

Final Performance Report
April 2015
Grand Challenges for International Development
U.S. Agency for International Development
Sponsor Award No: AID-OAA-A-11-00003

SUMMARY:

The attached progress report, covering the period to June 2013, includes the work to summarize the activities of the Committee on Grand Challenges for International Development. It also includes the decision to terminate the activities of the Committee structure under the Award, and to move to some final concluding activities to be negotiated. Under the terms of Modification #5, in July 2014, the remaining funds were dedicated to the organization of a parallel event to the White House Conference of African Heads of State in August 2014, featuring the accomplishments and potential for science and technology in emerging social and economic development achievements in the region.

The date of the Award, under Modification #5, was extended to January 30, 2015, and this report represents the concluding and final report on activities under the Award.

ACCOMPLISHMENTS OF THE AFRICAN SUMMIT SYMPOSIUM ON STI

On August 5, 2014, the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine, in collaboration with the US Agency for International Development, hosted the African Summit Symposium on Science, Technology, and Innovation (STI) for Development in Africa. This Symposium was held as a side event to President Obama's US African Leaders Summit. The Symposium was organized to:

- Convene policymakers and leaders from the private sector, academia, the NGO community, and other stakeholders involved in science, technology, and innovation (STI) in Africa;
- Highlight needs for STI in Africa to address critical human and institutional needs and to advance peace, security, growth, and development;
- Share current leading practices and innovative approaches to development in Africa based on science, technology, and innovation;
- Explore opportunities to use and strengthen public-private partnerships to promote economic growth in Africa countries.

Representing different stakeholder groups, Symposium speakers and keynoters brought forth the key message that *stronger connections are needed between those who supply science and those who use science to realize the promise of STI in Africa to solve Africa's most pressing problems.*

Other themes included:

- Research and innovation are drivers for future growth, and thus, STI is needed to address critical needs in Africa –economic development, risks posed by climate change and natural disasters, food security, and health provision;
- STI can only be strengthened in Africa as STI-related institutions are made stronger to build and support a skilled workforce, conduct and apply research, and to nurture STEM students to become leaders;
- STI solutions will be most readily developed through stronger public-private-academic partnerships; and
- The constellation of problems and issues in Africa—food security, poverty, climate change, and education—require a collective approach across the range of STEM issues and multiple stakeholders.

STI in Africa, while plump with promise, faces a number of challenges, as well. Poverty, inadequate STEM education at all levels, and a lack of leadership or opposing politics retard STI progress in many African countries. In circumstances where these challenges are overcome, African scientists often opt to apply their talents in Europe or the Americas, not Africa. The Symposium’s participants discussed current STI efforts in Africa, and building on these current innovations, they suggested future paths to enhance STI in Africa:

- Build trust and partner with others and be willing to take the lead in identifying, organizing, and finding a solution;
- Think beyond one’s core offering and seek options to use that core offering to solve broader societal problems in Africa;
- Include the Diaspora and international partners to build out an African network of STEM and STI institutions;
- Use STI to meet critical needs by tackling the “real” problems in Africa first: health, water, and climate change impacts for broader societal and economic impact;
- Integrate STI, data, and information into common visions, defined goals, and desired outcomes;
- Make investments in STI research, education, training, analytics, and a skilled STI workforce;
- Approach the knowledge infrastructure for STI in Africa in ways similar to building physical infrastructure—build new institutions, leverage resources across multiple partners, make necessary investments, and perform regular maintenance and improvements.

The second session of the Symposium was an invitation-only workshop for subject matter experts. Its aim was to build on the themes and paths identified in the first session and identify short- and long-term opportunities for STI to make improvements in five areas:

1. Climate change and disaster resilience
2. Human and institutional capacity-building for health and development

3. Sustainable strategies for food security
4. Scaling technology and innovation and leveraging 21st century infrastructure
5. STEM Education and Training.

Many of the working groups' suggested actions and needs were common to all five of these topic areas. Common issues revolve around the challenges in designing strategies for the number and diversity of African countries, poverty and its related effects, weak or ineffective institutions, and insufficient translation of scientific information into action or policy. The work groups identified similar actions to improve STI and its effects for these five topics, too, such as better communication from the science community to those who can use the science; new or strong public-private partnerships; and investments of expertise and resources; and efforts to build capacity to facilitate the adoption, application, or integration of STI into policies or practices to positive effect. Long-term actions for the topics involve political buy-in, STEM education programs, capacity building, major investments in infrastructure, and educational reform.

Fundamentally, STI is positioned to save lives through better public health, enhanced resilience to climate change impacts and natural disasters, and improved sanitation. Better STI in Africa will also help create or bolster new economies, and ensure food security for generations to come. These STI effects depend on public-private partnerships, improved STEM education, and innovations in infrastructure to provide services of transportation, water, telecommunications, power, and agriculture.

In sum: the STI Symposium brought together public, private, academic, and other stakeholders to highlight the needs for STI to address the critical human and institutional needs and development in Africa. The more than 200 stakeholders convened at the Symposium agreed that interventions using science, engineering, and public health are needed to influence Africa's emergence in the 21st century and beyond. Furthermore, the convened stakeholders, as well as our African academy partners, are looking to the US National Academies to advance those ideas.