efficiency maximization through technology provision is also important for capacity building.

For example, not only do the amount of extension centers need to be increased, but to make them more efficient through provision of technology, such as tablets. Above all, data needs to be simplified and disseminated to all which can only be achieved by cooperation between national, regional and global organizations. Tech data hubs- important because there is such an enthusiasm in the youth to take things forward.

Martin Macharia CABI UK
Centre for Agriculture and Biosciences International (CABI) is an international not-for-profit organization that provides information and applies scientific expertise to solve problems in agriculture and the environment. CABI does work regarding three components, influencing knowledge, practice and changing attitudes. To do that need to generate data, transfer it into knowledge, communicate it and ensure the small holder beneficiary's attitude changes to ensure that they improve their decision making. They have largely done this through human centered IT solutions. CABI has implemented better ways to organize and provide data and information to farmers. They have created several web portals of open data, such as the Plant wise Knowledge bank which provides information about plant pests and diseases which affects plants within

a local context which can inform what crops farmers will grow and how they will be managed. They also have developed a database on fertilizer response trials in 13 countries across SSA to inform fertilizer input usage in agriculture. They have also been involved in the creation of data collection apps and facilitating communications between stakeholders.

They have also helped farmers in making use of the data by creating practical decisions support tools which can assist in the decision making process. For example, the use of Excel based tools to assist in shaping decision making on fertilizer in terms of the correct fertilisers and the optimal levels to be used even when taking into account budgets has been developed.

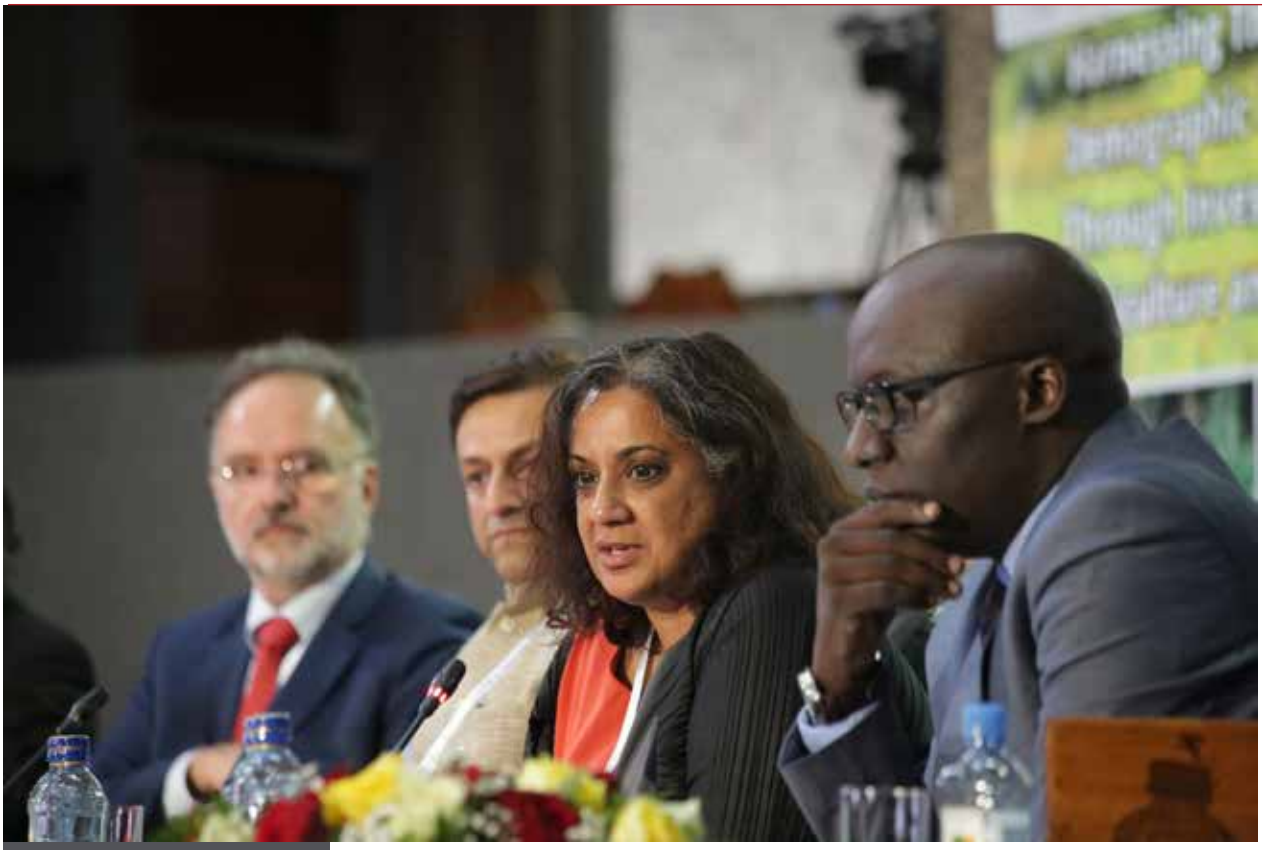
High Panel Closing Ceremony - Remarks

Annie Nyaga
"Thank you all for the support and the inclusion of young people in the GODAN Conference. I have not seen this level of involvement in my nine years of being a youth farmer. I would like to pledge that 4-H Kenya shall work with all partners to ensure the empowerment of today's youth and the young generation to follow"

Sanyal Desai
"We have registered 8,000 visitors in 2 days at the Agritec exhibition and would be happy to return next year. This year's exhibition brought a large Indian company contingent. From Radeecal Communications, we thank you all for being a part of this conference and look forward to continued partnership with in the GODAN network".

Sangita Dubey
"This has been one of the most successful conferences I've seen, we have a commitment from half a dozen countries to improving agriculture and nutrition data and making it open. By working together we will be able to do wonderful things and make the data revolution a reality. I will be sharing the report from this conference with the Director General, and FAO is excited to see the changes that can be made possible through collaboration".

Andrei Lapierre
"I'm impressed, on behalf of GODAN about the level of commitment to open data and to food security. I am most impressed by the first ever ministerial network created in open data for agriculture and nutrition. This is the first time in the world this has happened! I thank the organizers for making this such a great event".



Phillip Thigo
Mr. Thigo read the statement from ministers for agriculture at GODAN with 1 5 point plan: *See Page 4*
The Ministerial Conference resolves to take urgent actions to achieve sustainable agriculture, reduce food insecurity and nutritional challenges

Vote of Thanks by Henry Ndege Deputy Director of Agriculture in MOALF

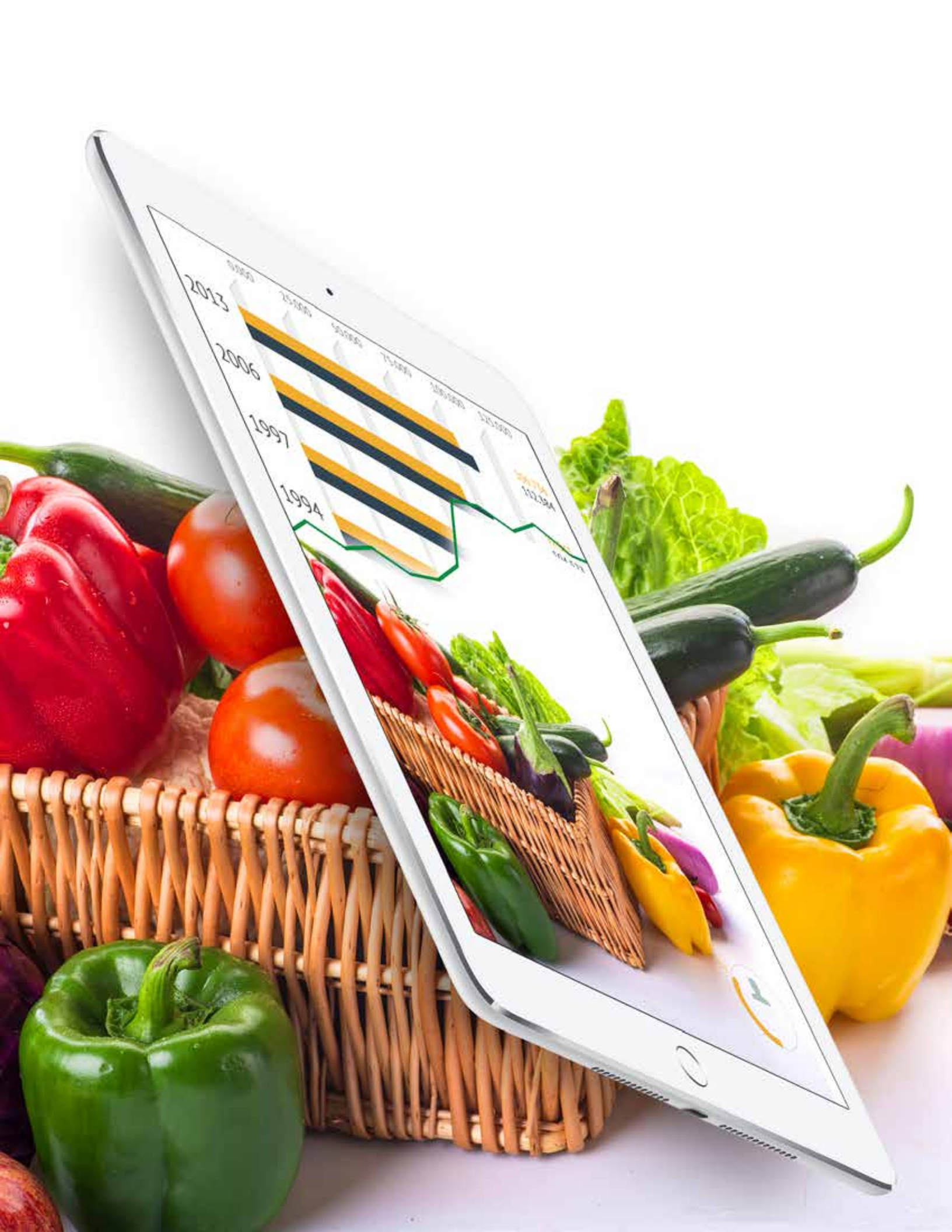
"I am giving my sincere vote of thanks on behalf of the Kenya government. The discussions have been vibrant and we appreciate the contribution, which we believe it will make history on a global level.

I would like to express special appreciation to our partners who have made this possible.

I acknowledge financial and technical support from AGRA, FAO, CTA, Kenya Association Of Manufacturers, AGRITEC, Radeecal Communications, APA, CIC GROUP, Heritage, Jubilee Insurance, Kenya Orange, Elgon Kenya, UAP just to mention but a few. I also thank the GODAN secretariat for partnering with the Kenyan government. We have set up a committee charged with organizing this conference, I want to believe that they have done a good job.

I would, at this juncture, like to introduce you to one member of our team, Mr. Hamisi Williams who has helped coordinate this conference and has been working tirelessly behind the scenes through the coordinating committee.

Mr. Hamisi Williams thanked the delegates and declared the conference officially closed.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