

Science and Technology: Towards Sustained Growth and Development

Investment in science, technology and innovation acts as an engine for long-term development, and is an essential ingredient to achieving many critical elements of the Millennium Development Goals.

What role do science, technology and innovation play in building Africa's future, and what are the resource requirements needed to create effective public and private partnerships?

This session is on the record.

Key Points

- Government spending on science and technology research in universities must be escalated, and top science graduates must be retained, if Africa is to become competitive in the global economy
- Food security is the foundation of economic development on the continent, and science and technology has a critical role to play in advancing agricultural methods
- African countries are looking to alternate energy sources, including technology-intensive nuclear power, in a greening world
- While Africa's pressing development problems must focus minds on scientific and technological solutions, there should also be room for innovation – even daring new projects, or “blue sky” thinking
- Indigenous knowledge – particularly in medicine – needs to be harnessed and developed, with benefits accruing to the continent's people

Synopsis

The progress of science and technology in Africa has been bedevilled by a paucity of higher education, with universities being badly underfunded due to rival claims on public finances. In 2004, African leaders committed themselves to raise funding for science and technology to 1% of their GDP. While some countries have hit or surpassed this target, most have not come close. There are frequent calls for a stemming of the African brain drain, and to lure highly educated expatriates back to the continent, but there is a growing realization that a strategy of “brain gain” might be more effective in the long run. This calls for a dramatic rise in the number of masters and doctoral graduates. South Africa has set a target of 30,000 new PhDs by 2018, using strategies such as sponsored university research chairs with outstanding academics to attract good students.

With development economists saying that Africa has the potential to be the world's breadbasket, it is time to rapidly upscale its agricultural productivity. Science and technology interventions here will include new seed varieties, smarter irrigation technologies and connectivity in supply chains. On the ground, success stories to build on and be inspired by include a public-private sector initiative in Kenya that has seen farmers in a semi-arid area boost their maize yields by 50% with enhanced seed varieties. However, to expand such small, experimental projects across the continent requires clarity in regulatory environments for agribusiness.

Nuclear science capacity in Africa is low, but several countries are trying to source scientists to bring them into the sector. Kenya is one of the countries that has already assembled a project team to pursue nuclear power. In South Africa, an established nuclear power generator, new neutron research is producing exciting developments in the medical field.

One way to attract top scientists to a country is to come up with a groundbreaking innovation or major new project that captures the imagination of the scientific community. South Africa is one of the final two bidders to host the Square Kilometre Array (SKA), the largest telescope in the world, costing more than 15 billion euros. As part of the bid, a “demonstrator telescope” is being built on the selected site in the Karoo and is attracting some of the world best astrological minds to the

country.

Even as African nations gaze at the stars, they should not neglect indigenous scientific knowledge on the ground. The hoodia plant, an indigenous species that helps people lose weight, is now an international success with various companies marketing it – but few if any of them are African companies. South Africa's government is currently working with traditional healers to learn how their remedies work. Researchers are identifying the effective elements and properties within these remedies, which will then be developed commercially, with all intellectual property rights being retained by the communities from which the prototypes come. Already, various essential oils and cough remedies are being brought to market. An extensive nursery of all the southern African region's medicinal plants is being established to retain this plant material in perpetuity.

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Intervention from the floor

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Disclosures

This summary was prepared by Mike Moon. The views expressed are those of certain participants in the discussion and do not necessarily reflect the views of all participants or of the World Economic Forum.

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