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New and Emerging Issues – Interface to Science Policy

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Introduction

- Rio+20 conference renewed commitment to sustainable development (following 2009 GA resolution)

- Emphasing the role of STI, the Rio+20 called for promoting the science-policy interface…

- It is believed that these new and emerging issues and challenges can be addressed through sound STI;

- USA : 1909 and 1949 : **87.5% of** the economic growth could be attributed to the applications of science and technology

- However, at 0.42% the continent is far from international targets for R&D spending as a share of GDP

- **13.4%** of the world's people -> only **1.1%** of the scientific knowledge

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New and emerging issues – interface to science policy

– Climate change and conserving natural resources
– Green economy
– Energy
– New digital technologies and innovation
– Knowledge and technology transfer
– Smart cities
– Focusing on people (youth and women)

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Climate change and conserving natural resources

- Climate change is major concern for Africa

- Between 1970 and 2012 : **1319 Climate related disasters** occurred in Africa , killing a total of **698,380 people** with an economic loss amounting **$26.6 billions** (WMO 2014)

- A temperature increase of 2^0 C in Africa could mean a loss of 4.7% of GNP most of it as a result of loss in the agri sector

- A temperature increase of $2 – 2.5^0C$ would be worse, since it would translate into exposing **128 million to hunger, 108 million affected by flooding,**

- Science-informed and evidence-based policy, planning and practice essential

Youth unemployment

- Representing 60% of the population of the continent, majority of youth continue to face unemployment, underemployment, lack of skills, relevant education and access to capital, etc.

- Rio+20 urge governments to develop and implement strategies and policies that provide youth people everywhere access to decent and productive work

- To achieve this, promote job creation through investing in STI

Energy

- Access to modern forms of energy has been a structural constraint to Africa's socio-economic dev't

- Only about 7% of Africa's hydro potential has been harnessed

- With limited initiatives so far, renewable energy technologies could contribute significantly to the dev't of the energy sector in Africa;

- Science and tech must play an integral role in transforming the energy system
  - increased use of renewable energy sources and other low emission tech to poor people in rural and remote areas
  - utilization of more efficient energy resources, greater reliance in more advanced tech including cleaner fossil fuel tech and sustainable use of traditional energy sources.

New digital technologies and innovation

- Technology and innovation has critical role

- ICTs has been a key driver for more than a decade in Africa

- In addition to its contribution to economic growth, ICTs (mainly smart tech) contribute in managing energy consumption and other changes in household and firm behavior.

- Innovation in ICTs will also stimulate economic growth through investment in broadband infrastructure and other e-applications in health, education, agriculture, commerce, government and other sectors, etc.

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Knowledge and technology transfer

- Improving access to and quality of know-how on science and tech across Africa is key to human resource devt;

- Only 3 African universities are among the top 500 worldwide;

- The weak devt of science, tech and innovation has delayed the emergence of African countries as knowledge economies;

- There is a need for substantial scientific and technological base to make breakthroughs in S&T;

- Tech transfer is important for Africa based on internationally agreed provisions on tech transfer, finance, access to info and intellectual property rights in order to catch up with the rest of the world

Smart cities

- It is projected that the world's population to exceed 9 billion by 2050 with estimated two thirds living in cities;

- African cities is set to triple over the next 40 years;

- Policies to planning and building sustainable cities and urban settlements including through inclusive housing and social services, a safe and healthy living environment for all is key to future cities including affordable and sustainable transport and energy, promotion including sustainable management of waste, etc.

- Smart cities planning and management is key

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Focus on people (youth and women)

- Given Africa's youthful population it is important to tap into the talent of the African youth and nurture the best and brightest minds for the benefit of the continent;

- According to African Child Policy Forum, one additional year of education per person increases an average **6% of GDP per capital**; At individual level, one additional year of primary school increases **the salary of 5 to 15%.** An additional year of secondary education increases the **salary by 15 to 25%;**

- Education is therefore key;

- A forward-looking planning may benefit the continent to reap the benefits of demographic change and address the related challenge

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Challenges (1)

- **Climate change and development**
  - Development and diffusion of new technologies at both national and regional scales e.g. early warning systems; meteorological data and forecasting;
  - Capacity building (for technology absorption)
  - Issue of IPRs and climate impact data.

Energy:
  - Clear policies to promote sustainable modern energy technologies;
  - financial shortfalls for R&D;
  - Conducive environment for resource mobilization from the private sector; lack of awareness about renewable energy technologies (RET); and
  - Dissemination of new technology and energy products

- **Knowledge and technology transfer** :
  - To promote, facilitate and finance, as appropriate, access to and the development,
  - Transfer, diffusion and sharing of environmentally sound technologies and corresponding know-how,.

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Challenges (2)

- **New digital technologies and innovation:**
  - Deployment of broadband infrastructure
  - Mainstream e-applications across socio-economic sectors such as health, education, agriculture, commerce, government services, etc.
  - Capacity building in terms of skills for managing appropriate
- **Focusing on the youth**:
  - To put in place forward-looking policies and strategies to address demographic challenges i.e. youth bulge
  - Unemployment

- **Smart cities**
  - policies and strategies to creating the cities of the future
- **13 Statistics for understanding the trend in STI**

Key Questions (1)

- 1. What **policy mechanisms** need to be in place to foster environmentally sound technology, research and development, and innovation, in line with sustainable development and poverty eradication?

- 2. What **policies and strategies** need to be in place for African countries to undertake appropriate mitigation and adaptation measures in order to reverse the impact of climate change?

- 3. What **technologies and innovative measures** can be taken to enhance energy access and its efficient usage?

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Key Questions (2)

- 4. How can African countries **develop national capacities** including access to technologies and innovation to promote entrepreneurship and employment among the youth?

- 5. How can **ICTs be harnessed** to address the diverse challenges of urbanization?

- 6. What **sources and mechanisms of innovative financing** be used to achieve sustainable development goals?

Thank you!!!

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