



Understanding knowledge systems and what works to promote science technology and innovation in Kenya, Tanzania and Rwanda – insights from the Knowledge Systems Innovation Project (KSI)

Policy Brief for Rwanda

Main contacts for this brief are:

Dr Joanes Atela (j.atela@acts-net.org) and Nora Ndege (n.ndege@acts-net.org)

Professor Nelson Ijumba (mutatinak@gmail.com) and Nathan Kanuma Teremwa (nk.taremwa@gmail.com)



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POLICY OPTIONS FOR ENABLING INVESTMENTS IN SCIENCE TECHNOLOGY AND INNOVATION IN RWANDA: INSIGHTS FROM THE KNOWLEDGE SYSTEMS INNOVATION RESEARCH

Summary

Rwanda's Science Technology and Innovation (STI) ecosystem is currently transitioning to a knowledge and technology driven economy capable of driving economic growth and supporting high quality of life. This transition from Vision 2020 to Vision 2050 is guided by the National Strategy for Transformation (2017-2024) that integrates other continental level ambitions as the African Union Agenda 2063, the STISA 2024 framework and more broadly the Sustainable Development Goals (SDGs). The country has also set up various policy and regulated frameworks for coordinating STI activities as well as funding support. Despite this, the country continues to lag behind in research investments while also grappling with appropriate approaches to design current and future investments that could potentially contribute to sustainable development.

Rwanda's STI system is transitioning towards a transformative STI system driven by knowledge and technologies.

In order to help address these challenges, the United Kingdom Government's Foreign, Commonwealth and Development Office (FCDO) through the East Africa Research and Innovation Hub (EARIH) , funded a pilot study to develop a practical approach to capacity development and investment in knowledge systems, in three East African countries; Kenya, Rwanda and Tanzania. The study sought to gather evidence on the current STI environment including identifying opportunities for investment to support sustainable development. This policy brief provides key highlights on Rwanda's STI system and emerging opportunities for the STI system to deliver for SDGs. We provide three policy insights that can be leveraged upon to strengthen Rwanda's transformative STI systems potential and contribute to addressing SDGs

RESEARCH APPROACH AND INSIGHTS

The study is based on dialogue and co-production of insights by researchers, policy makers and other stakeholders (Universities, private sector, Non-Governmental Organizations, think tanks among others). Five sequenced dialogue sessions were undertaken with a wider array of relevant stakeholders including interacting with various aspects of knowledge systems i.e. production systems, use and impacts. The dialogues were built on background review of STI policies and sector knowledge priorities in addition to other knowledge evaluation /research documents aimed at characterizing the country's national knowledge system and identifying gaps and opportunities for interventions. Specific targeted interviews with key government and non-governmental institutions provided examples of what is working well or not and how opportunities could be pursued. The study also relied on the feedback and validations from the wider African research community via discussions engaging the broader Science Granting Council activities. Study insights and recommendations were further validated through national and regional advisory committees- comprising experts and technocrats with long standing experience in formal and informal knowledge management.

An overview of the current STI environment in Rwanda

Rwanda's public system is supporting the transformative potential of STI with the state playing the biggest role in financing and setting up of knowledge producing institutions including innovation hubs and universities. Rwanda's knowledge production has centered on the collation of all public universities and their constituent colleges into one single university 'The University of Rwanda (UoR), a key country's 'knowledge hub'. Emerging, complementing other public systems are the Technical Vocational Education Training (TVETs) institutions aimed at equipping the youth with capabilities to help Rwanda achieve its vision through its manifesto "Made in Rwanda policy". Innovation hubs and fabrication labs are supporting knowledge production as well as ICT innovations to address widespread societal issues in the country.

The public systems and particularly the state is central to supporting transformative potential of STI through knowledge production, financing particularly in ICT innovations.

While the systems and institutional set-up for knowledge production is clearer in Rwanda, challenges still remain in building a critical mass of researchers and supporting potential knowledge producers in the non-state sectors to contribute to Rwanda's knowledge portal and support for knowledge co-production.

Explicit mechanisms to support STI deliver for SDGs have been observed. In particular, public funding through the establishment of the Science Granting Council has seen the council set budgets for funding facilities such as industrial incubation centers, product laboratories, research supporting both formal and informal sectors and so on- implying a more targeted funding for specific industrial outputs and outcomes. The governance framework has also created systems for enhancing appropriate funding for R&D activities, through the establishment of the National Research and Innovation Fund (NRIF) coordinated by the National Commission for Science and Technology (NCST). Apart from the Government annual allocation of 0.5% of the total budget to the NRIF, there is recognition that more funding in STI activities are to be sourced through collaborative efforts in both bilateral and multilateral research projects.

Why should the country widen its approach to STI investments?

Our findings revealed the importance of the informal knowledge sector in impacting largely formal systems.

Key trends in STI investment approaches and the relevance of these to the "SDG" include; public policies that are facilitating formal and informal interactions to support localized solutions; investments in innovation hubs central to supporting technology development for communities.

A case study on inclusive health systems in Rwanda mobilized traditional health knowledge to contribute to a more accessible and relevant health system to reach many people who would otherwise not be able to access health services. It has demonstrated the importance that synergies between formality and informality through processes as regulation, creating opportunities for private sector investments and capacity building could help optimize the health systems and contribute to achieving outcomes.

Investments in innovation hubs proliferating in the country have supported the development of technologies that support communities. A case study on Understanding the impact of investments in development of innovation hubs and centers towards SDGs; the case of kLab and Fablab incubation center demonstrated how these hubs have managed to train mentees in ideation and co-creation of technologies that can be embraced by communities to solve their day to day challenges.

A number of national-level policies targeted at linking formal and informal activities and knowledges are spurring local-driven problem solving agendas. The recently launched 'Made in Rwanda Policy' established

the 'Home-grown Department' to promote informal knowledge systems through programmes aimed at developing solutions to poverty related problems as well as supporting informal sector and formal private sector and TVETs collaborations. The third sector is also playing a role in supporting informal sector innovations. Rwanda's emphasis around "home grown" "Made in Rwanda" places emphasis on tapping into a wide range of formal and informal knowledge sources. There is need for creating conditions for both amplifying these promising initiatives as well as encouraging STI policy to enable the emergence of an expanding range of these types of experiments in leveraging SDG impacts.

Collective approach to STI Investments

Stakeholder consultations provided varied perspectives to support an effective STI system that can deliver for SDGs. Their contributions included feedback in the design of the project, choice of case studies and policy insights to strengthening initiatives for Rwanda's STI system. While stakeholders echoed that most initiatives in Rwanda are state led, they affirmed that there are a number of other ongoing initiatives supported by private sectors players.

Stakeholders emphasized data gaps in the knowledge systems and innovation ecosystem in Rwanda as a challenge that needs to be addressed if STI is to deliver for SDGs. Data management particularly who manages the data is a concern for policy coordination. Therefore investments in national databases that support cross sectoral policy coordination and the understanding of all the sectors of the economy are needed. Data on investments in engineering sciences, research and the performance of innovation hubs supported by the private sector were highlighted as top STI data needs. Three policy options are presented from the consultations.

3 areas policy options as identified by stakeholders for consideration.

Policy insight 1. Strengthen role of non-state actors producing knowledge

There is a need for Investments to support knowledge production efforts between state and non-state actors. This will be possible through shifting public support towards diversified that focus on inclusion of an array of informal governance actors in STI planning and implementation. This will not only help balance state-led tendencies but also enable the reliance on private industry delivery pathways. More attention need to be paid around strengthening consultative platforms with the informal actors.

Policy insight 2. Support for universities in Rwanda

In addition to contributing to R&D (STI)-based innovation (from commercialization of knowledge output), universities in Rwanda should be supported to spur non-R&D based innovations (from indigenous knowledge) as well as non-commercial innovation (e.g. organizational or institutional innovations, collaborations amongst departments/researchers within one institution/field of research). This will not only strengthen knowledge production but contribute to building a pool of knowledge researchers in the country.

Policy insight 3. Conduct detailed studies on the impact of STI investments

Need for a more detailed diagnostic study to establish impact of current and past STI initiatives to encourage wider investments and scale.

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