Developing a road map

International Forum

Unleashing Science, Technology and Innovation for Food and Nutrition Security

With special focus on Africa, Caribbean and the Pacific

October 15-17
NH Rijnhotel Arnhem, The Netherlands

In a nutshell

- Novel pathways for agricultural innovation need to be exploited for addressing development challenges specifically the food and nutrition security challenge.
- Optimizing resources (financial and human) and mobilizing public and private investments are critical.
- An enabling policy and institutional environment which fosters experimentation, learning, collaboration and innovation is needed for implementing the change agenda to achieve the desired impact.
- It's a shared responsibility to make this happen. Through this forum, concerned institutions can map the terrain, and jointly agree on the road forward.

Background

Innovation in all spheres of endeavour including research, education, training, extension, production, processing, markets, distribution and trade is needed to transform the agri-food sector and ensure ecosystem sustainability, especially in Africa, the Caribbean and the Pacific (ACP) region. While it is recognized that a complex package of inputs, support systems and management practices would be required to achieve the desired results, there is need to unleash the **innovation** potential of ACP scientists, engineers, farmers and other agri-preneurs and make visible the knowledge that remain out of reach of the majority of stakeholders in most ACP countries. The policy and institutional environment is key.

Over 200 million people go hungry daily in Africa and health care costs in the Caribbean and the Pacific are spiraling due to a rise in non-communicable diseases associated with over-nutrition. While agriculture continues to be promoted as a praxis for addressing the FNS challenge and for contributing to wealth creation, the transformation of the agricultural sector as well as the development of related spinoff industries will not be achieved unless production and value addition are seen as knowledge intensive activities and supported by sound evidence-based policies, and an adequate legislative and regulatory framework. FNS is a complex, multi-dimensional challenge requiring multi-sectoral (agriculture, health, environment, science, education and trade) and multi-disciplinary collaboration, well-equipped modern facilities, highly motivated, well-trained and creative human resources and public and private investments and partnerships.

In contrast to the Green Revolution that offered farmers standardized packages of technologies, the 21st century agricultural scenario is different and a standardized interventionist approach is no longer valid. All system actors, including policymakers, need to be able to to access information, use knowledge and innovate either in anticipation of or in response to potential or unforeseen challenges and take advantage of opportunities. Such a differentiated strategy requires flexible and alert scientific and engineering communities who can deliver solutions that increase efficiency and minimize costs, as well as nimble entrepreneurs including farmers who can adapt, innovative and expand product offerings in response to changing consumer and market demands. These dynamics must be factored into enabling policies, institutional mechanisms and programmes that shape agricultural research, higher education, extension, entrepreneurship and innovation.

The globalization of knowledge is considered a driver of economic diversification and socio-economic development but many developing countries may not have the necessary infrastructure including the critical mass to optimize the existing knowledge. Research results and technologies that have been developed in universities and research institutes are said to "remain on the shelf". Farmer "innovations" and that of other local innovators are sometimes ignored and generally not valued or promoted. Governments in the ACP region continue to be constrained when making investment decisions in national research, higher education, training and extension systems. While there have been several calls to increase budgetary allocation and strengthen public-private partnerships, many ACP countries continue to lag behind in attracting private sector investments. What additional evidence is needed to support critical decision making for increasing public and private investments in science, technology and innovation in the medium to long term?

On a positive note, a 2013 call for proposals was launched by CTA for the Top 20 Innovations benefitting smallholder farmers. This yielded 251 responses of which twenty (20) have been shortlisted. These innovations are having an impact on farming communities, especially small-scale farmers, fisher-folk, agro-processors and traders but they are most likely taking place under the radar of governments, the private sector and other stakeholders. A CTA-CoSIS Wageningen UR 2013 expert consultation on *Innovation Systems: Toward Effective Strategies that Benefit Smallholder Farmers* demonstrated that while innovation systems thinking has permeated the culture and actions of several key agricultural organizations in ACP countries and beyond much more work is needed in understanding the context of smallholder farming systems so that policy and institutional changes can be effected for their benefit; thereby ensuring that development is inclusive.

While there is a growing body of scholarship on STI for food and nutrition security there is little attempt to identify good practice and customize these developments for implementation in a local/national context. What then are the implications for agricultural research, tertiary

education, extension and innovation within the agricultural and wider national innovation systems for addressing the global FNS challenge?

In view of the foregoing, it is of utmost importance that ACP countries improve the evidence base. A number of key thematic issues emerge which require the urgent attention of policymakers, academicians/researchers, the private sector and civil society. These include: (i) the growing internationalization of knowledge and its impact on R&D, HE, extension and innovation; (ii) the potential opportunities and distributional implications of investing in research and higher education not only as a public good and for private gain but also as a commercial activity; (iii) how to achieve the right balance in resource allocation for supporting local innovation, exploitation and exploratory (blue sky) research and (iv) entrepreneurship and innovation as the enabler of local SME and commercial operations. What are the ST&I policy options and best fits for ensuring that economic and societal issues are addressed and that the public goods nature of knowledge is adequately funded and sustained? How can the knowledge generated be used for addressing the FNS challenge?

These thematic areas are deceptive in so far as they appear self evident and simple when they are in fact complex and layered webs of inter- and intra-locking sub themes. The task of the meeting is to initiate a discourse which would unpack the complexity and distill the results in useful terms for influencing policy and practice so that ACP and other developing countries can make greater inroads in tacking food and nutrition insecurity through investments in science and innovation. This CTA event kicks off this debate by focusing on a selected number of themes and sub themes.

Deliverables

The international forum on Science, Technology and Innovation for Food and Nutrition Security will bring together leading scholars, senior scientists/researchers/academicians, policy-makers, development practitioners, innovators and private sector representatives including farmers to:

1. Assess the relevance and effectiveness of current agricultural research and innovation policies and programmes for addressing the food and nutrition security challenge;
2. Analyze and generate evidence on innovations occurring in ACP agriculture for shaping future STI policy formulation and implementation for achieving food and nutrition security;
3. Agree on how best to move forward in sharpening the STI focus, strengthening national innovation systems and increasing public and private investments to effectively address food and nutrition insecurity in the future;

It is expected that this will influence CTA partners' future programmes for agricultural research, higher education and innovation for addressing food and nutrition security.

Themes

1. Governance of STI for food and nutrition security (FNS).
2. Better leveraging national and regional higher education, research and innovation systems to contribute to FNS.
3. Private and public sector investments and partnerships in R&D and innovation
4. Innovation, innovation system and entrepreneurship for addressing the FNS challenge.

Key questions to be addressed for responding to the FNS challenge

1. What are the tensions if any in public vs private investments in higher education and research, with respect to FNS as a public good? What funding mechanisms are the most effective in ensuring positive FNS results – public investments, competitive mechanisms, public/private partnerships? What are the benefits and the trade-offs in opting for certain financing modalities?
2. Entrepreneurship and innovation in agriculture at what levels and scales? What are the related IPR issues in taking existing innovations to scale?
3. What are the key science, technology and innovation (STI) governance issues? For example blue sky vs applied research; access as well as contribution to global knowledge; international / regional / national research collaboration.
4. How best to move forward, and where do the responsibilities lie? Target setting: what can and should be achieved over the next three years?

Target Groups (max 30- 40 ACP, EU /international delegates)

1. Academics from universities, and technical institutes
2. International, regional and national agricultural research organizations
3. Representatives of government and the private sector
4. Innovation case owners and Innovators
5. Non-governmental organizations (NGOs).

Approach

There will be a combination of keynote presentations, panel discussions and working group sessions.

Confirmed Keynote and Invited Speakers –

1. Professor Ameenah Gurib-Fakim CEPHYR, Mauritius - ***Research, Innovation and Entrepreneurship*.**
2. Professor John Mugabe, **University of Pretoria, South Africa - *Governance of Science, Technology and Innovation for Food and Nutrition Security***
3. Professor Lynn Mytelka, UNU-MERIT***,*** France ***- Innovation Systems and Inclusive Growth***
4. Professor Merle Jacob, Lund University, Sweden - ***Research, Higher Education and Innovation: Implications for Public Policy***
5. Professor Pathmanathan Umaharan,Director, University of the West Indies, Trinidad - ***Science and Innovation: Lessons in Commercializing University Research Outputs – Case of Anthuriums, Hotpepper and Cocoa***
6. Dr. Isaac Rutenberg, Center for Intellectual Property in IT at Strathmore University Kenya - ***IPR policies***

7. Dr Maurice Bolo, Scinnovent Centre, Kenya - **Enhancing Commercialization of Research and Strengthening Linkages between Universities/Public Research Institutes and the Private Sector in Africa**

Other Speakers / Interventions

Representatives of national, regional and international organizations

The Top 20 Innovation Case Owners – Going to Scale (short interventions/stories)

Panel discussions on national research, innovation and entrepreneurship.

Two CTA publications (i) "*CTA Top 20 Innovations that benefit Smallholder farmers*" and CTA-WUR "Innovations Systems: Toward Effective Strategies that benefit Smallholder farmers" will be announced.

N.b The first day of the international conference/think tank event will include the CTA Top 20 innovators who will be participating in the cross-learning write-shop (13-17 October) to facilitate joint learning and experience sharing.