COLLABORATION FOR SUSTAINABILITY AND INNOVATION

Presentation to ATPS Conference
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• Outline sustainable innovation
• Discuss options for growth, obstacles hindering growth
• Present vision of tapping knowledge network
  • Where and how to connect
  • Taking inventory
  • Making knowledge stick locally-absorbing, using
• Measuring success
INNOVATION/SUSTAINABILITY CAN APPEAR TO BE AT ODDS

- Innovation is new product, process, or idea, or an existing entity applied in a new way
- Useful for economic and/or social welfare
- Inherently de-stabilizing, creates temporary inequities
  - Public policy is needed to address this question
- Can be difficult to apply sustainability principals
  - “Creative destruction of technological change”
- Overall growth come from reliable knowledge applied in transparent and transformative ways
UNDERSTANDING STI

• **Technology**
  - Technology in use (products, processes, designs)

• **Human Resources**
  - Trained workers available
  - Training opportunities available

• **Institutions**
  - Standards organizations
  - Research institutes and research funds
  - Incubators and finance

• **Collaborative Capacities**
  - Communication, coordination, cooperation
  - Extension Services
  - Professional societies
  - Conferences and workshops

• **Knowledge Resources**
  - Technical reports and scientific papers
  - Regulations and laws
  - Indigenous know-how
Steps towards knowledge base

• Where are we coming from with S&T?
  • *Existing capacity*

• Where do we want to go?
  • *Improved efficiency and productivity*

• Do we know how to get there?
  • **THICK**

• How will we know when we have arrived?
  • In industry – *sell products, processes, services*
FOSTERING COLLABORATION

• **C = Linkages** (e.g., extension services, ICT access, collaborations, S&T communication in government, media, business associations, professional societies, public awareness, etc.)

• **Findings regarding knowledge flows:**
  • Industry-university-policy links weak
  • *Example: Metrology, Standards, Testing, Quality*
  • Pieces in place; but insufficient interaction and feedback
  • Cross-sectoral linkages
  • User- and producer-driven?
  • Stakeholder involvement
MAKING KNOWLEDGE STICK LOCALLY

Are appropriate incentives in place to encourage communications?

- Fish sector recovery in Uganda
  - Awareness of European market standards
- Energy sector development in Uganda
  - Possibility of producing oil and natural gas for world market
- Public health research in Mozambique
  - Working together with local communities to identify needs
- Cashew nuts in Mozambique
  - Role of processors in improving producers’ technology
- Pharmaceutical manufacturing in Uganda
  - Connections between local workers and global training
- Maputo corridor logistics initiative
  - Improving a wider network infrastructure around corridor
- Biotechnology cluster initiative
  - Funding to solve local health problems, creating local connections
CONCLUSIONS

• Positive capabilities need to be nurtured

• Investment strategies should build on existing strengths

• Communications strategies should look globally, across the continent, and regionally
  • Where to stick locally

• Extension services should include local stakeholders

• Coordination should occur in research capacity building with other countries
TIME LINE OF INVESTMENTS

Field or Sector: __Agro-processing__

R&D

STØ

RSTE

Plant speciation

Botany Departments

Traceability & assurance

1 year

5 years

10 years
• 1990 ➔ 6 countries contributed 90 % R&D
• 2008 ➔ 13 countries (not inc. EU)
• Global $ on R&D ➔ 2 % world GDP ~$1.1 trillion
• Developing countries doubled R&D spending
• Number of researchers - 5.7 million (2002) to 7.1 million (2007)
### CONTINUING RISE IN SCIENCE

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SCIENCE KEEPS GROWING

• Scientific research publications growing in number

• Sources are proliferating
  • Open source journals
  • E-journals
  • National, disciplinary sources

• Pre-publication venues (e.g., arXiv)

• Data to fuel science is also growing spectacularly!

• Growth in itself now new… variety of sources is new

Just how big is “science”?
7 years
Collaboration, Networking

- S&T shifted to global system
  - System is open – in true sense of open systems
- New venues for collaboration, knowledge transfer
- Networks augmenting institutions
- Link and sink knowledge, creating collaborative teams
- Find each other using Internet, organizations like Global Knowledge Initiative