



Data: the next revolution for agriculture in ACP countries?

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On 18th February 2015, the CTA organised the 40th Brussels Development Briefing – part of a series of bi-monthly development briefings on ACP-EU rural and agricultural issues. Around 150 participants gathered in Brussels to discuss how to harness the opportunities offered by the new digital landscape for agriculture in ACP countries and the need to meet acute data gaps throughout the value chain in order to collect reliable data and statistics.

Data: the next revolution for agriculture in ACP countries? This Briefing focused on several key issues: more knowledge is needed about data quality (technology, use & content) and required skills; there is a need to invest in pilots and upscaling, as well as capacity building in high-qualified skills to handle big data; data analytics have to be simplified for end users and new ways of promoting actionable data to support decision-making need to be developed; legal frameworks to guarantee data privacy and security have to be secured by governments which should also provide incentives for PPPs and new business models, which will also generate data for investment; precision agriculture offers promising ways of resource savings and efficiency for agriculture and is already used in some countries in Africa.

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- CTA
- European Commission (DG DEVCO & DG MARE)
- ACP Secretariat (& group of ambassadors)
- CONCORD

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Alhaji Muhammad Mumuni



Bernard Rey



Michael Hailu

In his introductory remarks, **Honorable Alhaji Muhammad Mumuni, ACP Secretary-General** began by emphasising the importance of agriculture in most ACP countries, especially given that up to 80% of the population live in rural areas and depend mostly on small-scale farming. Agriculture is of vital significance in ACP countries, especially in relation to key issues such as food price stability and market access, food and nutrition security, poverty alleviation, employment and economic growth. In this context, accurate data is essential for agricultural development and food security in ACP countries. Nonetheless, the lack of appropriate measurement and analysis techniques hinders the potential of precision farming. Establishing a dependable and timely database is particularly important for policy formulation, planning, programming and identification in order to develop the agricultural sector. The limitation in data quality and accessibility represents a major obstacle in adopting precision technologies in agriculture, even more so for ACP countries.

Bernard Rey, Deputy Head of Unit DEVCO, European Commission underlined the importance of data revolution for ACP-EU cooperation

efforts. The European Commission shall make 'agricultural, food and nutrition security' one of the main focuses of future development cooperation. In this context, data plays a number of important roles. Firstly, it is a critical element for policy decision-making, since it guides policy analysis and allows for the identification of the type of support needed, directions, priorities and much more. Secondly, data is the evidence of results, and results are more and more requested by an increasingly demanding public opinion. Finally, Mr. Rey argued that the data revolution represents an opportunity for finding new tools, learning from these practices and making a portfolio of development assistance based on statistics and data analysis which will evolve in the coming years.

Michael Hailu, Director of CTA made some final introductory comments on data revolution, characterising it as an emergent topic which could potentially change agriculture in a colossal way both in developing and developed countries. He argued that making agriculture sustainable and taking a broader value chain approach to maximize productivity and profitability are very closely related nowadays. Data has become a key



Dr. Diodorus Buberwa Kamala



Chris Addison



Morten Jerven



Maximo Torero

asset for farmers to improve their productivity, while reducing their costs and footprint on the environment. The whole use of data may have a profound impact on productivity and reducing costs. Furthermore, he made reference to a number of initiatives already taking place in ACP countries. For instance, the Ethiopian Soil Information System provides high resolution soil information for effective decision-making at the farm, national and regional level. This represents a significant step in terms of savings and productivity. Nonetheless, new opportunities bring new challenges: raising awareness on revolution that is happening, the need for new skills, managing and analysing data are only a few of them. Consequently, capacity-building is necessary across the ACP countries, however this represents a good momentum to improve evidence for decision-making. Therefore, it is important to seize the new opportunities provided by the data revolution and contribute towards increased benefits for farmers in the ACP regions.

Panel 1: The Data revolution: from data collection to real-time digital data

H.E. Dr. Diodorus Buberwa Kamala, Ambassador of Tanzania chaired the first panel. The central theme of the data revolution is addressing the challenges and opportunities of the data revolution to transform the agricultural sector in ACP countries,

as well as the lessons learned from various information systems.

Chris Addison, Senior Coordinator of Knowledge Management, CTA highlighted the size and scale of the data revolution, which is in continual evolution and expansion. Data can be collected at international level through remote sensing, the internet of things provides local sensors and National content collection can be revolutionized by mobile devices e.g. the last Cape Verde census was carried out using tablet computers. We may have massive quantities of data yet structuring the data is difficult. Quality of data, actionable data, legal frameworks and incentives are just a few of important issues that need to be addressed, alongside the issues of communicating data, and of accessing it in a manageable form. Today, a myriad of data sets link data with specific relevance for agriculture e.g. FAO agrovoc, the multilingual agricultural thesaurus. Additionally, research shows that there is a big potential for open data to considerably impact small holder agriculture farmers. In other words, if more private sector data can be opened at an aggregated level, this will provide enhanced opportunities to act on the ground. At the small holder farmer level, a number of open data applications can build efficiency by increasing knowledge on what is happening on farms all over the world.

Morten Jerven, Associate Professor at Simon Fraser University spoke essentially about the African region. The core element of his presentation

was “*The Symptom of a Knowledge Problem*”, which refers to the fact that African development statistics are misleading. In Jerven’s words the current knowledge based on statistics is doubly biased: “we know less about poor economies, and we know less about the poor people who live in poor economies.” The underlying causes of this knowledge problem are the lack of regular surveys or censuses of agriculture; the lack of high standards in data collection; existing statistics suffer from poor quality, lack of relevance etc. Nonetheless, a number of promises of big data and technology were identified, such as reducing costs in recording, reporting and data processing, which come with several challenges: the need of prior data, measurement errors, the lack of ground truth data or a satisfactory mechanistic understanding in these environments.

Maximo Torero, Division Director of the Markets, Trade and Institutions Division, International Food Policy Research Institute (IFPRI) spoke about how data revolution can improve food security. With regards to ACP countries, one of the major challenges is the lack of appropriate soil maps, which is a precondition for precision farming. The lack of data historically, and the lack of capability to analyse the data effectively represent two fundamental hindrances for ACP countries. Additionally, a major challenge relates to the use of outdated variables, which makes it increasingly difficult to present policy-makers with up-to-date information. In response to these challenges, the

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Pietro Gennari



Eric Tollens



Adam Abdoulaye



Theo de Jager



Herman uit de Bosch

Global Hunger Index aims to measure hunger over time and produces a map to assist policy makers to take decisions. Three crucial elements of data for agriculture in ACP countries remain: i) connectivity - there is an important gap, especially in the poorer areas, ii) content - information matters, but the quality matters equally, and iii) capability - information needs to be transferred to people in a way they can understand it.

Pietro Gennari, Chief Statistician and Director FAO Statistics Division

discussed the lessons learned and opportunities of harnessing the data revolution. In his view, big data and new technologies might help, but they need to be combined with traditional sources of information, such as surveys, in order to produce optimum results. New technologies in ACP countries pose several challenges, such as old, inefficient and unsustainable methodology for the collection of agricultural statistics in many countries; limited access to data; maintaining the confidentiality of people using the tools. A major risk in this regard, refers to the point that big data usually bypasses national statistical institutions, and thus prevents capacity building at country level. The Agricultural and Rural Integrated Survey Project's (AGRIS) main objective is to fill the data gap and provide a cost effective and flexible way to collect a minimum set of data on a regular basis. This can be disaggregated by type of farms, by geographical areas and population groups.

Questions and comments focused on the promises of big data and new technologies in the agricultural sector, particularly at the small holder farmer level, as well as many challenges that ACP countries are yet to overcome.

Panel 2: New opportunities for agriculture in the data revolution

Eric Tollens, Professor Emeritus of the Katholieke Universiteit Leuven

chaired the second panel. The discussion focused on the examples and drivers of successes related to data for agricultural development and how those could be expanded, up-scaled and replicated.

Adam Abdoulaye, Expert in the Statistical Capacity Building Division, African Development Bank

presented The African Information Highway. It is a capacity building programme linking all African countries through the Open Data Initiative and targeting National Statistical Offices. The objectives of the initiative includes facilitating easy public access of official statistics to policymakers, analysts, business leaders, researchers, students and the general public; improving evidence-based decision making, public accountability, policy formulation and overall good governance; improving data harmonization and standardization etc. Nonetheless, the programme has come across several challenges: a weak internet infrastructure in many

African countries and/or statistics offices, low IT staffing levels; and data management challenges.

Theo de Jager, President, Panafrican Famers Organisation and President, Southern African Confederation of Agricultural Unions (SACAU)

argued that ICT is essential to revolutionise agriculture on the African continent and to eradicate poverty. Furthermore, he raised an important question: "Who should own the big data? Governments? Business? Farmers organizations?" In his opinion, the future lies in private public partnerships (PPP). He concluded by acknowledging the importance of new technologies in ACP countries: "If we can replace the hand hoe as the most common tool in the hands of an African farmer with the smartphone in the hands of an African farmer, then we are half way towards our dream".

Herman uit de Bosch, Executive Director, FairMatch Support, The Netherlands

presented the FairMatch, which is a secure and sustainable management information system that aims to increase cooperation and production. It facilitates the management of information in the supply chain from all actors to all actors, and each actor controls its own data use. Nevertheless, for this system to function, buying companies have to restructure and rearrange their relationship with the farmers by sharing their data as well. In sum, this system can contribute to lower costs and create competition to enhance the farming profession.

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Ulrich Adam



Stéphane Boyera



Magdalena Anna Kropiwnicka

Ulrich Adam, EU Secretary General at CEMA, European Agricultural Machinery addressed the issue of precision agriculture. In the US and Europe, there is a pressing need for higher productivity and an increasingly societal and political demand to grow sustainability, and to improve economic viability for the farmer. Precision farming - the adoption of new technologies, combined with high-tech engineering, and building smart agricultural machines - may represent a central solution to these challenges. Precision farming is comprehensive, very tailored, and it is constantly evolving. However, transferring it to ACP countries appears to be a demanding task, since precision farming requires expertise to develop, access and use these new technologies. In order to make precision farming successful for African agriculture, a two-tiered strategy is needed, focusing on: sustainable, inclusive mechanization and the development and extension of precision agriculture technologies adapted for Africa e.g. remote sensing and other monitoring tools,

information and communication technologies, recommendations on application of machinery and key inputs.

Stéphane Boyera, Founder and CEO of SBC4 focused on how governments can use open data for the benefit of ACP countries. The concept of Open Government Data, introduced in 2009 by the UK and the US governments, consists of releasing public data in a machine readable format. The purpose of this initiative is to bring an increased value of public data for all actors, including private sector & businesses, civil society organizations, NGOs and academics. In order to start such an initiative, there are three main aspects which need to be considered: the political level; a legal framework; and data protection. However, for ACP countries, challenges such as a legal framework, data collection, and accessing ICT in general are not easy to overcome.

Magdalena Anna Kropiwnicka, Food and Climate Consulting, Landportal. Info introduced the landportal project,

which aims to make information on land more accessible. The landportal operates with a few principles: it is technically and legally open. It is based on the idea of open knowledge, transparency and open development. The land portal uses information about different facets of land, but also about food security and land administration. Finally, land portal offers the possibility to communicate with other land practitioners.

Questions and comments focused on new opportunities for agriculture in the data revolution, providing successful examples and initiatives linked to data for agricultural development, their objectives and advantages, but also the impending flaws.

Michael Hailu, Director of CTA concluded with the key messages raised in the Briefing and highlighted that facilitating capacity building in data management issues is one of CTA's future priority areas.

Further information available online:

- Brussels Briefings: www.brusselsbriefings.net
- *Data: the next revolution for agriculture in ACP countries:* https://brusselsbriefings.files.wordpress.com/2015/01/reader-bb40-data-revolution-eng_v2-low-res-proof2-2.pdf
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