International forum

'Unleashing Science, Technology and Innovation for Food and Nutrition Security'

With special focus on Africa, Caribbean and the Pacific

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NH Rijnhotel Arnhem, The Netherlands

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KEY MESSAGES

Judith Ann Francis,

Senior Programme Coordinator, Science and Technology Policy

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DAY 1 FOCUS: Enabling Policy & Institutional Environment

John Mugabe, Professor at Graduate School of Technology Management (GSTM), University of Pretoria, South Africa

- ST&I for human development and for FNS is a national security issue
- Political commitment exists in Africa (& C P countries) but what indicators will we use to measure impact of policies on agriculture and FNS; traditional ST&I input and output indicators are not enough
- Good Governance on ST&I means transparency, accountability and participation
- **Key message:** ***FNS and STI policies need implementation and evaluation mechanisms***

Seife Ayele, Director for Technology Access and Adoption, Agricultural Transformation Agency (ATA), Addis Ababa, Ethiopia

- Ethiopia has developed innovative productivity enhancing technologies for 5 top crops (including teff) and livestock for FNS and increased income for farmers
- Lessons learned in improving technology access & adoption: engage farmers in the identification, assessment & uptake in the mechanization value chain
- Challenges exist in scaling up – spare parts, distribution and after sales service
- **Key message:** ***Put value on indigenous crops, mechanize & engage farmers***

Merle Jacobs, Professor in Research Policy at Lund University, Sweden and UNESCO Chair in Research Management and Innovation Systems

- Education is a right and policies cannot change every 2-3 years. It is a long term investment if we want to see impact
- Need a strategy for entire education value chain from primary to tertiary
- Need good data for decision-making
- Governments must invest their own resources to ensure quality & that national priorities are addressed
- **Key message:** ***Holistic development is needed for impact***

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Isaac Rutenberg, Director, Center for Intellectual Property and Information Technology Law (CIPIT), Strathmore Law School, Nairobi, Kenya

- Tensions exist around IP regime – To protect or not to protect?
- Patents can be applied to plant, genes, or methods
- Past experience show there is need to use new technologies wisely as impacts are only seen after the fact
- **Key message:** ***Competing evidence will always exist***

Roseanna Avento, Coordinator at the Department of Biology, Kuopio Campus, University of Eastern, Finland (UEF), Kuopio, Finland

- Higher Education – Who feeds the world? Small holder farmers do. Are the goals the same especially when some universities and schools in developing countries do not have the basic infrastructure?
- Finland experience – higher education is based on research & functional diversity; what real difference has international development efforts made in FNS?
- Investments also need to go into training smallholder farmers ; continuous education for all
- **Key message:** ***We need to understand the context to make a difference***

DAY 2 FOCUS: Leveraging Higher Education, Research, Innovation

Ameenah Gurib-Fakim, Managing Director, Centre for Phytotherapy Research (CEPHYR), Mauritus

- ACP must become greater knowledge producers as well as better custodians of indigenous resources (e.g. China, India)
- Convergence Innovation – In transcending research & academia, choices must be made. E.g. joining the private sector vs academic career and treating diabetes vs cosmetics
- Commercialization also means having the necessary infrastructure – laboratories, standards, accreditation, human resources
- Pay attention to genetic (and cultural) diversity and embrace STEM for empowering people
- **Key message:** ***Science by itself cannot deliver innovation***

Pathmanathan Umaharan, Professor of Genetics, University of the West Indies (UWI), Trinidad & Tobago

- Learned the hard way - Research on cowpea was initially successful: increased yields but market and infrastructure failures existed
- University research should be aligned with development / market needs. Researchers need to make a paradigm shift in setting priorities
- Adopt a farmer centric model: research should address their challenges; adopt a triple helix; build on comparative advantage – donot compete in the same areas where others are stronger.
- **Key message:** ***Build on comparative advantage & engage farmers***

Maurice Bolo, Director, The Scinnovent Centre, Nairobi, Kenya

- IPR tensions: Why are IPR applications by local firms / universities in Kenya taking longer to be processed or are more frequently rejected?
- Evidence shows that universities / PRIs are not the locus of innovation. Need to rethink. Should this change?
- UNECA Report: Innovation policies are good but there is little targeting; no measurable indicators and no support for M&E
- **Key message:** ***New incentives & reward structures are needed***

Gyongyi Kovacs, Director of the Humanitarian Logistics and Supply Chain Research Institute (HUMLOG Institute), Hanken School of Economics, Finland

- FNS Pillar: Food stability - crises (e.g. droughts) affect agriculture and the food system
- Preparedness – early warning systems (M&E <5 years)
- Tensions exist – local vs imported foods; balance needed to avoid price hikes, culture
- Innovations are needed for ensuring security of supply during crises e.g. process (logistics) , product (stable without refrigeration), business model innovation (vouchers/not cash)
- **Key message:** ***Learn from the past and do better***

Gerdien Meijerink, Head of Department (International Policy, Trade and Markets), LEI Landbouw Economisch Instituut, Wageningen UR, the Netherlands

- Remember the FNS Pillars – availability, access, utilization and stability
- Neither production nor technology alone is enough to address FNS. Need to consider markets in food security
- Commodity exchanges and /or local markets with regional function can contribute to managing farm risks
- Private sector involvement in research from the very beginning is critical
- **Key message:** ***Markets for farmers are important in addressing FNS***

DAY 3 FOCUS: Innovation Systems

Lynn K. Mytelka, Professorial Fellow, UNU – MERIT, France

- Where new technologies involve multiple knowledge bases, innovation frequently requires learning through collaboration in networks and consortia
- Trade liberalisation and the globalisation of industry make it difficult for new comers from the developing world to compete without engaging in a process of innovation (textile, wine)
- The development of local universities & linkages should be part of the learning and knowledge exchange infrastructure that can lead to a new wave of innovation
- The notion of a transition has been applied to the process of change in agriculture
- **Key message:** ***Recognise local concerns, interests, & needs, as they strengthen measures that are supportive of the change/innovation process***

Niels Röling, Independent Research Professional, Wageningen, The Netherlands

- Farms are small firms, which all produce the same commodities. Each is too small to affect the price.
- For smallholder farmers to stay in business they have to surf the waves of innovation and keep growing
- The Business Model of Agronomy (BMA)dominates mainstream thinking about agricultural development but it cannot support a sustainable global food system

- Eventually BMA runs out of steam, as actual yields catch up with potential ones (yield gaps close)
- The market fails when it comes to food security, sovereignty and safety, poverty, and sustainability
- Sustainable intensification is an oxymoron (no win-win but trade-offs)
- Convergence of Science-Strengthening Innovation Systems (CoS-SIS) programme undertook scoping and diagnostic studies to identify entry point that reflect priority constraints / opportunities of smallholders (very often institutional issue)
- **Key message:** ***Smallholder farmers are not the problem.***

WRAP-UP

Judith Francis, senior programme coordinator, Science & technology policy, CTA

- FNS is a multidimensional challenge, calling for policy harmonisation, political will, women empowerment, capacity building, local and national ownership, multi-sector collaboration, technological and social innovation, and multi-disciplinary research.
- It's a balancing act in a dynamic and heterogeneous world.
- Guiding questions:
    - FNS and STI policy: what are the tensions? What funding? What are the benefits? What are the trade-offs?
    - Entrepreneurship and innovation in agriculture: at what levels and scales? What are the related IPR issues in going to scale?
    - What are the key governance issues? Basic vs applied vs blue sky research? Access as well as contribution to global knowledge? How best to move forward and where do the responsibilities lie?
- We need solutions. For that, we need to:
    - create an enabling policy environment
    - find novel pathways to innovation
    - leverage higher education and research
    - develop innovation systems

- Doubts / Burning Questions/ Tensions
    - What is the real FNS issue? Produce more of the same foods? Diversify products? Are the realities known? Is the public concerned? Is this hot air, development, geo-political agenda?
    - Are we putting too much responsibilities on universities? Is it the role of the university to address development challenges?
    - Who is to be blamed? Governments? Private sector? What about the smallholder farmers who produce the bulk of food?
    - Which innovations should be taken to scale? IPR?
- **Key message 1:** ***Access to food is a human right***
- **Key message 2:** ***We need impact and we must avoid the blame game***

<u>Take home messages by three young consultants: Atenchong Talleh, Cédric Jeanneret and Nafiisa Sobratee</u>

STI policy for FNS must:

- **Recognize the transformative power of innovation** in shaping the enabling environment around the farmer innovators and the value chain. Related innovations:
    - CoS-SIS – CORAF/WECARD
    - NUCAFE (CTA Top 20 Innovation)
    - Farmers Business Model (CTA Top 20 Innovation)
    - CEPHYR (Ameenah Gurib-Fakim)
    - Tef row planters (EATA)
- **Understand innovation as a response** to changing and emerging social, ecological and global challenges. Related processes:
    - Cocoa research centre (UWI, P. Umaharan)
    - Supply chain management (G. Kovacs)
    - ECX commodity exchange (G. Meijerink)
    - Disaster management / climate change (G.Kovacs)
    - Aflatoxin / voice-activated info delivery (CTA Top 20 innovation)
- **Provide support**: STI / innovation national policies are ineffective without associated, empowering mechanisms and capacity for implementation and impact evaluation. Relevant mechanism:
    - Governance of STI
    - Education system: STEM at all levels, raison d'être of diploma
    - Institutionalization of functional differentiation

- Move from need based approach of food security to right based approach (empowerment)