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Sub-theme 7: Capacity Building: Keynote paper.

Building Africa's human and institutional capacity for the agricultural industry to meet its potential to contribute to the achievement of the MDGs.

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Structure of this paper

- Introduction: Purpose
- Context
- Concept of capacity & capacity building/strengthening
- Initiating capacity building/capacity strengthening programmes: the NARIS Typology
- Opportunities for capacity building/strengthening
- To Conclude

Purpose

to

Stimulate discussion on:

Africa's capacity to build and strengthen capacity in agricultural research for development to effectively

harness the best of science and technology to promote sustainable increases in agricultural production and productivity to contribute to achieving the MDGs.

Purpose



highlight some key aspects of Africa's capacity to *build*, and where appropriate, *strengthen* existing human and institutional capacities for the agricultural industry to contribute to achieving the millennium development goals, MDGs.

Context

1. **Agricultural research and the application of its science and technology for development plays a pivotal role in effectively addressing the challenges of Africa's sustainable socio-economic development.**

Context

- 2 agricultural research has been associated with achievements of higher incomes, poverty reduction and improved livelihoods.

for example:

Without the productivity improvements generated through agricultural research, an additional 350 million hectares of land would have been needed to feed the world's population growth since 1960 (*Norton, Alwang and Masters, 2006*).

Examples

how agricultural research has contributed to reducing poverty and improving lives in Africa

i. NERICA rices, better adapted to harsh environmental conditions, can smother weeds and are more productive, enabling farmers to achieve improved livelihoods.

Examples

- ii. improved cassava varieties that are resistant to the cassava mosaic virus and resulted in a yield increase of 49% over the average yields and an additional 10 tons of fresh storage roots per year.
 - This additional production supplied the required daily energy for 14 million people. (*Manyong, Dixon, Bokanga and Whyte, 2000*).

Examples

iii. Biological control methods developed through research have significantly reduced the losses caused by the cassava mealy bug and green spider mite.

Agricultural research capacity

These successes, and many others, have been achieved through

- proper investments in building the required human and institutional agricultural research capacities, and
- providing adequate resources and environment for research

Support for capacity building

We note:

that inadequate and poor investments in, and support for good agricultural research and capacity strengthening, may fail to bring about the expected economic development benefits, damage human/environmental health, or not be sustainable.

Capacity building

Therefore:

African countries must develop and sustain high quality human capital and institutional capacities that are efficiently harnessed to address pressing national and sub-regional problems.

Achieving the MDGs

through the application of science and technology to agricultural development to achieve anticipated levels of impact in eliminating hunger, reducing extreme poverty, promoting entrepreneurships and creating wealth, Africa can meet MDG 1 (for reducing hunger and extreme poverty) and MDG 7 (for ensuring environmental sustainability).

Achieving the MDGs.

Africa's slow progress to achieve MDGs due to insufficient capacity for innovation, in agricultural research for development partly because

- i. there is a major decline in the availability of young researchers and
- ii. many African youths consider agriculture and agricultural research as *the professions of last resort.*

The major challenge

The challenge for achieving MDGs
is

to achieve significant improvements in
agricultural production and productivity,
while conserving the natural resource
base, and *more importantly*, to enhance
livelihoods.

Justification for capacity building

African countries have no choice, whatsoever, but to rapidly build and strengthen their human and institutional capacities for innovation to effectively respond to the demands of the society and markets.

Questions ?

Key questions

1. does Africa possess the potential and capacity to build the human and institutional capacity needed for the agricultural industry to meet its potential to contribute to the achievement of the MDGs?
2. How can existing agricultural research capacities be best harnessed to achieve MDG goals?
3. To what extent, and for how long, should African countries continue to depend on external donor funding to support capacity building efforts for agricultural research for development?

Concept of capacity and capacity building

“Capacity as the ability to effectively and sustainably perform functions, solve problems and set and achieve objectives.”

– David Rider Smith and Alistair Sutherland.

“Capacity building encompasses any activities that enhance the capabilities of individuals, institutions, organizations to contribute to effectively harnessing Science, Technology and Innovation (STI) for sustainable development.”

– the ICSU-ISTS-TWAS Consortium ad hoc Advisory Group

Framework for capacity building/strengthening

Adoption of this concept of capacity and capacity building is a vitally important framework for designing capacity building/strengthening programmes for African NARS to significantly improve the delivery of agricultural research for development.

Framework for capacity building/strengthening

Capacity building efforts should also address issues of

- i. providing the necessary policy and regularity frameworks
- ii. providing sustained support and favourable environments for agricultural education and training programmes
- iii. providing resources and enabling environments for trained scientists to conduct agricultural and scientific research efficiently and effectively.

Framework for capacity building/strengthening

- iv. Capacity building and strengthening efforts and activities must address not only institutional and human resources development but also the *capacity to build capacity* for sustainability

Requirements -----

Developing and expanding Africa's agricultural innovation capacities requires

- a. radical modifications and transformations in human and institutional capacity building/strengthening programs.
- b. approaches to capacity building/strengthening that are designed to directly address the needs of rural and urban societies to address issues of food insecurity, poverty reduction, and wealth creation.

New directions for building/strengthening capacities

These changes demand

- i.** new dimensions and paradigm shifts in the models for conducting agricultural research for development
- ii.** more relevant approaches to agricultural education and training to empower individuals and institutions to more adequately address national, sub-regional and regional agricultural development issues.

Assumptions, Issues, and Challenges

Successful capacity building/strengthening efforts that will result in achieving the desired outputs from agricultural research is based on the following assumptions:

1. That African governments will place a high priority on human and institutional capacity building/strengthening as a continuing activity to support agricultural research.

Assumptions, Issues, and Challenges

2. That funding patterns will be adequate and sustainable to support capacity building/strengthening activities to break away from current over dependence on external donor funding for these activities.
3. That there will be favourable policy and regulatory environments to support the capacity building/strengthening programmes and for the trained agricultural research scientists to perform efficiently and effectively.

Assumptions, Issues, and Challenges

- 4 That the work environment for trained scientists is conducive, provides opportunities to maximally harness available capacity as well as retaining the scientists with high value skills and competences to reduce attrition and the so-called “brain drain.” or (*brain re-cycling*)
- 5 That agricultural research management processes are highly efficient and fully supportive of the research work of trained and skilled scientists.

Assumptions, Issues, and Challenges

6. That recognition and reward systems are established to encourage and reward excellent individual and institutional research performance and achievements.
7. That scientific and research management and mentoring mechanisms for young scientists are established to guarantee steady replacement of retiring scientists to ensure continuity of research.

Initiating the capacity building/strengthening process:

Typology of NARIS

An crucial step in designing capacity building/strengthening programmes should involve

- a well coordinated and efficient diagnosis of the priority capacity building/strengthening needs which are specific to each NARS to form a sound basis for developing capacity strengthening activities that are targeted to the identified needs of the NARS.

Capacity diagnosis

An institutional capacity diagnosis based on the capacity situation of the NARIS, is referred to in this paper as the NARIS typology.

this based on the observation that:

- National agricultural research institutes, NARIS, of African NARS vary considerably in the levels of development of their scientific capacities.

Categorising NARIS capacities

Thus African agricultural research institutes, NARIS can be categorized according to three basic criteria:

1. *Availability of agricultural research capacity* as related to the achievement of a critical mass of well trained and experienced scientists for effective execution of agricultural research programmes: the concept of RY (RY =equivalent of one full time trained and experienced researcher per year)

Categorising NARIS capacities

- 2 Level to which *available agricultural research capacity is harnessed to* address national issues, such as food security, poverty reduction, gender, and HIV/AIDS: the concept of maximum use of scientists in the NARIS, Universities and other development partners, effectively collaborating to conduct agricultural research for national development.
- 3 Level of *national government support for agricultural research*, as reflected in the level of annual funding of the NARIS: the concept of national government allocation of adequate funds in a timely manner, provision of an enabling agricultural research environment and other resources for effective agricultural research.

Typology of NARIS

<i>Capacity factor</i>	<i>NARIS Typology Class</i>							
	1	2	3	4	5	6	7	8
1. Agricultural Research Capacity	S	S	S	W	W	W	S	W
2. Harnessing of capacity	S	S	W	W	S	S	W	W
3. National government support	S	W	W	S	S	W	S	W

*Figure 1 NARIS Typology Matrix (after Youdeowei and Dobson.2007)
(Legend S = strong; W = weak)*

Using the NARIS Typology

According to these three basic criteria, 8 typology classes of NARIS can be identified.

Process


- a. conduct a detailed institutional analysis and capacity diagnosis.
- b. pigeonhole NARIS into the appropriate typology class.
- c. to facilitate identification of the most appropriate and specific areas for capacity building/strengthening
- d. design capacity building/strengthening portfolios that would be required to improve agricultural research performance and delivery.

Categories of capacity building/strengthening activities

Following the identification of capacity building/strengthening needs, a wide range of training activities can be implemented to address the identified deficiencies.

Categories of capacity building/strengthening activities

Menu of activities

- ❑ University degrees. MSc, MPhil, MBA, PhD
- ❑ Technical skills development: research disciplines
- ❑ Professional attachments
- ❑ Visiting scientists exchange programmes
(NARIS  Universities)
- ❑ Visiting professionals from the Diaspora
- ❑ Self learning : E-learning, ODL, Tech-MODE etc
- ❑ Secondments
- ❑ Group technical training courses
- ❑ Technical seminars
- ❑ Technical Study tours

Building capacity to build capacity

- Capacity building
 - Training skills
 - Teaching skills
 - Mentoring skills
 - Collaborating skills
 - Resource materials production skills

Research management

- Agricultural research strategy development**
- Monitoring and Evaluation**
- Human resources management**
- Program management, workflow, quality assurance, re-sourcing etc**
- Financial management**
- Institutional change management**

Research delivery

- All natural and social science specializations**
- Tools for research:**
 - Data management**
 - Experimental design**
 - Research Proposal writing**
 - Self-teaching skills**
 - Scientific writing relevant to audience**
 - Managing the publication of agricultural journals**
 - Facilitation of technical networks**

Opportunities for capacity building/strengthening

- Several on-going initiatives operational in Africa, offer excellent opportunities for capacity building/strengthening in agricultural research.

Some examples --

- FARA projects, namely SCARDA, DONATA and RAILS which address capacity building for agricultural research and technology dissemination as well as agricultural communication and information management

Examples ---

- ❑ *RUFORUM* which is focussing attention on strengthening regional tertiary agricultural education and training.
- ❑ *ANAFE* for enhancing agricultural education for development in Africa.
- ❑ *World Bank and the Global Forum on Agricultural Research (GFAR)* programmes on re-designing agricultural curricula for tertiary education and training to make them more relevant for work in the agricultural industry.

Some examples

- The Technical Centre for Agricultural and Rural Cooperation (CTA) in Wageningen, the Netherlands, conducts several group training courses to build/strengthen capacities in agricultural information management for agricultural and rural development in Africa, Caribbean and the Pacific.
- CTA also provides services that improve access to information for agricultural and rural development and strengthens the capacity of ACP countries to produce, acquire, exchange and use agricultural information.

Some examples +++++

★ *The Convergence of Sciences (CoS) project*, of the University of Wageningen implemented in two West African countries, Benin and Ghana.

This project explores how an enabling environment can be created for farmers to influence scientists' research agenda in line with the philosophy of 'democratizing science' (Arnold van Huis, 2006). Capacity building in the understanding and adoption of the CoS concept has involved higher degree training of 9 PhD students.

An expanded second phase of CoS, involving four West African countries, has been formulated.

Some examples ++++++

Institutions offering a variety of training courses in agricultural research and financial management; a few examples are the

- ❑ African Center for Capacity Building (ACCB) in Swaziland,
- ❑ Agricultural and Rural Management Institute (ARMTI) in Nigeria,
- ❑ the CSIR Institute for Scientific and Technological Information, (INSTI) Ghana
- ❑ Ghana Institute of Management and Public Administration, GIMPA in Ghana, and
- ❑ CILSS AGRHYMET Center in Niamey, Niger.

Some examples

- ★ The Commonwealth of Learning – ODL and Tech–MODE projects in Africa for education and training of all categories of agricultural research, and extension personnel and
- ★ the L3 (Life Long Learning) mode for enhancing extension and farmer education and training in agriculture.

Some examples

The SRO Agricultural research Networks- promoting agricultural research linkages and collaboration as well as human and institutional capacity strengthening through specialized group training courses.

To conclude

Institutions, initiatives and opportunities exist in Africa to successfully implement new and innovative approaches to capacity building/strengthening programmes for the agricultural industry to meet its potential to contribute to the achievement of the MDGs. However, capacity building programmes require support and effective coordination through better harnessing of expertise and resources.

A final thought

I leave you with this thought:

..... Agricultural development is a business of people and institutions; this business can only progress meaningfully with well trained and visionary people and strong institutions

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THANK YOU