Strengthening Science & Technology Capacity through Africa's Universities

Mark Peterson, PhD

mpeterson@usaid.gov

Office of Science and Technology, USAID

African Education Summit
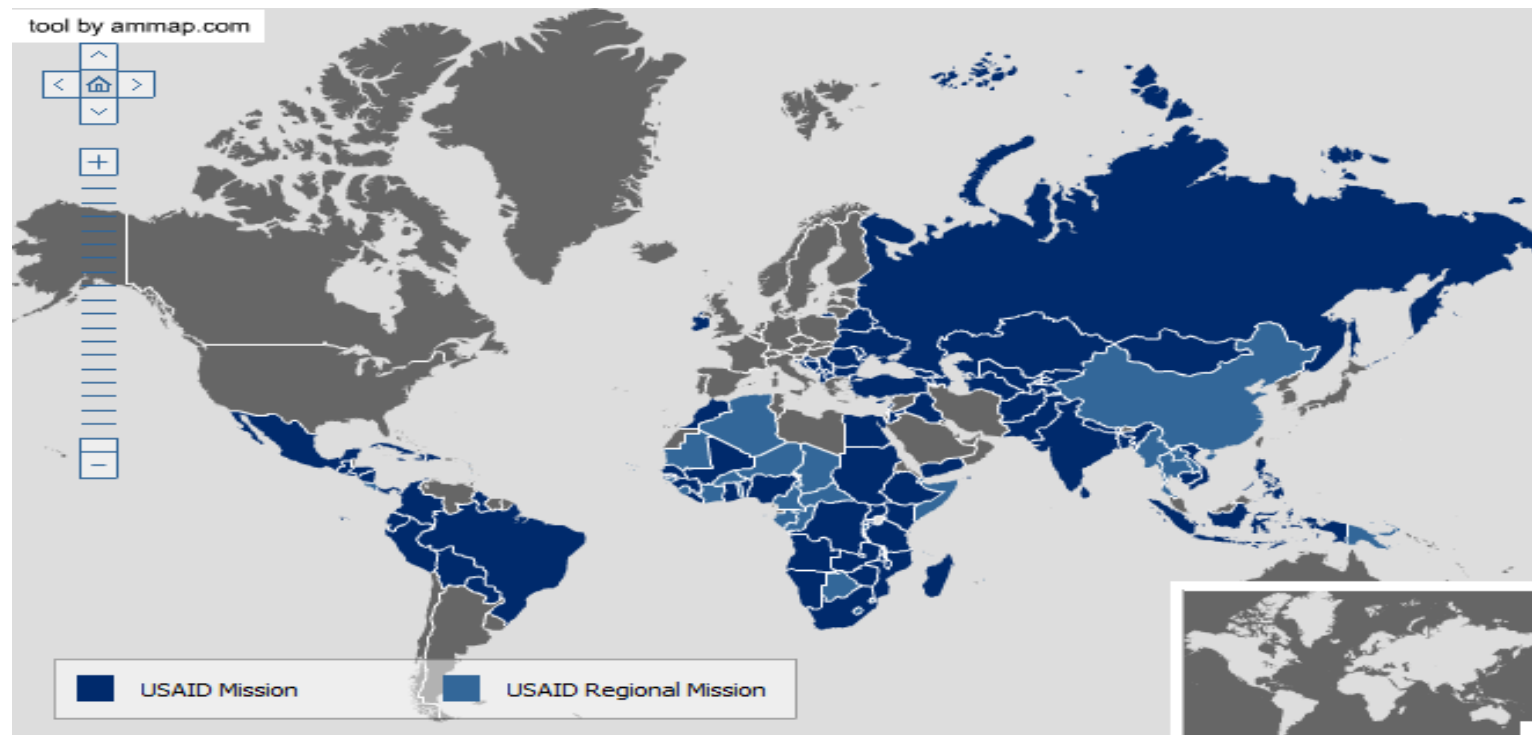
July 12-13, 2011

Rabat, Morocco

What is USAID?

USAID is the United States' principal international development agency, devoted to easing suffering, spreading prosperity and increasing security in the developing world.

USAID works in most of the world

- Climate Change
- Food Security
- Global Health
- Renewable Energy

- Water
- Biodiversity
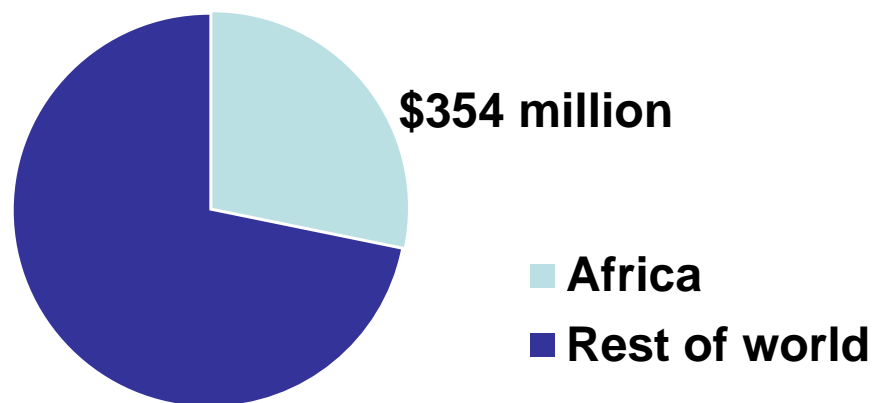- Conflicts and Disasters
- **Education**

USAID devotes substantial funding to education

FY 2010 TOTAL Education	**$1,254 million**
Basic Education	**$981 million**
Higher Education	**$273 million**

2010 education spending by region

$354 million

■ **Africa**
■ **Rest of world**
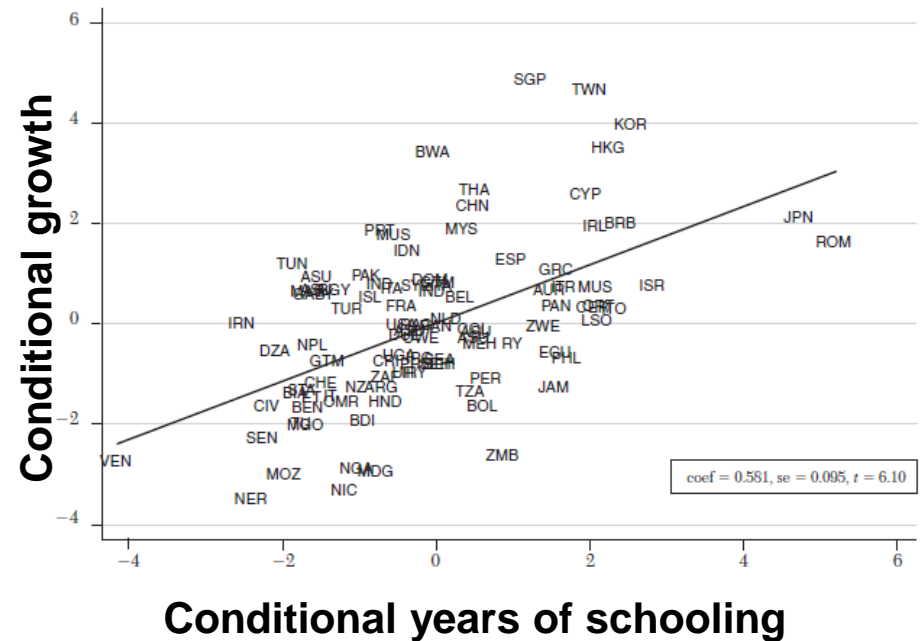
Quality education is crucial for sustained, broad-based economic and social development

- **Quality education is strongly related to economic growth. Individual's earnings increase by 10% for every year of school (Hanushek and Woessmann).**

- **Approx. 50% of the decline in child mortality since 1970 is attributable to women's education (Gakidou et al).**

- **Every additional year of formal schooling for males reduces the risk of their becoming involved with conflict by 20% (Collier)**

Role of Cognitive Skills in Economic Development

Hanushek and Woessmann 2008

Our goals in education

USAID's Education Strategy was released in February and is focused on the achievement of three goals by 2015:

1. Improved *reading skills* for 100 million children in primary grades;

2. Improved ability of *tertiary and workforce development* programs to generate workforce skills relevant to a country's development goals; and

3. Increased equitable *access to education in crisis and conflict* environments for 15 million learners.

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Finding innovative solutions to challenges in basic education

USAID's Grand Challenges for Development

- *Remove critical barriers* to development progress and facilitate innovative approaches, particularly those based in science and technology

- Encourage a wide array of solvers to focus their attention on developing effective, scalable, and sustainable solutions

Grand Challenge: All Children Reading by 2020

- Goal: All children with at least three years of primary education are literate

- Strategy: Challenge grants or similar tools to identify innovative interventions from the field that can be taken to scale

Using mobile technologies to promote quality educational outcomes

Mobiles for Education for Development (m4Ed4Dev)

- An ***international collaborative effort*** between bilateral and multilateral donors, NGOs, foundations, private sector partners, academic researchers, and implementing organizations

- Exploring cutting-edge ***intersections between mobiles, education, and development*** and promoting collective knowledge sharing

- International symposium to be held in August in Washington DC to
  - Engage leading thinkers and practitioners;
  - Showcase promising practices;
  - Discuss uses of mobiles for reading, education data and delivering education in complex educational environments; and
  - Spark public/private sector engagement

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USAID's education strategy: universities

Improved quality of tertiary education and research in support of country development priorities

- Improve public-private sector collaboration, including university partnerships and alliances with the private sector to stimulate and finance research

- Support quality and expansion of applied research by modernizing university research management systems

- Establish centers of excellence affiliated with universities to provide services to and strengthen connection with the private sector

- Improve faculty and staff training through joint collaborative research and teaching

Current higher education activities

Partnerships through Higher Education for Development (HED)

- **> 60 active partnerships** between US and developing country institutions, including in 15 African countries
- **Build capacity** by developing degree programs and providing public health training, teacher training for basic education, and business curriculum development

Rwanda Education Commons

- **Online portal** allows sharing of resources for teachers and learners
- Experimental program to **improve access** to and **quality** of education in Rwanda through the application of ICTs
- Focus areas: Policy and coordination, content development and distribution, capacity building, partnerships

Modernizing Extension and Advisory Services (MEAS)

- Goal: Define and disseminate best practice strategies and approaches to establishing efficient, effective and financially sustainable rural extension and advisory service systems in selected countries.

Science & Technology (S&T) capacity is a key part of sustainable development

> **"While the scope and complexity of the world's challenges have grown … we have never had the technology, resources and global imperative for action that we have today… We are moving to face these challenges [by] embracing innovation, science, technology and research to improve our development cooperation."**
>
> **-- Dr. Rajiv Shah, USAID Administrator**

- Many advances in human development have come from the application of S&T
  - **Oral rehydration therapy** – credited with saving tens of millions of lives
  - India's **"Green Revolution"**, sparked by agricultural research and resulted in the most dramatic increase in agricultural yields and production in history
  - **Cell phones** – enable communication in remote regions and have applications in banking, health, and other areas

- Building S&T capacity in developing countries is a key component of USAID reforms
  - Cooperative research grants, improved access to scientific knowledge, and higher education and training opportunities
  - Build local and regional S&T capacity for addressing local development problems
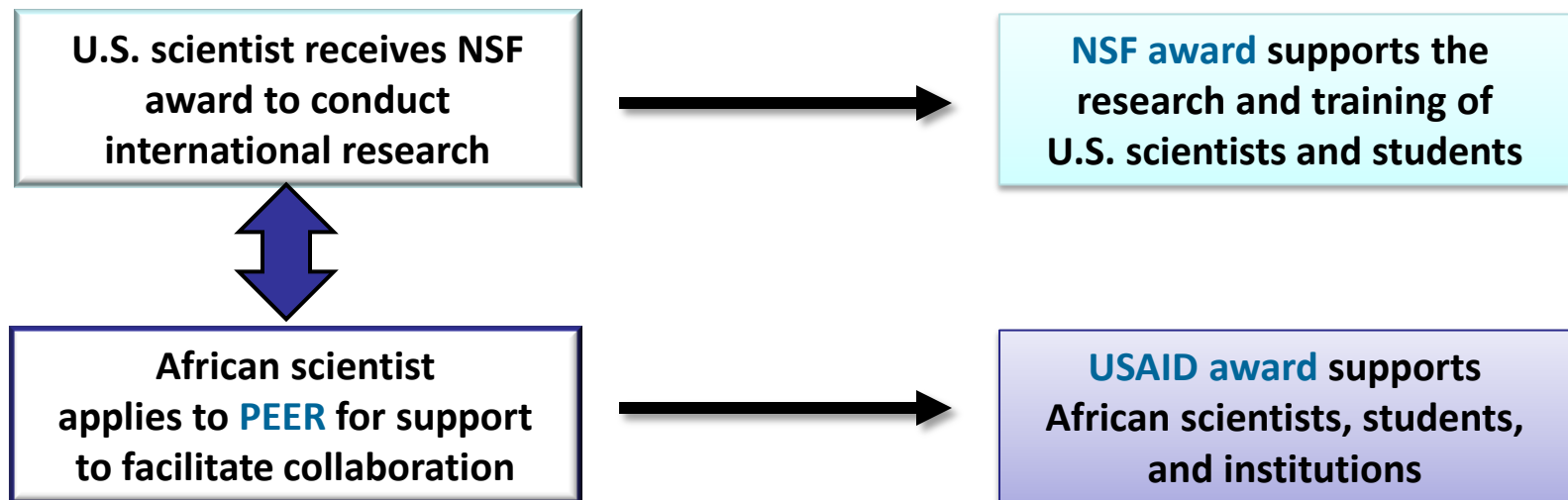
PEER:
Partnerships for Enhanced Engagement through Research

- PEER is a competitive grants program that enhances partnerships between developing country researchers and NSF-funded scientists in the US

U.S. scientist receives NSF award to conduct international research →	**NSF award** supports the research and training of U.S. scientists and students
African scientist applies to PEER for support to facilitate collaboration →	**USAID award** supports African scientists, students, and institutions

PEER Awards

Development goals

- Build local research capacity
- Build long-term institutional linkages
- Consider development needs and perspectives in research
- Enhance communication

Key features of awards

- Competitive proposals will have development-related and capacity building components
- Support students, equipment, travel etc.
- Awards made by USAID implementing partner directly to African institution

PEER Pilot Awards

USAID made 5 awards of $15-30K to African partners to support student training, travel for developing country scientists, basic equipment and supplies

Partners	Project
Université de Bamako (Mali) and South Dakota State University	*Climate Change and integrated resource management around Agoufou natural pond in Mali*
University of Dar es Salaam (Tanzania) and Michigan State University	*Dynamic Interactions Among People, Livestock, and Savanna Ecosystems Under Climate Change*
University of Ouagadougou (Burkina Faso) and Duke University	*Impact of land use on biodiversity dynamics*
National Museums of Kenya and Tulane University	*Building Capacity for Expanding Understanding of Freshwater Fish Biodiversity in Kenya*
Sokoine University of Agriculture (Tanzania) and Syracuse University	*Strengthening research and teaching capacity of the Department of Wildlife Management*

Call for Proposals/Dear colleague letter will be released Fall 2011

Contact: Dr. Mark Doyle – mdoyle@usaid.gov

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African Virtual Science Libraries

<u>Vision</u>

Researchers across Africa have access to the best current knowledge in their fields and are exchanging ideas with their colleagues at home and abroad

<u>Purpose</u>

- Build from work that's already been done
- Have access to most up-to-date methods
- Benefit from the ideas and feedback of others

African Virtual Science Libraries: Components

Content

- Scientific journals, reports, and course materials

- Online professional networking and collaboration tools

- Open-access journals and research repositories

Technology

- Single user interface allowing access to all available resources

- Single login for user authentication

- Open source software

- Information and communications (ICT) infrastructure

People

- Sustainability and lasting impact

- Training librarians and researchers

- Implementing and funding partners

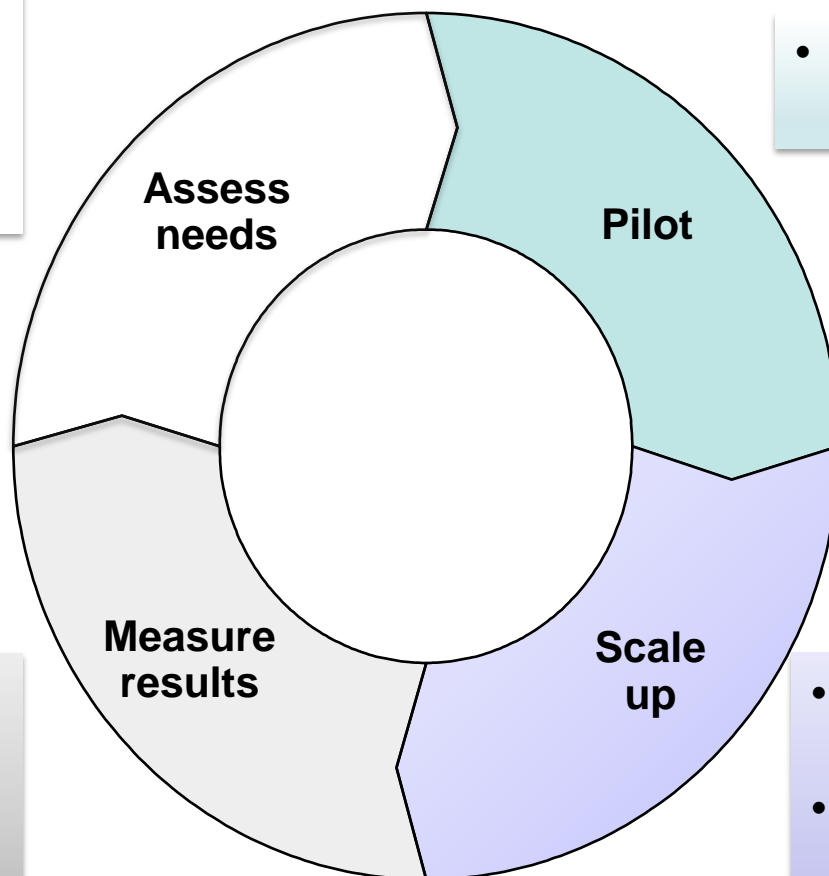- Ministries, universities, consortia

African Virtual Science Libraries: Moving forward

- ICT infrastructure
- S&T research capacity
- Current resources

- 3-4 countries per year

Assess needs

Pilot

Measure results

Scale up

- Impact on publication and collaboration
- User evaluations

- Add journals and other content
- Increase the number of users
- Move into new countries

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USAID Contacts

USAID Education Programming
Patrick Collins pcollins@usaid.gov

Grand Challenge: All Children Reading by 2020
Anthony Bloome abloome@usaid.gov

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Dr. Mark Doyle mdoyle@usaid.gov

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