

REPORT ON SCIENCE WITH AFRICA CONFERENCE

Terms of Reference:

The United Nations Economic Commission for Africa (UNECA) in collaboration with the Africa Union Commission (AUC), other UN agencies and partners organised a conference on Science with Africa in Addis Ababa at the United Nations Conference Centre; from 3-7 March 2008.

Objectives of the Conference:

- Increase synergies between European, USA and other global science based organisations and those of Africa; to promote North-South cooperation, to foster technology transfer and to improve existing R&D activities, centres of excellence and partnerships.
- Improved linkages between international scientific research programmes and business enterprise to expedite economic growth in Africa.
- Provide a framework for using Science and Technology options to support economic progress in Africa.

Conference Themes:

1. Cross-cutting
 - 1.1 Science Policy
 - 1.2 Innovation
2. Science Themes
 - 2.1 Energy
 - 2.2 Transport and Infrastructure
 - 2.3 Health
 - 2.4 Life Sciences
 - 2.5 Agriculture and Climate Change
 - 2.6 ICT
 - 2.7 Water

Attendance:

The conference was attended by ±700 people from different sectors i.e.
Policy and decision makers
Scientists
Entrepreneurs
Journalists
Students
Experts in Science project management, dissemination, partnering, research management
International development partners

Exhibition:

An exhibition space featured international and local companies, organisations and government offices specialising in a variety of services. The exhibit provided participants and exhibitors with an excellent opportunity to network and exchange ideas regarding the promotion of science in Africa.

Outcomes and recommended actions**High level panel on STI in Africa:**

Countries around the world have been using STI to position their social-economic development; but the situation in Africa is unsatisfactory, despite the pronouncement of national development visions.

Most of these visions have components dealing with the development of S&T and its relation to economic development. The African Union's Consolidated Plan of Action (CPA) of 2005, which is a continent-wide blueprint for boosting economic growth through the application of S&T is being implemented.

This is expected to help African Governments prioritise STI for development. In light of the continent's current challenges, implementation of the CPA needs to be accelerated, while African Governments also need to scale up investment in STI. Linkages between STI policy, research products and business enterprises need to be strengthened.

Suggested Actions:

- The African Union (AU), the Economic Commission for Africa (ECA), African S&T networks, UNESCO, other UN agencies and development partners should establish a strong functioning institutional framework i.e. partnership for implementation of CPA – PICPA) that will support a harmonised implementation of the AU Consolidated Plan of Action.
- The African Union with the support of its partners need to foster the development of the African S&T policy framework.
- African countries need to prioritise innovation as part of their S&T strategy for job creation, market competitiveness and wealth creation. Therefore, African countries should develop national innovation systems that have clear development indicators, and clear interface between education, research, STI policy and business enterprises.
- African governments should strengthening their will and commitment to prioritise the sustainable funding for STI activities in their respective countries. R&D funds should be mobilised from both the government and the private sector.

Science Technology and Innovation policy in Africa:

Africa requires STI policies, which are founded on its basic needs, especially poverty reduction through sustainable economic growth. The formulation of such problem solving policies should be based on development indicators and should take into account the country's existing STI infrastructure, human and financial capacities. They should incorporate prospective South-South and North-South STI cooperation (i.e. technology transfer and domestication), but avoid heavy dependence on external funding. At the moment almost all African countries do not have an enabling environment for the utilisation of S&T for socio-economic development and hence their market competitiveness is weak.

The conference was informed that the recent EU-Africa cooperation strategy places climate change and R&D in Africa at the forefront. It was also reported that a number of development cooperation partners are willing to support collaborative R&D activities taking place on the continent.

Suggested Actions:

- African governments should establish enabling environments for the sustenance of local STI experts, creation of a critical mass of STI experts and of knowledge communities in their respective countries.
- African governments should develop mechanisms to profitably address the brain and encourage brain circulation through South-South and North-South scientific cooperation.
- African countries should incorporate climate change issues in their S&T priorities, particularly in their partnership project with the EU, G8 and other development partners, including emerging economics such as India, China,
- ECA in collaboration with AU, should assist African countries and their regional economic communities (RECs) to prepare or review national and harmonised regional STI policies. Such policies should adequately have STI development indicators.

STI - Idea Factory:

The Idea Factory is an innovative method for generating ideas, selecting and implementing innovative ones. This innovation aims at establishing concrete measures to boost R&D in Africa. In the context of conference, the Idea Factory facilitated the establishment of selected research ideas which will be jointly implemented by BrainStore and African scientists, engineers and technologists. During the conference, 5000 inspirations were collected in the Creative Workshop and the Ideation Shop; these were compressed to 450 proposals of which 144 were examined by a panel of

experts. 20 ideas were visualised and presented to the conference. A workshop devoted to the implementation of the outcomes of the Idea Factory will be organised in Africa by the ECA and BrainStore within a few months after the conference.

Suggested Actions:

- The AU, ECA and the UN family, in collaboration with other implementing partners, should work with African based S&T entities to generate many factory ideas in order to boost R&D in Africa.

Energy, water, transport and infrastructure:

75% of the Sub-Saharan Africa population has no access to electricity. This impacts negatively on the attainment of the MDG's, especially the fight against poverty on the continent. However, records show that Africa has abundant primary energy resources (water for hydro-power, oil, natural gas, coal, nuclear). In addition, Africa has enormous amounts of renewable energy sources, such as solar, wind ocean waves and tides, geothermal and biofuels.

It is commonly found that there is not much emphasis on the nexus of energy production, utilisation and environment protection issues in Africa. R&D on energy sector in Africa has yet to focus on energy resource assessment; conversion technologies; low cost transport and distribution technologies; and energy efficiency.

On average, the African population with access and safe water is about 60-80% in the urban areas and about 30-50% in rural areas. It was reported that sanitation levels in the urban and rural areas is about 55% and 25%, respectively. This promotes the prevalence of high levels of water-borne diseases on the continent.

The main concerns in the water sector in Africa include variable precipitation due to climate change, water scarcity, the uneven geographical distribution of water resources, water governance and trans-boundary aquifers. The other challenges facing Africa in this sector include the unavailability of reliable data, lack of adequate well-trained human capital and functioning research infrastructure.

Challenges in the transport sector include poorly functioning transport systems, due to weak infrastructure and maintenance schemes. Furthermore, there is a big mismatch between demand and supply of transport services in many African countries. The integration between population growth, land use and transport networks is weak while the transport industry in Africa does not sufficiently utilize modern technique such as ICT tools.

Suggested Actions:

- African Institutions dealing with energy, water, transport and infrastructure sectors should establish professional networks for sharing information, knowledge, skills and experiences in these sectors.
- African countries should harness their enormous energy resources for socio-economic development paying special attention to renewable energies which are agreeable for use in rural areas.
- ECA should continue to work with the African energy institutions, such as the African Energy Commission, the AU and its NEPAD energy initiative.

ICTs and Innovation:

This session acknowledged that ICTs constitute a solid foundation for harnessing science technology and innovation for development. They support research activities that deal with data capturing, storage and dissemination. Consequently, the application of ICTs facilitates access to knowledge and the creation of networked communities and business enterprises. Unfortunately, the low level of ICT penetration, absence of national and sub-regional innovation systems due to lack of affordable infrastructure, inappropriate legal and regulatory environment to support market competition and participation of all stakeholders (the widely dispersed rural community and the disenfranchised groups) constitute the main challenges that most African countries face. The lack of technological innovation to support growth of SMEs limits their contribution to national economies in Africa.

Suggested Actions:

- ECA should continue its assistance to African countries and Regional Economic Communities (RECs) for the development, implementation and monitoring of national, sub-regional harmonised ICT policies. Greater emphasis should be put on reinforcing implementation mechanisms and on meeting the needs of rural communities, youth and women.
- African countries should develop ICT and Innovation policy and strategies.
- African countries should establish enabling environment for partnership for knowledge sharing and networking.
- African Union, in collaboration with its partners should support the implementation of the African Regional Action Plan on the Knowledge Economy (ARAPKE).

Agriculture, Health and Life Sciences:

About 70% of the Africa's workforce is employed in the agriculture sector, most of them being small-holder farmers and traditional pastoralists, while 40% of the GDP of African countries derive from agriculture products. About 80% of the African population depends on traditional medicine; hence African biodiversity is very important to livelihoods in Africa. Despite this prominence, investment in agricultural research has been declining leading to reduced capacities to address issues of agricultural productivity.

Agriculture in Africa is heavily dependent on rainfall, but due to climate change, rainfall patterns have become unpredictable. The migration of the productive workforce (youth) to urban centres, the aging of rural populations, malaria and HIV/AIDS pandemic have drastically reduced the human resources potential in the agriculture sector, Consequently, famine remains a major problem facing many countries on the continent.

Currently, Africa is not fully benefiting from biotechnology, despite its potential to contribute to the achievement of the MDGs. Partly this is due to the perceived risks of biotech (especially those around genetic modification) including concerns over a reduction in biodiversity, a fear of possible multi-national dominance, and human health issues such as allergenicity.

Suggested Action:

- African governments should support R&D programs in the agriculture sector which aim at modernising the agriculture sector, so as to increase productivity, industrialisation and commercialisation. At the same time, indigenous and simple technologies should be harnessed so that they can contribute to poverty alleviation.
- African governments should establish adequate policy frameworks to support the modernisation and commercialisation of traditional medicine products.
- African countries should focus on identifying more viable seed storage systems for indigenous African plants, the roll-out of a user friendly biosafety legislative framework, and improved support and service conditions for African scientists. South-South and North-South collaboration should emphasize biotechnology.
- The lack of data and weak data collection infrastructures remain a considerable impediment to the development of scientific and technical research in Africa. A real time internet based data collection infrastructure should be developed to assist African researchers to better study climate change, its impacts, and formulate mitigation strategies.

STI Capacity Building:

Capacity building in STI is a cross-cutting issue and was presented and discussed in all plenary and breakout sessions. An innovation system approach offers solutions to bridging the gap between S&T and the productive sector. Measures should be put in place to strengthen capacities in STI in Africa.

Climate Change in Africa

It was recognised that 90% of all natural hazards and disasters are linked to climate variability which resulted in an estimated 85% of economic losses to countries experiencing such natural events. Furthermore, climate change has detrimental effects on health, and food security.

Suggested Actions:

- African countries need to improve systems of observation, information, prediction and mitigation of natural hazards and disasters. African institutions dealing with hazards and disasters should collaborate among themselves and provide services to decision-makers and end-users.

Way Forward

The Conference recommended that ECA, in collaboration with the AUC and international partners, such as EU sets up an STI secretariat for Science with Africa and a well defined programme to monitor and evaluate the implementation of the suggested actions of the conference, and serve as a permanent forum for interaction between African based scientists and their international partners.