



A COMPLEX MAP FOR S&T DEVELOPMENT

At the annual Ministerial Session, top science leaders emphasised the important role of education and international partnerships.

 by Edward W. Lempinen

Over the past generation, many developing countries have embraced a basic axiom for escaping poverty: Science and technology are essential for powering the engine of development. But putting the principle into practice is more difficult. Policy, investment, education, gender equality, partnerships – where does a country begin?

In the traditional Ministerial Session at the 27th TWAS General Meeting, eight government ministers and high-level science policy leaders explored different facets of scientific advancement, connecting them to the challenge of achieving the 17 Sustainable Development Goals (SDGs) by 2030.

Elioda Tumwesigye, minister for science, technology and innovation (STI) in Uganda, said most countries in sub-Saharan Africa are focused on achieving the SDGs and the African Union’s Agenda 2063.

But the job is complex, Tumwesigye said. It entails reducing poverty, which means providing food, water and housing security, plus sanitation systems, transit and a healthy environment. It means providing more jobs, especially for women and young people. All of these require policy at the local, national and global levels.

The prescription is especially important to Africa, said Thomas Auf der Heyde, deputy director general of South Africa’s Ministry of Science and Technology. “The SDGs will only

succeed...if they can succeed in Africa,” said Auf der Heyde, representing Minister Naledi Pandor. “If they don’t succeed in Africa, Africa will impede global progress on the SDGs.”

A plain but powerful point emerged from the ministerial session: a country with development ambitions must have a holistic perspective. Policy, education, gender, diplomacy, partnerships – all must work with synergy to achieve scientific progress and development.

The ministerial session was held 14 November 2016 before a high-level audience attending the first day of the TWAS General Meeting in Kigali, Rwanda. The session was chaired by Rwandan Minister of Education Papias Malimba Musafiri. Other speakers were: Joyce Ndalichako, minister for Education, Science, Technology and Vocational Training, Tanzania; Yaye Ken Gassama, vice president, National Academy of Sciences, Senegal [representing Mary Teuw Niane, Senegal’s Minister of Higher Education and Research]; Tieniu Tan, vice president, Chinese Academy of Sciences; Romain Murenzi, director of UNESCO’s Division of Science Policy and Capacity Building, Natural Sciences Sector; and Vaughan Turekian, science and technology adviser to the US Secretary of State.

▼ From top: Rwandan Education Minister Musafiri Papias Malimba; Vaughan Turekian, science advisor to the U.S. Secretary of State.



Murenzi, a former minister of science in Rwanda, noted that developed countries generate some 80% of the world's scholarly research; emerging countries such as Brazil, China and India account for 80% of the rest. But Africa, he said, accounts for only 2.3% of global research papers. The SDGs pledge that no one must be left behind as the world advances. But, said Murenzi: "If these numbers continue as they are, more than 100 countries worldwide will be left behind in the next 50 years."

While speakers explored a range of development drivers, two have overarching importance: education and partnerships.

TWAS Fellow Tan Tieniu, vice president of the Chinese Academy of Sciences [CAS], noted that the CAS-TWAS President's PhD Fellowships annually enroll some 200 talented young scientists for their doctoral studies at Chinese universities and institutes. "People are the key," Tan said. "We should pay more attention to to human training and development."

Women require a particular focus, and Tanzanian Minister Joyce Ndalichako suggested "women-friendly scholarships". Especially in developing countries, she said, "a woman going into science is going to need extra support in



▲ Clockwise from top left: Yaye Ken Cassama, Elioda Tumwesigye, Tan Tieniu, Romain Murenzi, Joyce Ndalichako and Thomas Auf der Heyde.

that journey.... To be caregivers, to get married, to have the cultural role of caring for children – they need skills that can enable them to multitask."

For all countries, science education should extend from early childhood to those long past school age, said Vaughan Turekian, science and technology adviser to the US Secretary of State. Policymakers have to remember the innate curiosity of children – and feed that curiosity. And, Turekian added: "Building a science-literate public truly means engaging the public in every part of the scientific process, and not just science in school."

Partnerships are essential across the research enterprise, the speakers said. Auf der Heyde urged that major research centres be based in developing countries, to help build and deepen South-North cooperation. Scientific interests in the South should have full co-ownership and co-management of such projects. At the same time, he said, regional partnerships could effectively focus on priorities such as public health.

The takeaway message: A cooperative, holistic approach is essential to addressing challenges and achieving the SDGs. ■

◀ The ministerial session during the 27th TWAS General Meeting. [Photo: Robert Mugabe/Rwanda Ministry of Education]

