

Role of Data in Improved and Sustainable Food and Agricultural Productivity in Africa

Dr. S. Facknath

Faculty of Agriculture,
University of Mauritius,

Reduit, Mauritius

sunif@uom.ac.mu

Introduction

- For several past decades, enough food has been produced globally to feed everyone in the world.
- Nonetheless, the number of undernourished people rose from 923 million in 2007 to > 1 billion in 2009, according to the FAO.
- The highest proportion of undernourished people is in sub-Saharan Africa, where one in three people go chronically hungry. (UNCTAD, Technology & Innovation Report, 2010).

Economic Growth and Agriculture in Africa

- Economic growth in Africa continues to be one of the most urgent areas of concern in international development.
- Agriculture has been recognized as the mainstay and key driver of economic growth, food and nutritional security, and poverty alleviation in Africa.
- However, it is among the least performing of the sectors listed in the indicators of human development on the continent.

Food Security in Africa

- Food and nutrition security remain Africa's most fundamental challenges for human well-being and economic growth.
- MDG 1 : Halve, between 1990 and 2015, the proportion of people who suffer from hunger.
- In SSA, the proportion of undernourished people dropped from 32 % during 1990-1992 to 28% during 2004-2006, but increased to 29% in 2008, due to escalating food prices (UN MDG Report, 2009).
- Proportion of children under five who are underweight dropped from 31% in 1990 to 28% in 2007.

Food Security in Africa contd

- Several countries in Africa are presently facing a food crisis.
- Agricultural productivity and per capita food availability are declining steadily.
- In 1/3rd of African countries, mean daily calorie availability per capita is below the recommended intake level of 2100 calories/ day (in Burundi, the DRC, Eritrea and Somalia, it is below the minimum intake level of 1800 calories/ day).
- About 200 million people are undernourished (wrt macronutrients and micronutrients) and unable to meet their dietary energy requirements.

Low productivity

- An important factor for low agricultural productivity is the low level of scientific effort in most parts of Africa compared to that in other continents, and the consequent paucity of sufficient scientific information and data.
- African society has not been thoroughly exposed to the contributions of science. The culture of turning towards science for solutions to their problems has not been developed in African farmers and African communities.

Agricultural research

- Compared to temperate crops, research activities on tropical crops are negligible.
- Until very recently, agricultural approach in Africa has been a ToT one from temperate countries.
- This has had severe limitations for tropical agriculture, in terms of the variety/strains of crops/animals farmed, as well as yield and quality of harvest.
- Solutions to problems are often context-specific and the recipes shouldn't come from the outside.

ICSU Vision

- ICSU is convinced that science provides the critical underpinning for innovation and technological development in Africa, and gives a vital base for rational and prudent public policy formulation and decision-making, and that
- accelerated development of scientific knowledge and skills are key factors in the reduction of poverty and improvement of the quality of people's lives in Africa.

Food Security Projects

- Following the HHWB Science Plan, ICSU ROA is facilitating the preparation of project proposals on key issues affecting health and human well being.
- One such project is on **Food and Nutrition Security**, which has as main objective the improvement of food supply systems on the African continent to ensure availability, accessibility and utilization of safe and nutritionally balanced food in sufficient quantities to all people at all times.

The project involves developing proposals for the following subprojects:

- Sustainable improvement of food production
- Sustainable increase in livestock production (including fisheries and nonconventional mini-livestock)
- Improving post harvest technologies
- Adaptation of agricultural production systems to climate change
- Improving food safety and quality nutrition
- Improving accessibility to food.

Specific Recommendations for Projects

Sustainable improvement of food production

- Generate/Gather data to :
 - enable revalorisation of ITK on sustainable methods of food production by studying their scientific bases, and developing and replicating productive traditional technologies.
 - modernise and professionalise agricultural production through R & D into new technologies/systems (biotechnology, tissue culture, organic agriculture, precision agriculture, mechanisation, etc.)

Sustainable improvement of livestock production

- Generate/Gather data to :
 - Reduce incidence of important livestock diseases and pests
 - Promote the conservation of biodiversity through introduction of non-conventional livestock spp.
 - Promote use of local animal feeds
 - Reduce environmental degradation through over-grazing.

Improvement in Post Harvest Technologies

- Generate/Gather data to :
 - Revalorize ITK for PH and storage methods
 - Develop modern tools/ technologies for conservation, preservation and processing of food after harvest
 - Develop environmentally sustainable and healthy food packaging technologies
 - Develop appropriate food storage facilities

Adaptation of agricultural production systems to climate change

- Generate/Gather data to :
 - Monitor impact of increasing temperatures and erratic rainfall on crops and livestock, and develop appropriate adaptation strategies
 - Help predict dynamics of agricultural pest and disease outbreaks in response to climate change, and adjust control protocols accordingly

Adaptation of agricultural production systems to climate change

- Generate/Gather data to :
 - Reliably predict climate change trends and inform policy- and decision-makers
 - Develop decision support tools to guide policies on efficient water management in agriculture
 - Develop drought-tolerant, short-cycle and high-yielding crop varieties and animal breeds

- Achieving the above objectives requires concerted scientific and technical efforts, building on the available global fund of scientific and technical knowledge and data.
- Science, Technology & Innovation (STI) can and must play a decisive role in increasing food production and enhancing food and nutrition security on the continent, through the implementation of a series of participatory innovative S & T pilot programs focusing on priority continental farming systems.

In all these systems, the starting bloc remains focused on generating and gathering high level quality data and information through prioritised R & D, tailor-made to the unique conditions prevailing in the different regions of the continent.

Informed farmers are vital to food security.

Key constraints

- Lack of quality data on agriculture and related topics remains a major constraint to agricultural development in many African countries.
- There is a lack of adequate policies to mobilize the powers of S & T.
- S & T do not have a high enough profile in the policy formulation processes in Africa.

Key constraints

- National agricultural data/statistical systems in many African countries are essentially uncoordinated systems, not integrated into overall national statistical systems, and often limited by insufficient resource availability.
- None/inadequate census and trend studies of the agricultural sector makes it difficult to measure the temporal efficacy of policies, programmes and actions, and often does not give a true picture of the structure and organization of this sector.

Key constraints

- Agricultural data from administrative sources are not always complete and are difficult to link with other vital data such as socio-economic data, household data, etc.

Recommendations

- Scientific research-oriented farming, wider dissemination of scientific data and information, all backed by an appropriate research policy, are vital to enhance agricultural productivity.
- Indigenous knowledge has an important role to play in SD and must be given as much weight as knowledge generated by scientific experimentation

Recommendations contd.

- ITK must be revalorised and given its due importance in African agriculture.
- Agricultural sector in Africa must be transformed to reconcile the proven aspects of ITK with practical information resulting from high tech experimental scientific research (e.g. biotechnology, tissue culture, organic farming, precision agriculture, etc.).

Recommendations contd.

- African countries must put in more effort to improve the collection, management and use of agricultural data and information for enhancing productivity and for national development, and particularly so in the face of new situations, such as changing climate.

Recommendations contd.

- Data must be transformed into knowledge that can be easily applied by the farmer to increase yields
- and also for improving the peoples' quality of life.

Recommendations contd.

- Accurate data collection and benchmarking must be established for monitoring and evaluating progress, for ensuring political accountability, and building public awareness
- National capacities must be built/strengthened for measuring, analyzing, and reporting on country progress.

Recommendations contd

- National governments, multilateral organizations, and civil society should work together to develop/strengthen relevant and robust M & E and accountability systems.
- Local and regional independent bodies can be funded to undertake data collection and monitoring, as part of national strategies to achieve set goals.

Conclusion

- Agriculture must be based on sound evidence.
- For this to happen, data and information must be available in a comprehensive, reliable, consistent and timely manner, and in a format that is relevant to the enduser.
- Such management of data and information is critical for improving agricultural productivity and food security, enhancing policy and programme design and implementation, measuring progress, and reporting on development outcomes.

***I thank CoData, ICSU and ICSU ROA
for inviting me to this forum and
funding my participation, and the
LOC for their help***

Thank you for your attention