



SCIENCE GRANTING COUNCILS INITIATIVE IN SUB-SAHARAN AFRICA STRENGTHENING PARTNERSHIPS AMONG AFRICA'S SCIENCE GRANTING COUNCILS AND THE PRIVATE SECTOR

A BASELINE ASSESSMENT OF PUBLIC – PRIVATE PARTNERSHIPS IN RESEARCH AND SCIENTIFIC
COOPERATION IN KENYA

By:

Winnie Khaemba

African Centre for Technology Studies (ACTS)

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Executive summary

Kenya's Science, Technology and Innovation Act of 2013 established three key STI agencies in Kenya namely: the National Commission for Science and Technology and Innovation (NACOSTI), the National research Fund (NRF) and the Kenya National Innovation Agency (KENIA). The Act geared at contributing to Kenya's economic blueprint known as *Vision 2030* seeks to facilitate *promotion, co-ordination and regulation of the progress of science, technology and innovation* in Kenya, prioritization of STI development and ensuring entrenchment of STI in the national production system.

Kenya's investment in STI has been going up with statistics showing upwards of 0.8% of its GDP allocated to Research. The NRF specifically manages research funds for STI with a legally mandated allocation of 2% of the GDP even though this percentage is yet to be achieved. NACOSTI (and its predecessor NCST) and the NRF have collectively funded hundreds of research projects. In collaboration with the IDRC, NACOSTI has funded two research chairs in multi-partner projects on different areas over the past few years. NACOSTI regulates and assures quality in the science, technology and innovation sector and provides advice to government on STI while KENIA manages the National Innovation System.

Kenya is also a member of the East African Community, which established the East African Science, and Technology Commission (EASTECO) charged with coordinating research in the five East African states.

The presence of these institutions serves as an enabling factor for STI development and for collaboration. A constraining factor lies in there being three separate entities involved in coordinating STI in Kenya with somehow related mandates especially NACOSTI and NRF. In fact NACOSTI, a successor to the National Commission for Science and Technology (NCST) carried out NRF's mandate for a number of years. The full establishment and independence of KENIA and NRF may well solve the perceived confusion and overlaps or further highlight them.

Kenya has partnered with, and funded a number of private sector players including with the Linking Industry with Academia (LIWA), Centurion Systems and Kenya Private Sector Alliance (KEPSA) in the Research Chairs' Program and Climate Innovation Centre on climate innovations among others.

In terms of partnership with other Science Granting Councils (SGCs), Kenya has signed Agreements and MoUs with seven (7) African countries and has ongoing projects with them on different areas including knowledge exchange, joint projects and space technology among others.

Key recommendations from this study include speedy finalization of the 'setting up' and staffing of NRF at national level and for KENIA in 47 Kenyan counties so they can effectively deliver on their mandate and increased engagement with the private sector and other STI players to expand PPP.

1. Introduction and objectives of the baselines

Kenya is located in East Africa and a founding member of the East African Community (EAC). The EAC has created the East African Science and Technology Commission (EASTECO) charged with coordinating research in the five East African states. Kenya has three entities charged with overseeing STI in Kenya (NACOSTI, KENIA and NRF). These are vital in enhancing collaborations with other Science Granting Councils as well as with private sector, which is the subject matter of this study.

This baseline study, looking at the state of collaborations by SGCs, is conducted under Theme 3 of the Science Granting Councils Initiative (SGCI) on strengthening the capacity of Science Granting Councils (SGCs) to promote scientific cooperation with each other and with other science system actors, and to foster public-private research collaboration and exchange of knowledge. The SGCI seeks to strengthen capacities of SGCs in order to support research and evidence-based policies that will contribute to economic and social development.

The objectives of this study are to:

- i. Examine factors that constrain/facilitate public-private partnerships (PPPs) and international cooperation and collaboration among Councils.
- ii. Identify capacity and skill set gaps among the Councils in terms of designing, regulating, managing and providing quality assurance to PPP and cooperation projects.
- iii. Examine the legal, legislative, policy and institutional frameworks that underpin PPP and cooperation projects.

In the context of this baseline study PPP refers to a publicly-funded research collaboration among research and higher education organizations, such as universities, public funding agencies, such as SGCs and industry or private sector actors within a particular national context. On the other hand international collaborations of an SGC refers to a research partnership agreement that an SGC under study has formally established or started negotiations with other SGCs or international actors at the time of this study.

2. Methodology

This baseline study has been undertaken via a desktop study as one of four 'light studies' undertaken under Theme 3.

3. State of collaborations in Kenya

Kenya has established several institutions dealing with STI. The two most important ones are the National Commission for Science and Technology and Innovation (NACOSTI), the National research Fund (NRF) and the Kenya National Innovation Agency (KENIA). NRF and KENIA were just set up in the past three years.

3.1 State of PPP collaborations

Kenya's NACOSTI and NRF have funded a large number of research with private sector involvement and collaborated with private sector in other ways. Some of these are shown below (Table 1).

Table 1: PPP research projects funded by NACOSTI and NRF.

	Project Name	Partner	Year(s)	Theme	Outputs	Notes
1.	Research Chairs Programme	JKUAT (lead), Moi University, Kenya Industrial Research and Development Institute (KIRDI), Multimedia University, Linking Industry with Academia (LIWA), Centurion Systems, Kenya Private Sector Alliance, and National Machining Complex	2017	Technology and Manufacturing	Design and development of tools and machines for production and commercialization of coconut	
2.		Climate Innovation Centre (CIC)		Promotion of technology development, transfer and diffusion in the areas of renewable energy and energy efficiency; water and sanitation; and agribusiness through incubation and training of innovators in entrepreneurship skills		
3.		Consortium for National Research for Health (CNHR).	2010	Collaboration in the promotion of research for health, jointly organizing activities that enhance public	2 workshops under the theme <i>Research to policy</i> were organized in 2011 and	A signed collaborative agreement is in place.

				awareness in research, science, technology and innovation	2012. Draft guidelines for the use and care of animals in research have been developed.	
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3.2 State of collaboration with other SGCs

Kenya has ongoing collaboration with seven African countries as well as other countries including Germany and the UK. Areas of collaboration range from space science, trainings and knowledge exchange to joint calls and projects. These are presented in Table 2 below.

Table 2: Kenya's research collaborations with other countries.

	Country	Collaborating Institution	Year (s)	Theme (s)	Output (s)	Notes
1.	South Africa, Nigeria, Algeria,	African Resource and Environment Management Satellite constellation (ARMS) initiative.	2017	Space science and technology – to establish African Satellite Constellation for monitoring management of African resources and environment	Launch and operation of a Low Earth Orbiting Satellite	
2.	Germany	DAAD Postgraduate Programme	2010/11 - 2016	Student training		
3.	South Africa	NRF	2004	Agricultural sciences; Biological Sciences; Health; Environmental sciences; and ICT	Joint calls and research funding	Five calls for joint research projects since signing of agreement
4.	Japan,	JICA, DFID		Science and		

	France, Germany and Britain			Innovation Week		
5.	UK	<p>Newton-Utafiti Fund, UK Science and Innovation Network (SIN)</p> <p>Kenya: National Council for Science, Technology and Innovation (NACOSTI)</p> <p>National Research Fund (NRF)</p> <p>Kenya National Innovation Agency (KENIA)</p>		<p>Food security, sustainable and renewable energy, health, environment and climate change, economic transition skills and jobs through manufacturing for SMEs, Governance, Conflict Resolution and Security and cross cutting issues (capacity building, big data, innovation and entrepreneurship).</p>	Research calls and funding	
6.	AfDB/EAC	EAC		East Africa's Centres of Excellence for Skills and Tertiary Education in Biomedical Sciences		
7.	Uganda	Uganda National Commission for Science and Technology/ East African Science and Technology Commission	2014	Research, Science and Technology	Joint projects	

8.	Tanzania,	National Commission for Science and Technology/ East African Science and Technology Commission	2014	Research, Science and Technology	Joint projects	
9.	Rwanda	National Commission for Science and Technology/ East African Science and Technology Commission	2014	Research, Science and Technology	Joint projects	
10.	Burundi	National Commission for Science and Technology/ East African Science and Technology Commission	2014	Research, Science and Technology	Joint projects	

4. Factors constraining and enabling collaboration and knowledge transfer between SGCs

Kenya has established long running collaboration with the other EAC countries largely driven by the existence of the East African Community with its aspiration of making the EAC a hub for science and technology as a way of promoting regional development and cohesiveness. Thus the EAC has been a major enabler of collaboration in the region.

The establishment of KENIA may well spur increased collaboration and knowledge transfer on STI even though its mandate is largely local, but science and innovation centres established will largely contribute to interest to collaborate and learn from each other.

NACOSTI has for a long time now performed NRF functions up until NRF established itself (still ongoing) as an independent entity. This situation until now i) presents confusion to other SGCs as to who should be contacted but this is set to become clearer as NRF continues to put its structures in order, ii) raises issues of capacity and experience, NRF being newly formed with limited staff.

4.1 SGC related policy frameworks

In March 2008, Kenya adopted a Science, Technology and Innovation Policy whose vision is ‘a nation that harnesses science, technology and innovation to foster global competitiveness for wealth creation, national prosperity and a high quality of life for its people’. Among its twelve (12) strategic objectives is ‘Linkages, Collaborations and Partnerships’ where it is explicitly stated that there will be targeted collaborative research and creation of ‘opportunities’ for private sector engagement. For regional engagement the policy states that programs towards this will be set in place as well as ensuring networking for policymakers and researchers for regional and international collaboration.

In 2013, Kenya enacted the STI Act, which created the National Commission for Science and Technology and Innovation (NACOSTI), the National research Fund (NRF) and the Kenya National Innovation Agency (KENIA). The Act was targeted at facilitating *promotion, co-ordination and regulation of the progress of science, technology and innovation* in Kenya, prioritization of STI development and ensuring entrenchment of STI in the national production system. This is meant to contribute to the achievement of Kenya’s economic blueprint: *Vision 2030*.

NACOSTI is mandated to regulate and assure quality in the science, technology and innovation sector and provide advice to government on STI. NACOSTI succeeded Kenya’s National Commission for Science and Technology (NCST). The NRF has the role of managing funds amounting to 2% of the country’s GDP as well as funds from other sources, both internal and external for the facilitation of research to advance STI in Kenya. KENIA’s mandate includes development and management of the National innovation Systems and establish county offices for this purpose. The Act provides that KENIA manages the NIS through creating linkages with universities, research institutions, the private sector, government and other actors innovation system actors, establishment of science and innovation parks, creation of awareness on IP rights, dissemination of scientific knowledge or technology and implementation of the national innovation and commercialization policy among others.

The Act also provides for the establishment of a Museum for Science of Technology a role given to the National Museums of Kenya (NMK) if and when directed by the Cabinet Secretary in a Gazette notice. This is yet to take place.

IP issues in Kenya are addressed under the 2013 STI Act (Article 25) which provides that rights for *discoveries, inventions and improvements in respect of processes, products, apparatus and machines made on behalf of an institution shall vest in the institution but may be made available for use in the public interest*. NACOSTI is also charged with regulation of patents. Other IP related legal instruments include the Industrial Property Act (Cap. 509), the Seeds and Plant Varieties Act (Cap. 326), and the Biosafety Act (Cap. 321A).

Regionally Kenya is a founding member of the East African Community (EAC) that perceives STI as a means to achieving regional development as well as fostering regional cohesion. To this end the EAC recently created the East African Science and Technology Commission (EASTECO), which is mandated to coordinate STI in the region. In fulfilling this mandate EAC states are already collaborating on various projects as can be seen from the table above.

4.2 SGC capacities and capabilities

Being successor to the NCST, NACOSTI inherited the relatively well-established structures of the NCST with a sizable staff. NRF and KENIA on the other hand are still taking shape with each having less than 10 staff and largely reliant on NACOSTI's infrastructure which is operational. It is expected that KENIA will set up and employ staff in Kenya's 47 counties raising its human capacity. Similarly, the NRF is expected to increase its human capacity to be able to achieve its mandate and contribute to Kenya's vision 2030.

4.3 External policy and legal frameworks

Kenya is party to a number of international IP-related instruments including the Patent Cooperation Treaty of 1995, the WIPO Convention of 1973, the Paris Convention for the Protection of Industrial property, the Convention on Biological Diversity and its protocols, WTO's Trade-related Aspects of Intellectual Property Rights (TRIPS, 1994) and the Africa Regional Intellectual Property Organization (ARIPO) treaty among others.

5. Factors constraining and enabling collaboration and knowledge transfer with the private sector

The 2013 STI Act no doubt is one of the biggest enablers for collaboration with private sector providing for collaboration by private sector which is a function for NACOSTI, NRF and KENIA but the three entities especially KENIA and NRF have move fast in actualizing such collaborations. NRF's role as a funding entity with 2% of the GDP as well as funds from other sources has the ability to fund researchers in the private sector as well. Indeed, this has been the case as researchers from the private sector have been able to access NRF as well as NACOSTI funding.

6. Recommendations for SGCs

The NRF and KENIA should speed up their 'setting up' processes so they get to work and deliver on their mandate in fostering STI collaboration locally and internationally. This will help in building confidence for interested partners and also establishing themselves as key STI players in Kenya. To be able to achieve this the NRF will need increased staffing and other infrastructural capacity while KENIA needs to set up offices (with staff) in the 47 counties.

Increased engagement with the private sector to expand PPP is imperative for achieving Kenya's Vision 2030. The current 3rd Medium Term Plan (MTP III, Vision 2030) under development recognizes the role of STI in economic prosperity and poverty alleviation. It is thus the role of NACOSTI, NRF and KENIA to tap into Kenya's relatively well developed and organized private and 'informal' sector to fund research as well as leverage additional funding, knowledge exchange and technology transfer to further the STI agenda.

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