



University of Sussex

SPRU – Science Policy Research Unit

International Symposium
Research Evaluations: Issues and Performance
National Authority of Evaluation
Higher Council of Education, Training and Scientific Research
Rabat 7th December 2017

**Scientific collaboration and
collaborative research in Africa:**
*lessons learned from the EU STI
model for sustainable development*

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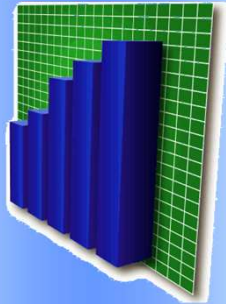


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Presentation structure

Challenges	Opportunities	Lessons Learned
Global Issues	African	African Global
Global	Institutions	EU STI
African	Countries	Policy Directions
		

Methodology



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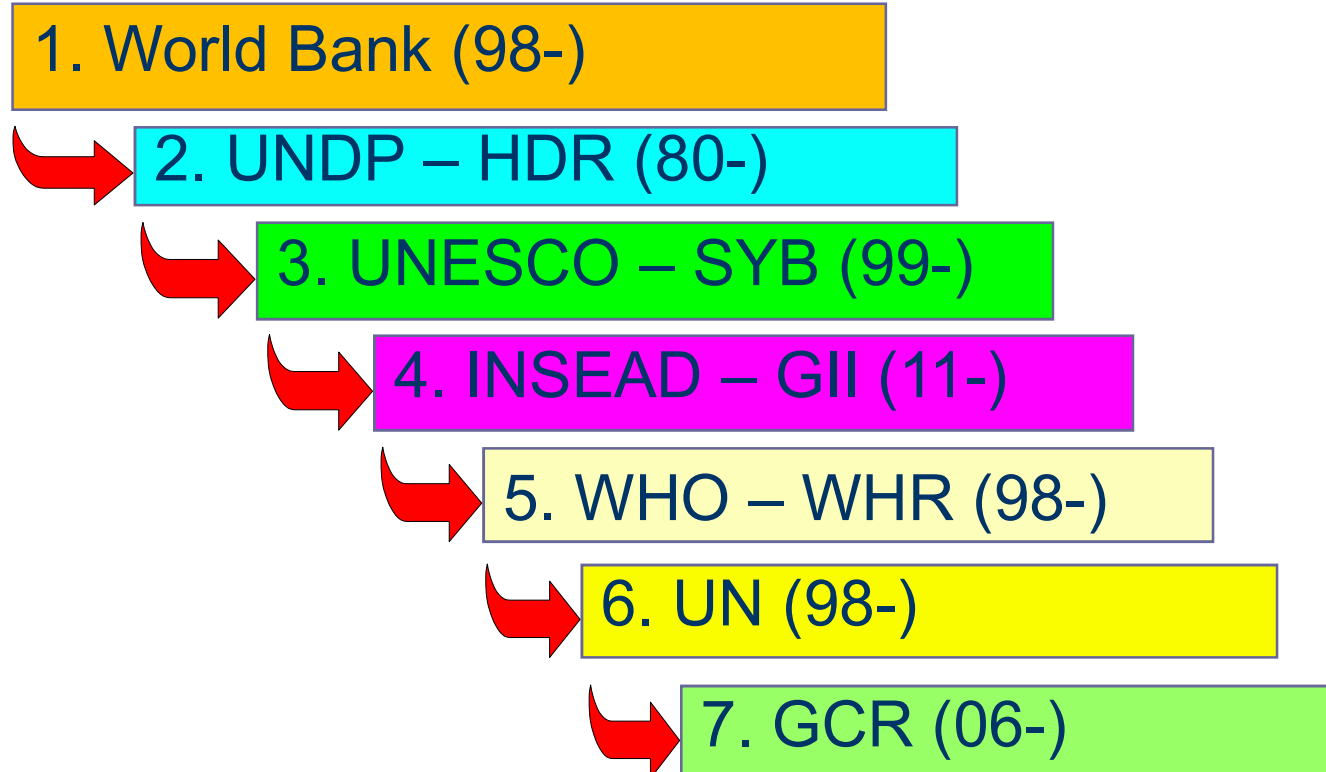


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Data Sources

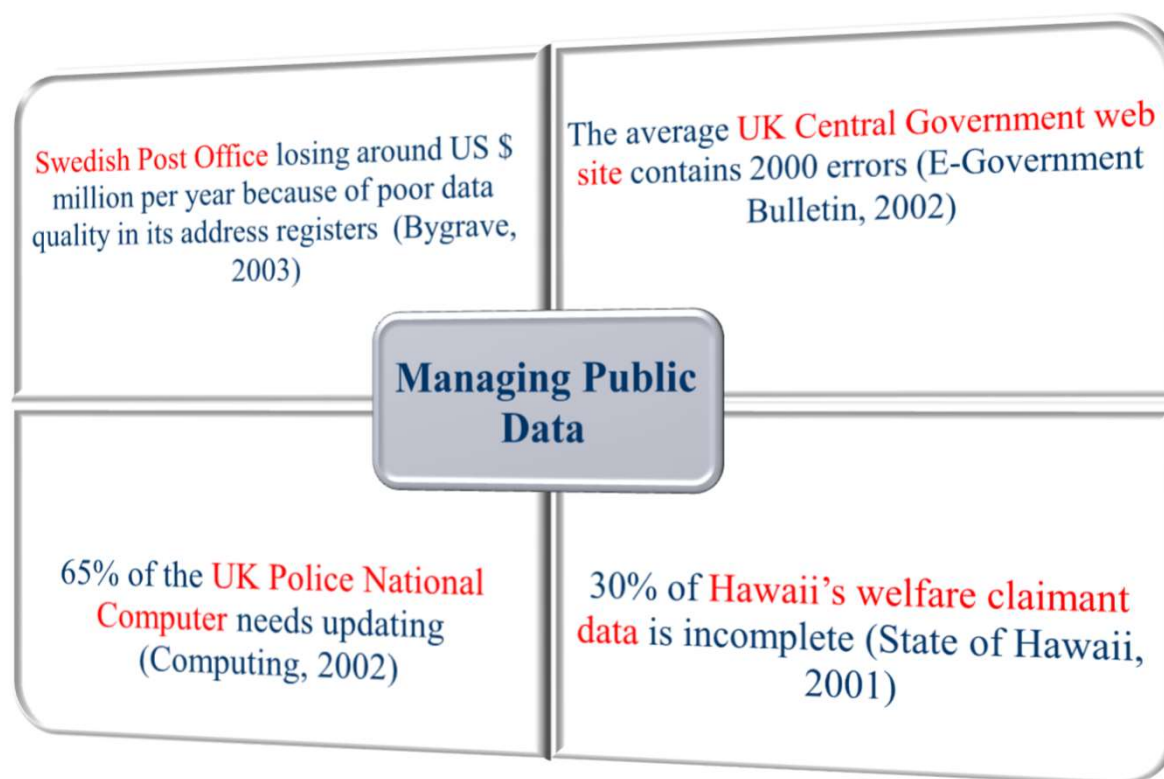


- Data (IMF, UN World Bank, UNESCO) is not available for every African country and in some cases not completed.
- Most of the figures are likely to be underestimates, therefore, this should be an urgent call to action.

Data Quality

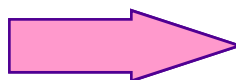


The more CARTA the data, the higher its quality



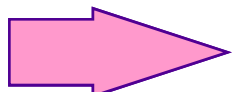
Literature

Development Theories



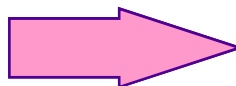
**Resource Exploitation,
Resource Conservation,
Location, Diffusion,
High-payoff Input and
Induced Innovation**

Development Models



**Neo-classical economic,
Land-surplus and
Multi-sector rural economy**

Adoption Models



**Innovation-diffusion,
Economic constraints &
Technology characteristics-
user's context**



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Challenges



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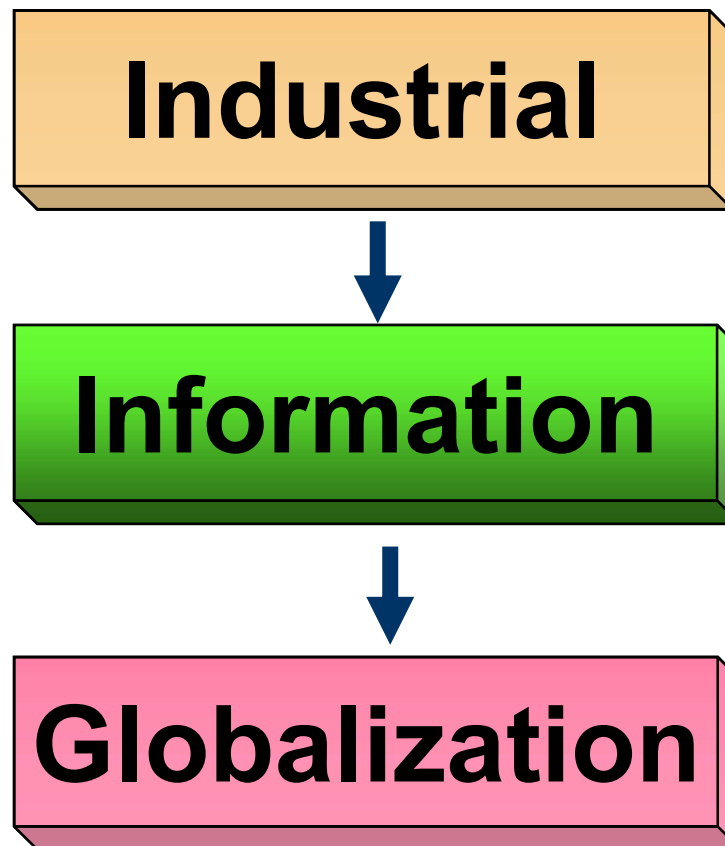


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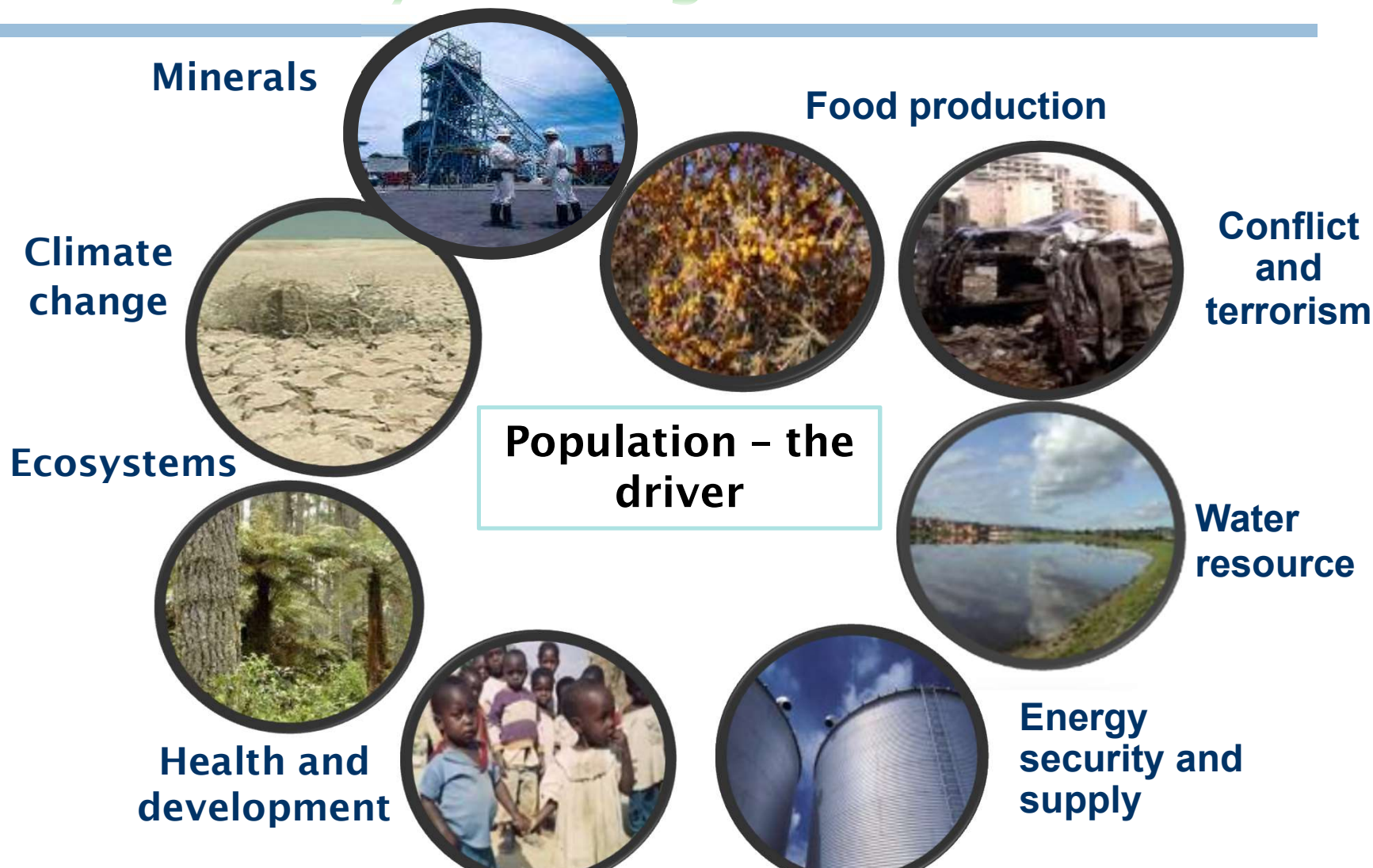


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Succession of Revolutions?



21st Century Challenges



The biggest challenge we face on this planet?

...1987...1992...2001...2005...2015...

Professor Jeffrey D. Sachs

Director and Professor of Sustainable Development
The Earth Institute, Columbia University, USA
Special Advisor to UN Former SG Kofi Annan, 2005



“Development that meets the needs of the present without comprising the ability of future generations to meet their own needs..”



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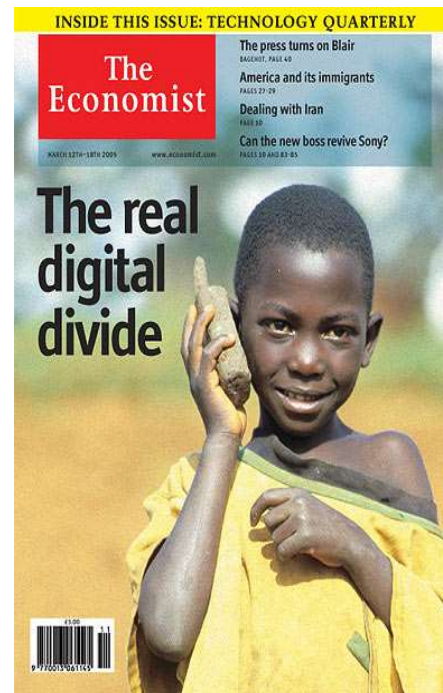
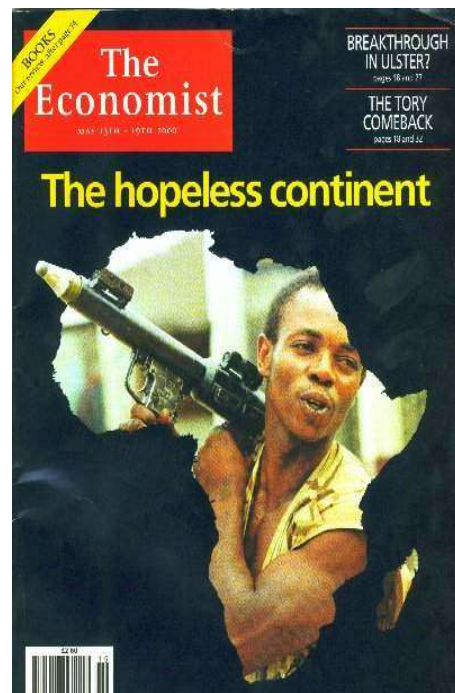
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African Poor Progress

- Missing national research policy and formal linkages.
- Missing information on ongoing and proposed African research.
- Differing reward systems, different budgets, rules, regulations, and demands and differing research objectives.
- Differing organizational structure, especially with regard to planning, coordinating, and monitoring and evaluation; differing qualifications of staff members (degree-level or specialization).
- Universities are not considered as integral elements of national research institutions; under-utilized for research and largely occupied by teaching (90%).
- Brain drain.
- A growing literature in Africa but it is more fragmented, and often restricted to sector applications or to country specific interests.
- Small number of MNCs involved in technology transfer and commercialisation.
- Still inadequate legal framework for commercialisation of different technologies and no adequate government support for enhancing technology transfer and commercialisation.
- Objectives & projects are largely derived by personal interest basis & rarely reflect the priority needs of Africa as a whole.

Alexander Gerschenkron 1904-1978 (Russian-born, Austrian-trained Harvard economic historian)

Each country has its own distinctive resources and stage of backwardness – which would strongly influence any potential growth path....the higher degree of backwardness, the more discontinuous the development is likely to be..



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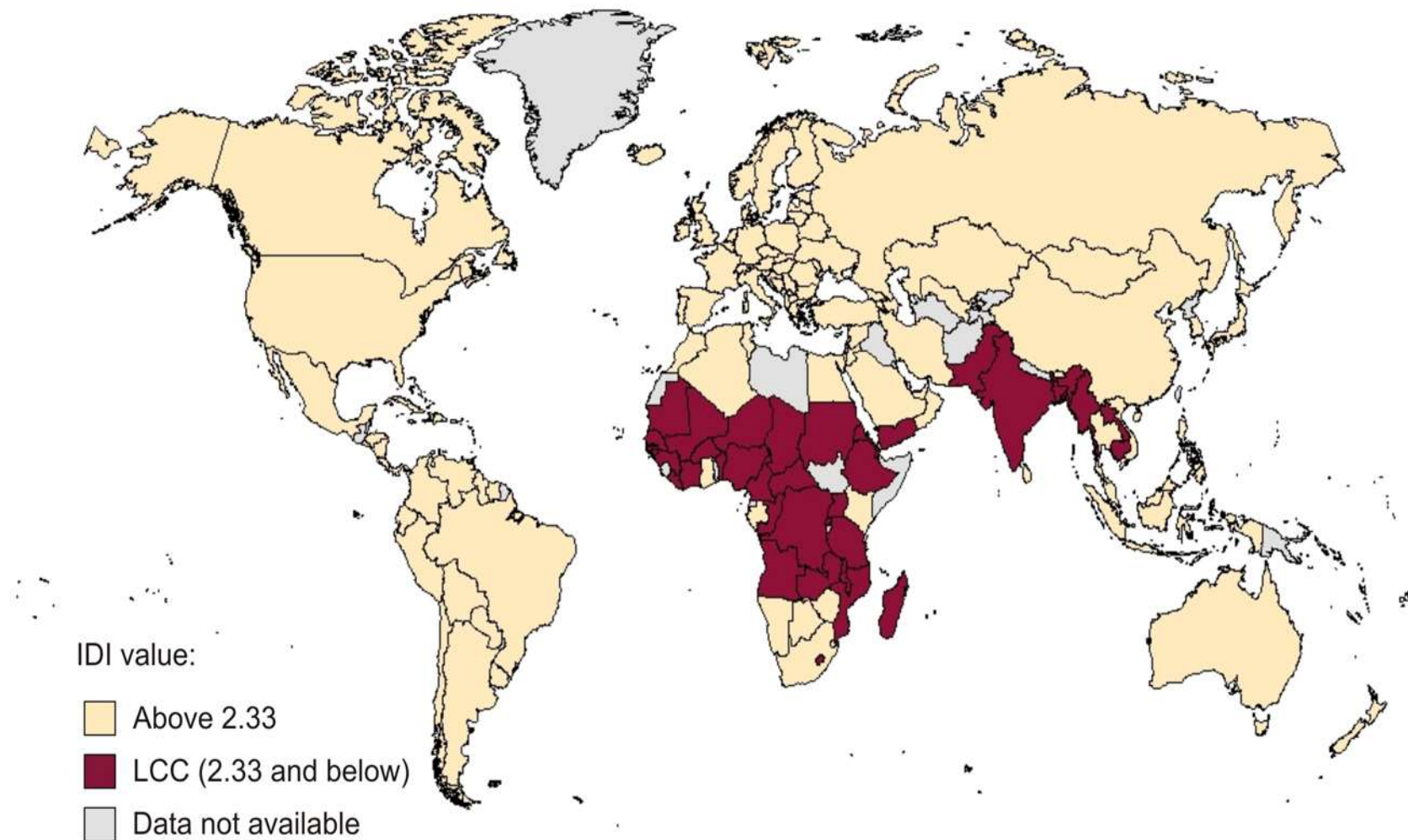
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Least Connected Countries 2013



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HE/STI



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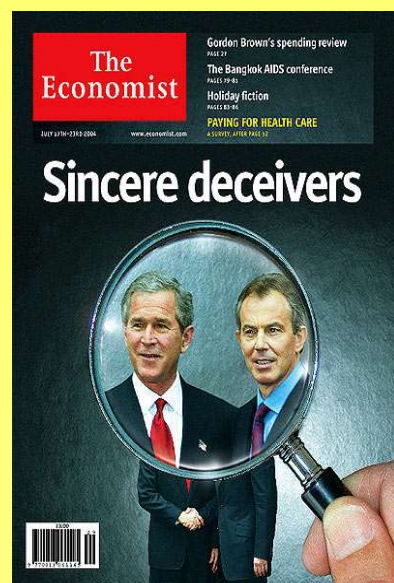
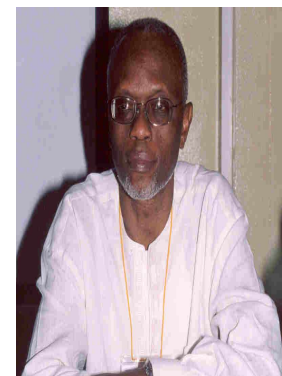


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STI Debate

One thing that bothered me a lot was the failure to address the question of science and technology more broadly than what we did, we talk about science and technology as if by themselves they can solve local problems.

Akilagpa Sawyerr, Secretary-General, Association of African Universities (AAU)



“No Progress in our Economy WITHOUT **Science.....CLOSING the PRODUCTIVITY GAP and raising Britain's productivity performance will mean **MORE JOBS** and **HIGHER LIVING STANDARDS** in the future...”**

**Tony Blair – 2000
Biotechnology Conference**



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Today, more than ever before in human history, the wealth or poverty of nations depends on the quality of higher education. Revolutionary breakthroughs in the knowledge economy are leading to remarkable changes in the way forward-looking nations capacitate their graduates.

In this era of global skills and knowledge race, universities cannot fail to realise, accept and accomplish their natural and ascribed roles as strategic agents for national development.



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- What is the role of HE institutions in supporting and enhancing the process of economic and social development?
- What are the major obstacles that HE institutions face?
- Are there governmental components to these? if so what?
- Are there societal components to these? if so what?
- How can these obstacles best be overcome?



Universities must confront new realities rapidly manifesting themselves in a diversely ***complex and fast-changing world***. Business as usual will not suffice. Universities need to be expansively re-focused in order to become ***more sensitive and responsive to its mission of developing graduates*** who, in addition to conventional graduate training, are also able to fight the intellectual battle for self-confidence and self-assertion as equal players in the global and intensely competitive ***knowledge economy***.



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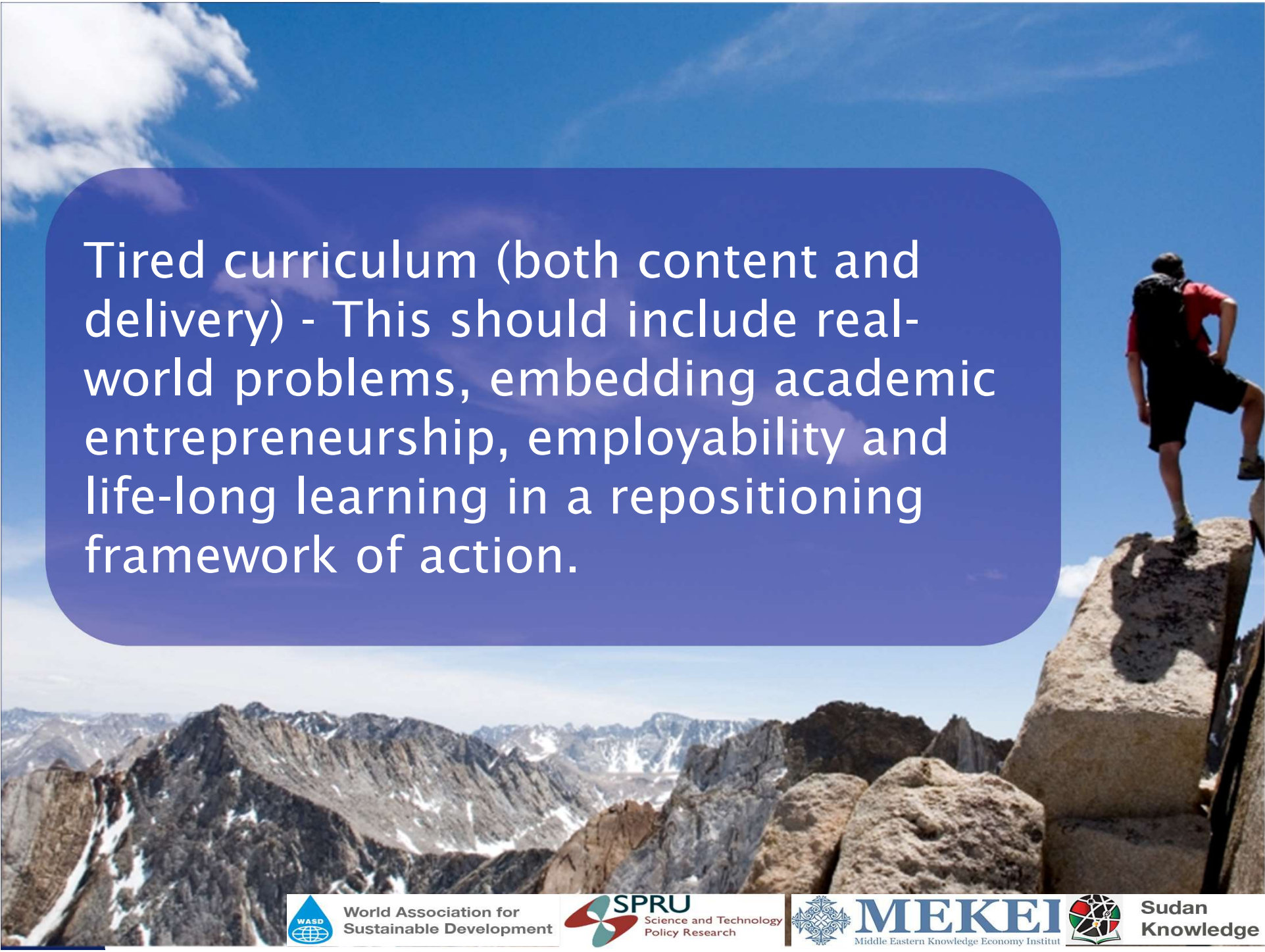
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Tired curriculum (both content and delivery) - This should include real-world problems, embedding academic entrepreneurship, employability and life-long learning in a repositioning framework of action.



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Africa's scientific collaboration

Africa's current educational environment, creates a persuasive case to genuinely pursue *inter- and intra- institution and country scientific collaboration* (also international collaborations), not only in areas of curriculum development, learning and teaching methodologies but also in quality accreditation and faculty capacity development.



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Under-performance in research – state of academic research is *less-than-satisfactory*



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Weak absorptive capacity and/or constraints to widening participation



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The man who farms as his forefathers did cannot produce much food no matter how rich the land or how hard he works.. technical change is the critical factor in raising productivity and the role of the government is to promote technical change -Theodore W. Schultz, *Transforming Traditional Agriculture*, 1964

- *Use of technologies now available or research* to further improve & utilize new technologies.
- *Venturesome scientists* who can work *across disciplines* to produce *appropriate technologies* & who have the courage to make their case with *political leaders* to bring these advances to fruition.

(Norman Borlaug 1970 Nobel Peace Prize Laureate)



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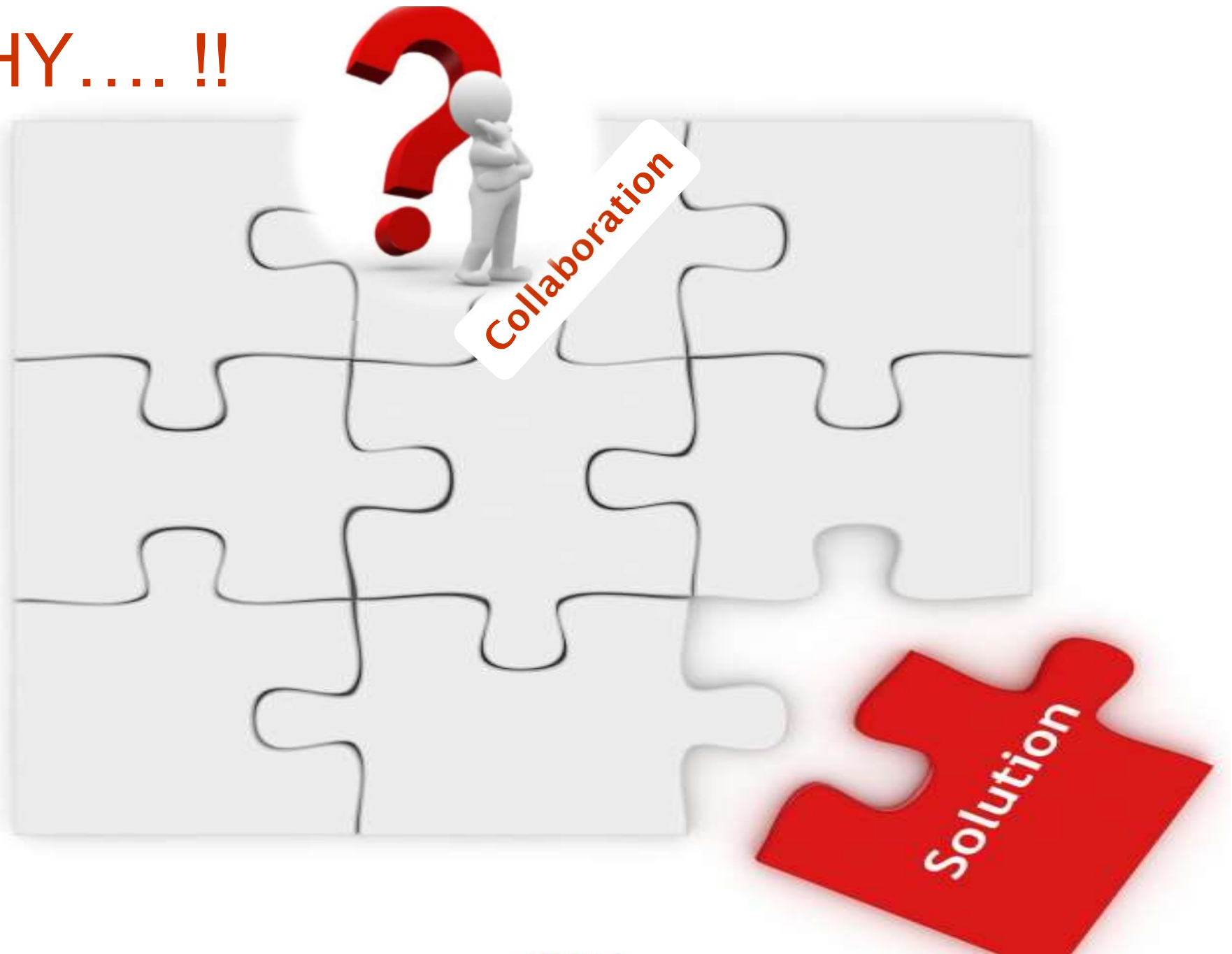


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WHY.... !!



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Why collaborate

- Meeting the challenges of implementing Agenda 2030
- Technology transfer
- Complementary of resources and programmes and not a substitute to international cooperation
- Successful practices to be replicated
- lessons learned: most African countries facing similar challenges such as conflicts



Foster the reuse of intellectual capital



Enable better decision making



Eliminate redundant effort



Avoid repeating past mistakes



Take advantage of what others already

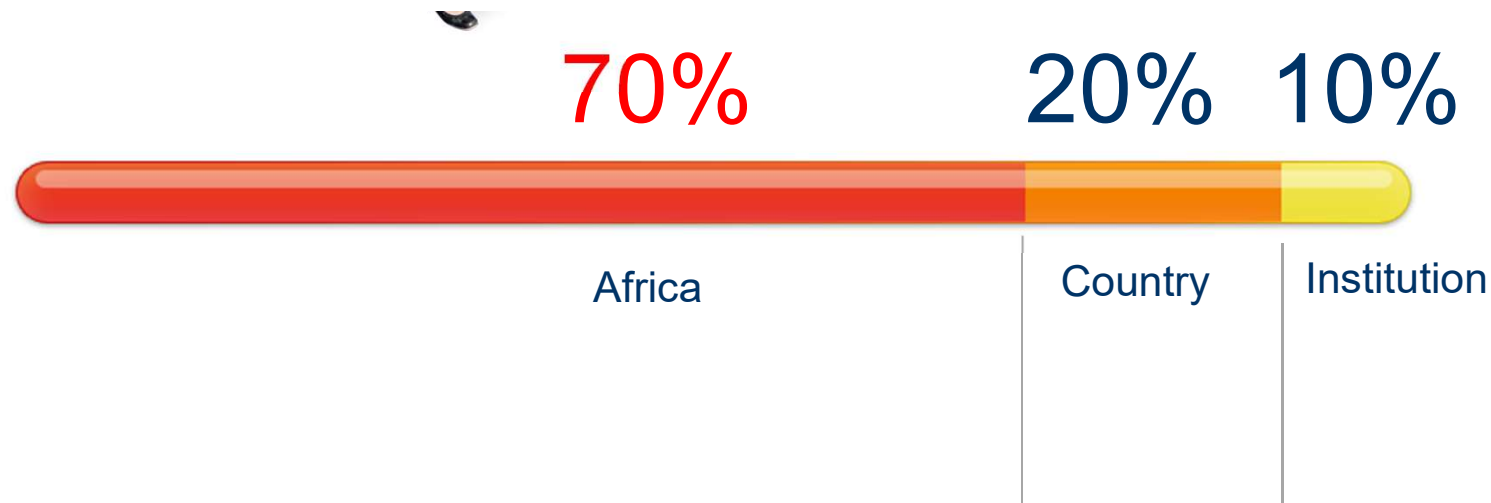


Create the conditions for innovation



Why collaborate

Imagine having Access to **ONLY**
1 Out of **10 Documents**



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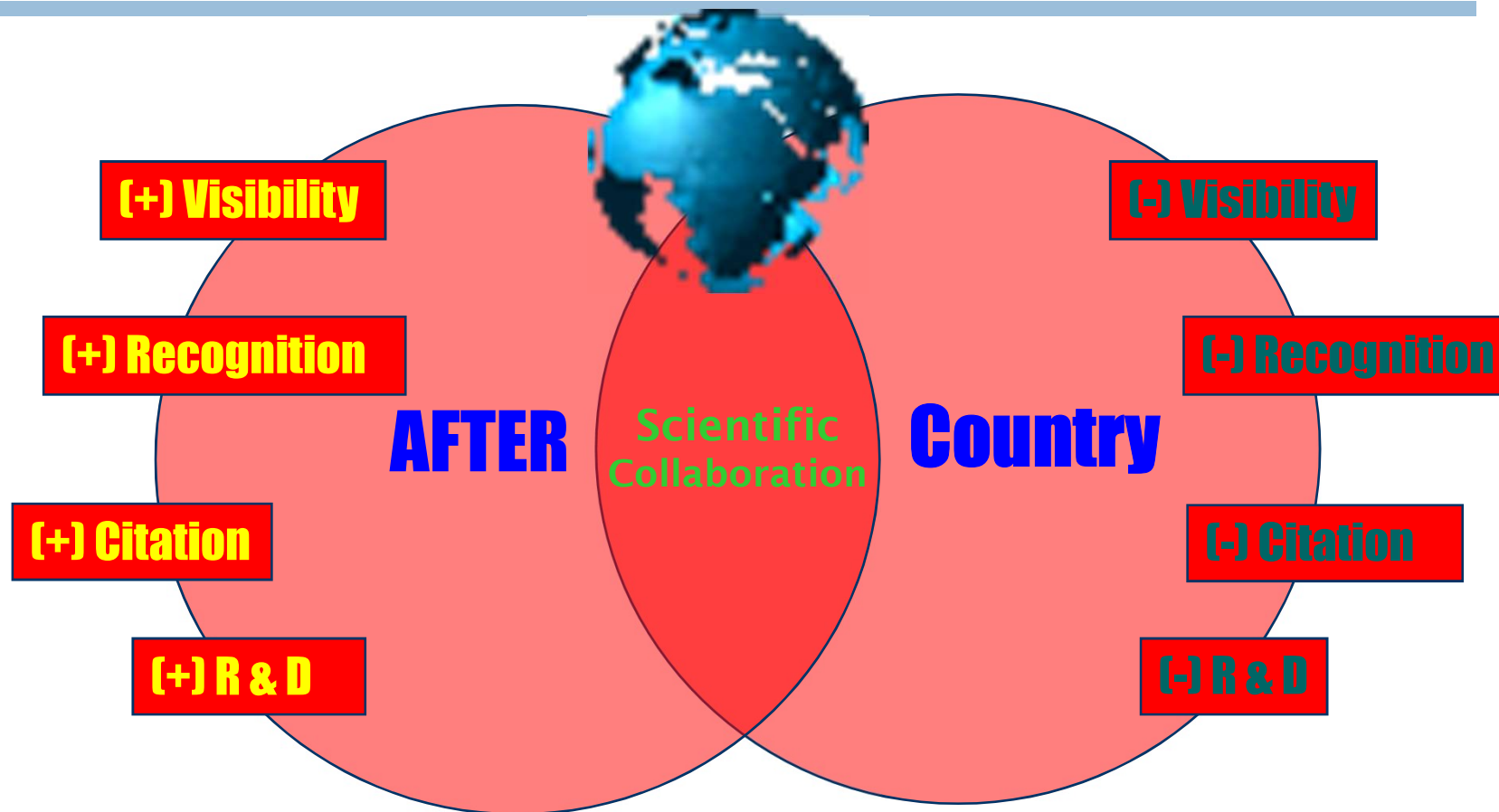


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Why collaborate





Myths about Scientific collaboration



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MYTH1

Scientific collaboration is something to do with IT platforms and function, should be given to CIO

- ✓ Scientific collaboration should be part of an organization's 'research strategy', 'IT', and 'HRM' departments'



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MYTH2

Scientific collaboration is about databases and a centralized repository for data.

- ✓ People are still not collaborating...we don't share knowledge when we don't have the right AUDIENCE



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MYTH3

Collaboration can be solved
by buying the right software

- ✓ Scientific collaboration
revolves around institutions'
strategy, researchers,
process and technology



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MYTH4

Scientific collaboration can be mandated from the management



- ✓ Scientific collaboration depends on collaboration & sharing between all parts of the organization and different stakeholders.



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MYTH5

Social tools (Wiki, Blogs, RSS ...) makes scientific collaboration successful ...!!

- ✓ Social Software is just a tool...Sure it is easier, more interactive – but it won't guarantee an audience either.



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FEU STI



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EU International Cooperation

- Support European competitiveness through strategic partnerships with third countries in selected fields of science.
- Address specific problems that third countries face or that have a global character, on the basis of mutual interest and mutual benefit.
- Use S&T cooperation to reinforce the Community's external relations and other relevant policy
- Early identification of problems in other parts of the world before these affect Europe
- Cooperation with and in third countries in finding solutions to such problems
- Dedicated activities within and across themes in order to address existing complexity in third countries



MYCETOMA
Reserach Center

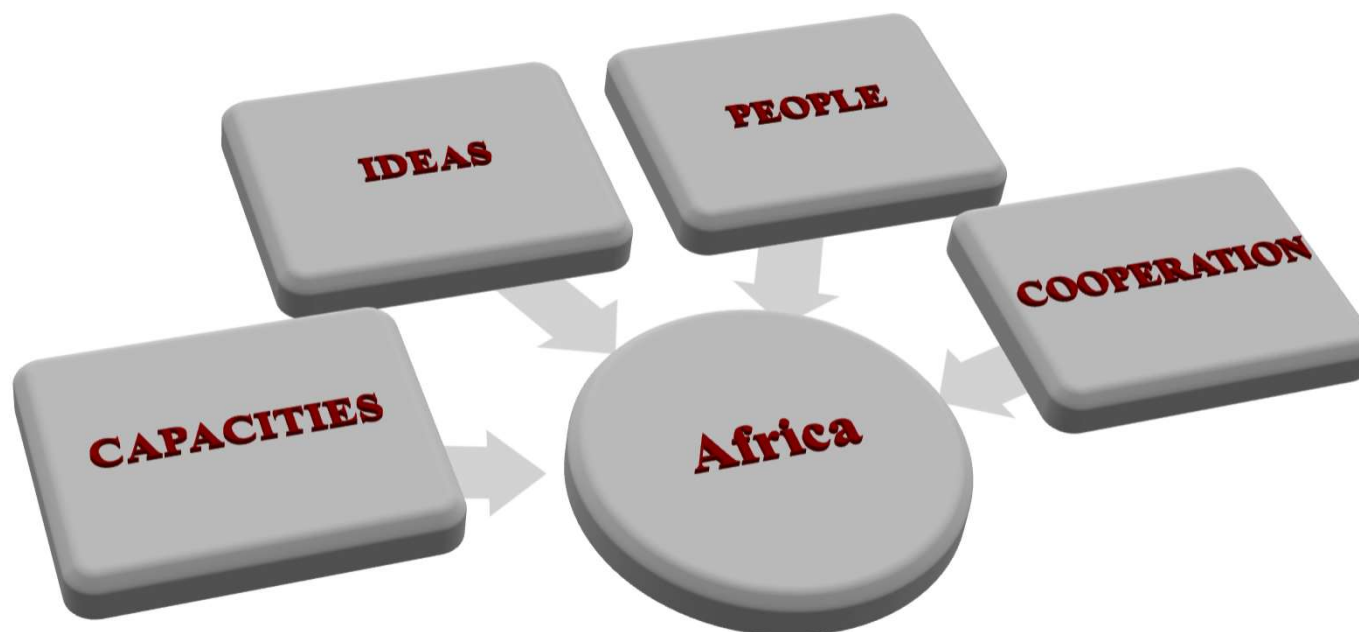
University of Khartoum



WHO Collaborating Centre on Mycetoma

EU International Cooperation

- Competitive advantage for Europe by enhance Europe's competitiveness
- Critical and specific need
- Build S&T partnerships based on mutual benefit and interest
- Contribute to implementing EU policies and international commitments effectively



Example of scientific collaboration

- Bringing researchers together through thematic partnering workshops and visits by individual researchers
- Soliciting and funding small scale, PIs, collaborative proposals and researchers
- Larger collaborations
- Grand Challenge: building broad research areas and capacity, with the potential to provide unanticipated and radical solutions to particular (agriculture/health) issues. The challenge might emerge from phase 3 or from a roundtable discussion.
 - **An initiative to:**
 - Foster collaborative, multi-investigator and inter-institutional research in the biosciences
 - Catalyze 'team science' with inputs to the biosciences from the physical sciences, nanosciences, engineering, mathematical, computational and information sciences
 - Provide access to state of the art equipment and facilities not readily available locally
 - Collaborate to create new ideas, techniques and products



Policy Issues



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Miriam Were

Board Chair, African Medical & Research Foundation

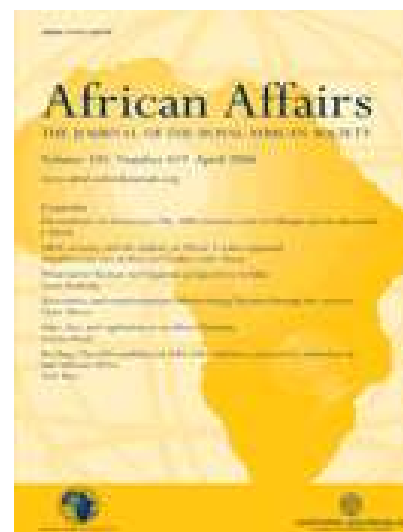
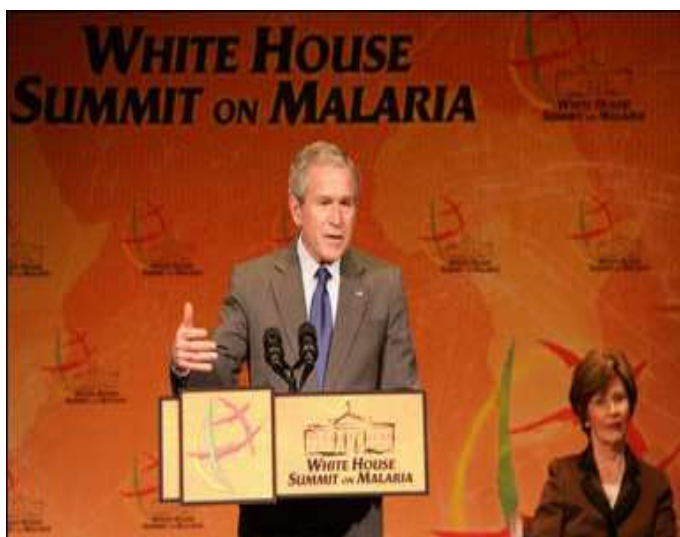
“most donors are in a rush. They are in a hurry to have results tomorrow. For instance, people say things like if we can produce this result within 3 years we can reduce poverty. *We must address the issue of context much more carefully.* Many of our people live in absolute poverty so they will not say no, even if what we suggest doesn't make sense to them. *They will in fact get involved knowing very well that this thing won't last.”*



Gideon Okelo

Executive Director, African Academy of Sciences

Quite a number of donors decide in the North what they want to do and bring it to Africa and say this is what we think you need. *It is like I come to your house and I tell you, you don't need salt today, you need sugar.* The needs should be discussed in advance and must involve all the sectors, not just the government.



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Learning the Lessons Bulletins

The bulletins summarise investigations conducted by the Independent Police Complaints Commission (IPCC) or police forces where learning opportunities are identified. Police forces facing similar situations to those described can use the experience of other forces to improve their policies and practices. The bulletin challenges forces to ask “*Could it happen here?*”



- Bring together people and information through Communities of Practice
- Encourage new ways of working, making knowledge sharing business as usual
- Build quality into the system, using common standards and secure processes
- Create an environment which encourages continuous learning and development
- Provide data standards for performance reporting
- Provide better services to customers

Role of Diaspora

- Diasporic contribution is largely neglected within home country's national science and technology policies and strategies.
- Diaspora's role as conduits of tacit knowledge and technology is important.
- How can home country exploit the benefits of brain circulation?
- Lack of policy and strategies to support the role of Diaspora in developing, creating wealth and achieving SD.



New Ideas....

- Applying new ideas to African experiences, **Revolution** not **Evolution** if we are keen to achieve targets.
- Search for new paths to development which adopt scientific collaboration within Africa.
- “Democratisation” and “popularisation of STI.
- Better integration of STI policies with overall development policies.
- Strengthening of STI policy-making & development institutions.
- Building of an efficient STI infrastructure, funding, as well as managerial, entrepreneurial and innovation capacities.
- Enhancing international cooperation.
- Using internationally agreed standards & methods, AFRICANS need to develop & implement better mechanisms to monitor STI development within their borders.



What remains unanswered?

- What generic framework will work best?
- How can we create effective collaboration networks? (Communities of practice)
- What technological (IT) solutions have been demonstrated to work well in inter- and intra- institution and country scientific collaboration?
- How do we best derive multiple uses and integration for scientific collaboration?
- What are the best approaches for ensuring scientific collaboration within Africa?



“People in AFRICA don’t want to live on hand-out. All they want is the opportunity to work themselves out of poverty - and the chance to live dignified and independent lives” OXFAM



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to be continued.....thank you..
(www.allamahmed.org)

