

Uganda's Science and Technology: Towards a Strategy for Take-Off

by Dr Alex Tindimubona,
Chief, S&T Section, UNECA



Outline

- Promoting Uganda's S&T
- Studying S&T Systems
- Uganda's Development Vision
- Uganda's S&T System
- Towards an S&T strategy for take-off
- Role of UNECA
- Way Forward

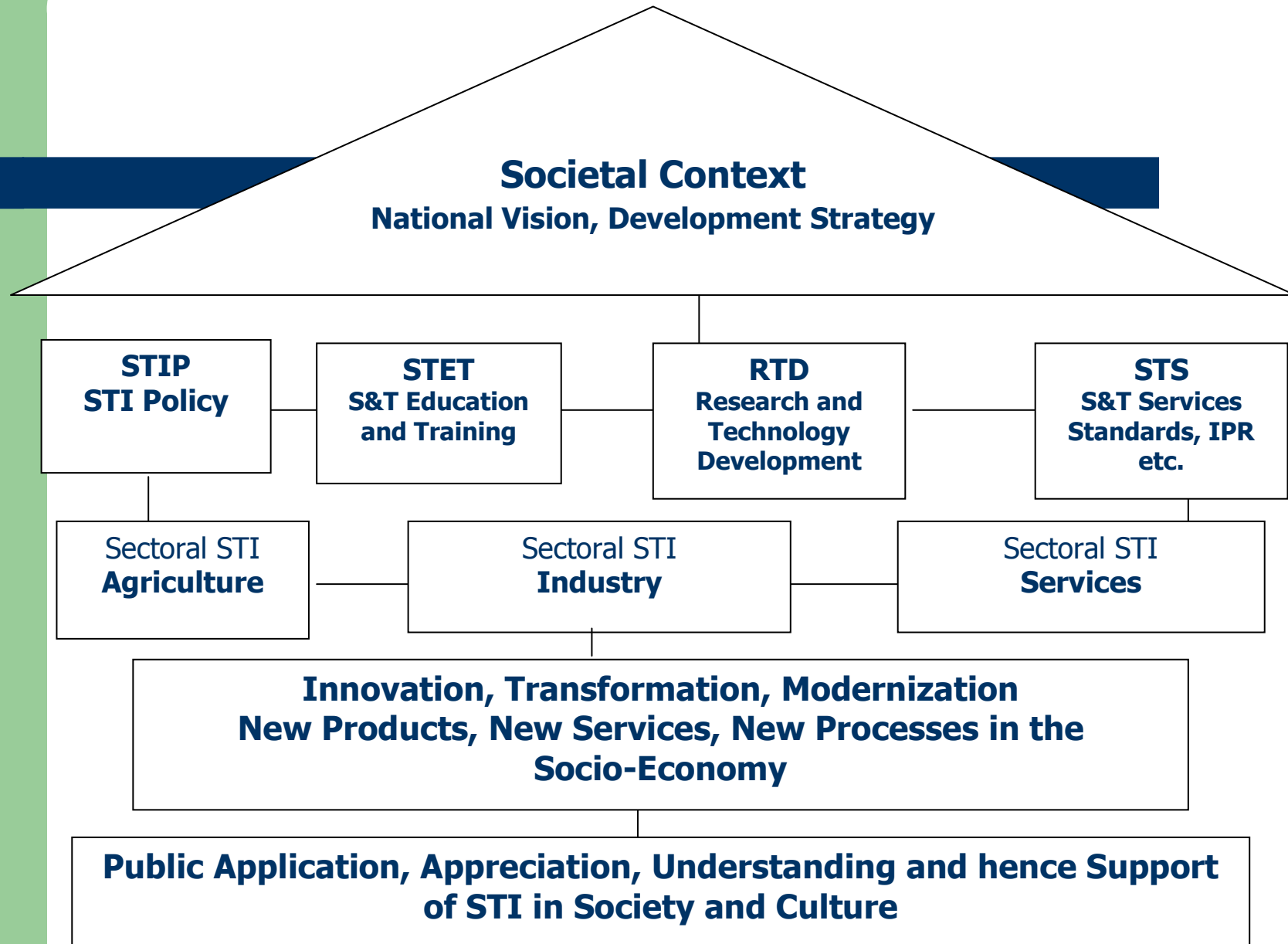
Promoting Uganda's S&T

- 1990: Transformation of NRC into UNCST
- 1995: Presidential Forum on S&T
- 1994 – 2001: African Green Revolution Design
- 1998- 2002: Formation of UNAS, UNIT
- 2000: EU-ACP study on RTD Policy dialogue
- 2007: UNECA missions to UIRI and Parliament of Uganda

Studying S&T Systems

- STI will not work for a country unless organised, politically led and driven (like an army)
- Even a poor country can build an STI system (Malaysia (1970s), Mozambique, Rwanda)
- Best practices: Finland, China, India, South Africa, Nigeria etc.

Studying STI Systems and Strategies



Mastery of S&T

Level	Content	Location/Funding
Level D: (Advanced) Science-based "High"	New materials (including composites and high temperature superconductors) 2a. Microelectronics (including microprocessors, computer aided design, fabrication of chips and their application e.g. in automotive industry) 2.b. Photonics including lasers and fiber optics 1.Space Sciences, Nuclear Sciences 2. 3. and medicine	- Builds on high expertise in Basic Sciences - Opportunities for public and private sectors - Mission-oriented
Level C: (Industrialization) Conventional "Low" Technology	Bulk Chemicals 2.Iron and Steel and Other Metals Fabrication 3.Design and Fabrication in Indigenous Industries like cotton and leather 4.Petroleum Technologies 5.Power Generation and Transmission plus Heavy Electrical Industry	- No new scientific principles - but skills for design, adaptation, modification - Classical area for negotiated technology transfer - No country should be DEFICIENT: must develop at least one area here
Level B: (Survival) Science in Application	Agriculture (including livestock, fisheries forests) 2.Medicine and Health 3.Energy 4.Environment 5.Earth sciences (Including irrigation, soils, meteorology, mining, minerals, oceanography)	Education in the South; Research mainly in the North by Research Councils
Level A: (Elementary) Basic, "Curiosity-oriented" Science	Physics (including geophysics and astrophysics) 2.Chemistry (up to nanochemistry) 3.Mathematics 4.Biology 5.Basic Medical Sciences and Engineering	- Universities and special research centers created for the purpose - Funded by government via NSF or Academies - Linked to outside contact

Uganda's development vision

- Very sharp, focussed, articulated, owned
- M7: We want to transform Uganda from a backward agrarian society to middle class industrial power in next generation (i.e. our children)
- Kamuntu: This means modernization and commercialization of agriculture, industrialization based on the natural resource base – including oil and minerals
- All the above must be driven by STI – people, knowledge, skills to participate, master, drive

Uganda's S&T System

- Weak in structure and capacity – no S&T army
- No policy framework, political guidance, leadership, accountability and resource allocation for S&T
- Too much fragmentation and orphanage – e.g. who is watching over the favoured S&T students and their future?
- Poor integration of S&T policy with other policies opportunities not taken.
- E.g. PMA requires training of 10x current agricultural SET professionals; PEAP needs 2x # of engineers, health professionals etc.

Towards an S&T Strategy for Take-Off

- Create a Minister of STI to pass STI policy and implement it.
- Could add the STI docket to Minister of ICT, as several countries, AU and UN have done.
- Parliamentary S&T and ICT committees to strengthen oversight
- UNAS to strengthen S&T policy advice

Towards an S&T Strategy for Take-Off: Ministry of STI Units

- UNCST
- UIRI
- UNBS
- Intellectual Property Office
- Science Day
- Science Unit
- National R&D Foundation
- S&T Education and Training
- STI Awards
- Medical Research Council
- Agricultural Research Council

Towards and S&T Strategy for Take-Off – Finnish model

- Identify development vision, societal direction, growth points & opportunities
- Work back to see how S&T system can be configured to feed into above – 3 year cycle
- Uganda's S&T opportunities: agriculture, agro-processing, industry, infrastructure, energy, minerals, oil, education, ICT, biotech (low hanging fruits), Federation of EA
- Repeat every 3 years

Role of UNECA

- STI policy analysis and advocacy
- Capacity building
- Networking – seek best practices, share them
- Bring global STI issues to Africa, take African issues to global level
- Currently drafting Uganda–ECA MOU to work with Uganda as a focal country

Last Words

Think Big, Think Future

Build for the future

See you in 3 years

Thank You – Ahsanteni Sana