



# 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 RWANDA

By:

Maurice Bolo & Victor Awino

Scinnovent Centre

February, 2018



Contents

- Executive summary ..... 3
- 1. Introduction and objectives of the baseline survey..... 4
- 2. Methodology..... 4
- 3. Status of partnerships and collaborations ..... 5
  - 3.1 Public – Private Partnerships (PPPs) ..... 5
  - 3.2 The Knowledge Transfer Partnership Programme..... 5
  - 3.2 Regional and International Collaborations ..... 8
- 4. Factors constraining and enabling collaboration and knowledge transfer ..... 12
  - 4.1 Policy and legal frameworks ..... 12
- 5. Recommendations ..... 13
- References ..... 14

## Executive summary

This baseline study sought to examine the factors that either constrain or facilitate public-private sector partnerships (PPPs) and knowledge transfer and scientific cooperation; identify capacity and skill set gaps for designing, regulating, managing and providing quality assurance to PPP and cooperation projects; and examine the legal, legislative, policy and institutional frameworks that underpin PPP projects in Rwanda. The study adopted mixed-methodological approach in data collection and innovation systems framework for analyses. The findings of this study have established that Rwanda is making significant steps towards uptake of PPPs. The science, technology and innovation policy (STIP) enacted in 2005, emphasizes on the need to recognize and reinforce the complementary strengths deriving from the research skills of the public institutions and the entrepreneurial, marketing and business skills of the private enterprise. The vision of STIP has been demonstrated in practice with the various partnerships between universities and research institutes and the private sector as demonstrated in the knowledge transfer partnerships (KTP) projects. However, there remain challenges in managing multi-stakeholder teams and processes (MSPs); lack of funding to implement some of the knowledge generating, transfer and commercialization processes as well as the need for a coordinated approach to public – private sector cooperation. This assessment, therefore recommends the need to develop a private sector engagement strategy to guide communication and engagement with external stakeholders, especially private sector, and the need to establish a system for research output commercialization as well as effective mechanisms of monitoring university-industry linkages.

## 1. Introduction and objectives of the baseline survey

Public private partnerships (PPP) project was conceived as part of the agenda to strengthen the capacity of the Africa's Science Granting Councils (SGCs) to enhance the quality of scientific research and the translation of research results into material products and services through learning by doing. The project is targeted at strengthening the capacity of the SGCs to enhance collaboration between researchers and industry among African SGCs.

The objectives of this baseline were to examine the factors that either constrain or facilitate public-private sector partnerships (PPPs) and knowledge transfer and scientific cooperation; identify capacity and skill set gaps for designing, regulating, managing and providing quality assurance to PPP and cooperation projects; and examine the legal, legislative, policy and institutional frameworks that underpin PPP and cooperation projects in Rwanda.

In particular, the survey was conducted to:

- i. identify the factors that constrain or promote public-private partnerships (PPP), scientific collaboration and knowledge transfer in Burkina Faso
- ii. take inventory of the SGC's capacity needs and skills gaps for collaboration with other organizations, especially the SGC; and supporting research - productive sectors linkages
- iii. review the legal and policy frameworks and environment under which SGCs operate (institutional and national) in so far as support to PPP and CP is concerned

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

The study adopted the innovation systems framework in its analyses and employed a mix of quantitative and qualitative methods in data collection.

Key informant and in-depth interviews were conducted with key personnel at the Ministry of Education (MINEDUC), the National Commission for Science and Technology (NCST) who formed the primary respondents. The interviews were guided by an interview protocol/checklist and additional interviews were conducted with the private sector, innovators and manufacturers. Heads of departments or sections dealing with different issues relating to PPPs were targeted. In cases where such respondents were not accessed in time for the study, individual practitioners/private sector actors were interviewed. The third set of respondents composed of the researchers in universities and research institutes/organizations including private universities, colleges/technical institutes and consultancy

firms. The respondents herein were conveniently sampled but only institutions that had engaged in PPP collaboration, whether contemporary or historical, were interviewed from the University of Rwanda (UR), the College of Agriculture Veterinary Medicine (CAVM) and the Catholique University.

Besides the interviews, the study reviewed documents and policies for STI, relevant publications and reports (both published and grey literature), websites and other electronic resources. A critical review was conducted to determine the extent to which existing policies support or constrain scientific collaborations and public private partnerships. In the documentary review, the study focused on “what are the Councils are saying about themselves” (their roles, mandates, performance) in relation to scientific collaborations and PPPs; and “what others are saying about them” (their roles and performance).

### 3. Status of partnerships and collaborations

#### 3.1 Public – Private Partnerships (PPPs)

The importance of the linkages between the knowledge-generating institutions and the private sector cannot be over emphasized. The policy frameworks in Rwanda recognize this fact. For example, the science, technology and innovation policy (STIP) of 2005 provides that “the public and private sectors have different strengths such as the research skills of the public institution and the entrepreneurial, marketing and business skills of the private enterprise. It is important to recognize and reinforce these complementary strengths and ensure a link to bridge the gap between the public research institution and private enterprise through the engagement in scientific research and development specific to fulfill the needs of the private enterprise.” Similar appreciation in the private sector is equally evident, for example, The Private Sector Federation (PSF), established in 1999 as a successor to the former Rwanda Chamber of Commerce and Industry has pioneered the establishment of Business Development Service (BDS) Centers in each district of Rwanda. These provide consultancy services, market access services, input supply services, technology and product development services, training and technical assistance, infrastructure-related and information services, access to finance, basic accounting and policy and advocacy.

This cooperation envisaged in the policy documents and upheld by the private sector has been demonstrated in practice with the various partnerships between universities and research institutes and the private sector (see table 1 below) and more specifically, the “Knowledge Transfer Partnership (KTP)” programme in Rwanda (see below for details).

#### 3.2 The Knowledge Transfer Partnership Programme

The launch of Knowledge Transfer Partnership (KTP) in Rwanda in January 2013 under the umbrella of African Knowledge Transfer Partnerships (AKTPs) is viewed to be useful in promoting level of PPPs in Rwanda. African Knowledge Transfer Partnerships (AKTPs) are UK-sponsored partnerships between

higher education institutions and private sector organizations in the UK and Sub-Saharan Africa. The partnerships were piloted in six African countries - Kenya, Uganda, Ghana, Nigeria, South Africa and Rwanda. The aim, according to the British Council, was to help companies improve their productivity and competitiveness by using the scientific knowledge, technology and skills available in higher education institutions through collaborative projects<sup>1</sup>.

Table 1: Academia – industry joint projects

Institutions	Joint Research Project with Private Sector/Industry	
	Number of projects	Names of Partners
Institut Polytechnique de Byumba <b>(IPB)</b>	6	VI-LIFE /Kigali, IRST, District of Gicumbi, USA Embassy, French Embassy, Cabinet de consultance IMANZI
Institute of Agriculture, Technology and Education of Kibungo <b>(INATEK)</b>	2	Chambre de Commerce MILAN, Italy
Integrated Polytechnic Regional centre – Kigali <b>(IPRCK)</b>	2	<ul style="list-style-type: none"> <li>• Thermolectric Generator in partnership with TNO/ SNV a Dutch organization,</li> <li>• The charcoal saving stove in partnership with Muyaga project from Giesenyi Rwanda</li> </ul>
National University of Rwanda, School of Public Health <b>(NURSPH)</b>	1	BLALIRWA Ltd (the largest brewer and soft drink company in Rwanda)
Rwanda Tourism University College <b>(RTUC)</b>	1	SNV&RTUC
Independent Institute of Lay Adventist of Kigali <b>(INILAK)</b>	1	Research Project on Climate Change and Disaster Risk Management with the Ministry of Disaster Management and Refugee Affairs (MIDIMAR)

#### KTP Background and Objectives

The implementation of the MINEDUC Knowledge Transfer Partnership (KTP) Programme was officially launched in 2013 as a follow up to the study entitled “*Mapping Science and Technology for Industrial Development in Rwanda: Linking Research and Development between Industries and Higher Learning Institutions*” conducted in July 2009. The African Development Bank (AfDB) – supported study identified and recommended potential partnerships between Institutions of Higher Learning and Research and

<sup>1</sup> <http://www.universityworldnews.com/article.php?story=20100409205111528>

private sector companies in agro-processing, manufacturing, construction, textiles, cosmetics, ICT and energy sectors.

Following this study, AfDB supported five partnerships applying the British Council's Knowledge Transfer Partnerships (KTP) model through the support to Science and Technology Skills Development Project. For the implementation of the KTP Programme, each partnership project was provided with a budget of 10 million Rwandan Francs per year per project for two years (a total of Twenty Million Rwanda Francs (20,000,000rwf) over the two years) to cover the costs for travel and subsistence, academic development, graduate training and minor equipment. The private sector company contribution covered the salary of the graduate trainee. The key objectives of the KTP included: (i) a successfully completed project that delivers commercial benefit to the company, providing increased employment and prosperity (ii) beneficial feedback to the University in terms of relevant curriculum development, case studies and students projects (iii) a well-developed graduate business leader, contributing strongly to the company and (iv) an ongoing strong partnership between the company and the University or Research and Development Institution.

KTP: Governance, Management and the role of the SGC

The partnership was governed through a Memorandum of Understanding (MoU) between the KTP Partners including: (the Ministry of Education (**MINEDUC**), the **Knowledge Partner** (Higher Learning Institution / Research and Development Institute) and the **Industrial Partner** (Company). The roles and responsibilities of each partner are clearly spelt in the MoU.

The overall management of the partnership rests with **MINEDUC** through the <sup>2</sup>Directorate General of Science, Technology and Research. The governance and actual management of the KTP projects is undertaken through the Local Management Committee meeting (LMC) which comprises the representative of MINEDUC, the Managing Director of the company and the representative of the knowledge partner.

The overall responsibility of MINEDUC is to ensure the successful project implementation and funding required is made available to the project implementing bodies. **The Knowledge partner** (Higher Learning Institution or R&D Institution) is responsible for identification and nomination of the appropriate academic staff to serve as an academic supervisor. The academic supervisor should have an advanced and wider knowledge on the proposed partnership project to ensure the relevant contribution to the project for the benefit of the company. **The Industrial Partners** (private sector company) is the custodian of the partnership project and is responsible for developing the proposed partnership projects in line with the company's business strategy. The company recruits the KTP associate who is a young graduate responsible for daily management of the partnership project within the company. The company also appoints the company supervisor who is an experienced employee of the company and

---

<sup>2</sup> It is to be noted that the Directorate of Science, Technology and Research (DSTR) in the Ministry of Education (MINEDUC) was the equivalent of the SGC in Rwanda until 2015 when the National Commission for Science and Technology was established and de-linked from the Ministry to start operating as an autonomous institution.

responsible for guidance and mentorship of the associate in line with the implementation of the partnership project (see table 2 for details on the 5 KTP projects in Rwanda).

*Table 2: KTP projects in Rwanda*

S/N	KTP partner institutions	Project brief description
1	RUGALI Farms & CAVM Nyagatare Campus	To establish effective disease control measures on emphasis with preventive medicine approach in poultry
2	SULFO Industries & College of Science and Technology	To develop competencies in the implementation and maintaining of integrated engineering management systems in the SULFO factory process
3	GASABO 3D & College of Science and Technology	To deliver well engineered products by focusing on design for manufacture, optimizing functionality and customer satisfaction
4	INYANGE INDUSTRIES & CAVM Busogo campus	To improve the quality of existing products, and to develop new products that meet customer demand
5	HORIZON SOPYRWA & CAVM Busogo Campus	To improve on waste management practice and environmental performance.

### 3.2 Regional and International Collaborations

There is very limited information on the status of scientific collaborations between Rwanda and others SGCs in the region. In order to highlight some of the on-going international scientific and research collaborations, we use the University of Rwanda (and specifically, its College of Animal Science and Veterinary Medicine (CAVM)). Whereas we recognize the limitations of this case as a representation of the regional and international collaborations from Rwanda, we nonetheless appreciate that it provides an indicator of the nature and type of collaborations that currently exist.

The University of Rwanda, was established by law no 71/2013 dated 10<sup>th</sup> September 2013, with an objective of being a research-led university with national, regional and global impact as far as quality and relevance are concerned (<sup>3</sup>Masanja, 2015). It has a coordination unit, the Research and Postgraduate Studies (UR-RPGS) Unit headed by the Director of Research and Postgraduate Studies. This unit supports external researchers by facilitating affiliating researchers and research students from outside UR and outside Rwanda, and undertakes central level capacity building activities (both externally or UR internally funded) aimed at improving research environment and inculcating a research culture at University of Rwanda (UR).

Further, through its Strategic Plan (2016 -2025), the UR aims at encouraging, enabling, and supporting research collaboration and partnerships for maximum mutual benefits. The University of Rwanda also emphasizes on the need for its researchers to have close collaborative relationships with others in local,

---

<sup>3</sup>Prof. Verdiana Grace Masanja is the University of Rwanda’s Director of Research and Post Graduate Studies



national and international organizations holding common aspirations and complementary capabilities. The case of CAVM below shows an example of the extent of such partnerships and collaborations within the University (see table 3 for facilities and collaborations at the CAVM)

Table 3: Facilities and Collaborations at the College of Agriculture, Veterinary Medicine (CAVM)

S/ N	Available research facilities in the CAVM	Description/use	International collaborations	Regional collaborations	National collaborations
1	Laboratory of tissue culture	Meristem culture and seed cleaning	CTB, MINEDUC and NUFFIC		Rwanda Agriculture Board (RAB)
2	2 veterinary Medicine/Sciences laboratories	Studies related to animal health and disease control	USAID (Funding agency)	Makerere University	MINISANTE, RDB and RAB
3	Food analysis lab	Chemical analysis of food; training, research and consultancy	Clemson University, USA (Research collaboration)  USAID (funding agency).	Makerere University	Rwanda Agriculture Board (RAB)
4	Food microbiology lab	Microbiological analysis of foods and water; training, research and consultancy	TWAS, IFS, SIDA/UR (funding agencies); University of Copenhagen, Denmark; University of Reggio Emilia (Research Collaborators)		National Agricultural Export Board (NAEB)
5	Food engineering lab	Cheese and yoghurt processing; training and income generation	NUFFIC –Netherlands (funding agency and technical support)	-	Various stakeholders
6	Food Science and Technology Research Center	Milk processing and quality control	NUFFIC –Netherlands (funding agency and technical support)	-	Local companies (Eg. Fromagerie la reine) and RAB
7	Fish farm/Rwasave station	Fish farming and aquaculture techniques	BELESPO, CUD, FUNDP-NAMUR	-	RAB, Fish farming cooperatives

8	Agro-forestry Research and Extension center (Tonga)	Agro-forestry research and development	NUFFIC –Netherlands (funding agency and technical support)		Rwanda Agriculture Board (RAB)
---	--	---	---	--	-----------------------------------

## 4. Factors constraining and enabling collaboration and knowledge transfer

Interviews with stakeholders in Rwanda reveal that they have challenges in coordinating and managing multi-stakeholder teams and processes (MSPs); identification of a common and unifying agenda as well as methods and strategies for working together and collaboratively. Other specific challenges mentioned include: (i) Participatory priority/goal setting – at the moment, priorities are based mainly on the government policy with minimal additional stakeholder input (ii) Designing and managing competitive research funding schemes – the country is setting up its SGC having been de-linked from the ministry of education (MINEDUC). As such, they still require support in coming up with well designed research funding, monitoring and evaluation scheme.

### 4.1 Policy and legal frameworks

#### *Science Technology and Innovation Policy (STIP) and the National Industrial Policy (NIP)*

Rwanda adopted its science, technology and innovation policy (STIP) in 2005 with the aim of enhancing its STI research capacity in the support of its long-term development strategy – the Vision 2020. It identifies science, technology and scientific research as the main catalyst in all the public and private sector activities necessary in the achievement of Vision 2020 objectives. STIP has identified four priority areas of focus including:

1. Knowledge Acquisition - building science and technology capacity at all levels of education and training beginning from primary schools to higher education;
2. Knowledge Creation - development of research capacity in all priority sectors of the economy;
3. Knowledge Transfer - promoting linkages between R&D institutions and the productive sector and establishment of Technology Consultation Centers, Demonstration Units and Science and Technology Parks; and
4. Innovation Culture - encouraging innovative and entrepreneurial activities at all levels to stimulate economic growth through establishment of business enterprise and innovation centers and encouraging private sector partnership as a key part of every sector.

Closely related to the STIP, is the National Industrial Policy (NIP) of 2011 which has three key objectives including: (i) increasing domestic production for local consumption, (ii) improving export competitiveness and (iii) creating an enabling environment for Rwanda's industrialization. The policy recognizes the need to build and acquire appropriate science, technology, innovation-entrepreneurial, engineering, and technical/vocational capacity to produce more value added goods and services. NIP has identified critical areas of reform in order to infuse scientific research, technology and innovation into the country's economic growth plans.

These include: a) Restructuring and expanding the Institute of Scientific and Technological Research (IRST) to become the Industrial Research and Development Agency (IRDA) to facilitate the transfer of innovative technologies, to carry out industrial research and to stimulate national and international partnership, (b) Establishing appropriate technology dissemination centers in industrial parks, and (c) Increasing funding to research and higher learning institutions to support desirable targeted industrial sectors.

The implementation of the two related policies have led to the establishment of relevant facilities and infrastructure for the attainment of such policy objectives including: (i) KIST Technology and Business Incubation Facility (TBIF) that provides business incubation and support services for technology-based start-ups (ii) Knowledge laboratory (Klab), as an open space for ICT entrepreneurs and (iii) The Masaka Business Incubation Centre that targets SMEs engaged in leather goods; bamboo products; cheese making and fruits processing and facilitates access to finance, market and technology information.

## 5. Recommendations

As at the time of this assessment, Rwanda was in the process of addressing some of the challenges mentioned above. For example, in November/December 2017, the NCST advertised tenders for consulting firms to develop its (i) The National Research and Innovation Fund strategy and its M&E framework including an analysis of the research funding system in Rwanda, benchmark findings with regional and international best practices and subsequently propose an efficient and effective research and innovation fund strategy which includes framework, schemes, guidelines and fundraising strategy and (ii) NCST five year strategic plan outlining key priorities, action plan and anticipated results of the Council for a 5-year period, based on a clear assessment of existing resources and capacities.

Further to these on-going initiatives, we recommend:

1. Need to develop a private sector engagement strategy to guide communication and engagement with external stakeholders, especially private sector. At the moment, the interaction with the private sector is *ad hoc* and unstructured. Closely associated with this is the need to design instruments of governing collaborations e.g. consortium agreements, contracts etc
2. Need to establish a system for research output commercialization as well as effective mechanisms of monitoring university-industry linkages.

## References

Daido, D. (2010). Boost to Knowledge Transfer Partnership. *University World News*. Retrieved from <http://www.universityworldnews.com/article.php?story=20100409205111528>.

Masanja, V. G. (2015). University of Rwanda Research Strategy.

Nuwagaba, A. (2013). Public Private Partnerships (PPPs) and Their Effect on Services Delivery in Rwanda. *International Journal*, 2(5). Retrieved from [http://ejournalofbusiness.org/archive/vol2no5/vol2no5\\_3.pdf](http://ejournalofbusiness.org/archive/vol2no5/vol2no5_3.pdf) on 10/11/2017.

Republic of Rwanda. (2006). The Republic of Rwanda Policy on Science, Technology and Innovation

University of Rwanda. (nd). University Of Rwanda Strategic Plan 2016-2025. Retrieved from <http://ur.ac.rw/sites/default/files/UR%20draft%2010Y%20STRATEGIC%20PLAN.pdf>.