



**COUNTRY PROFILE**



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Rwanda

**Sustaining Rwanda’s economic growth miracle**

Rwanda has been hailed as one of Africa’s economic stars with a growth rate of 6% sustained by a robust and deliberate policies to promote industrial growth and driven by Vision 2020.

As a result, the country has been able to reduce the percentage of people living below the poverty line from 57% in 2005 to 45% in 2010. With Vision 2020 nearing its end in three years, it will be important that the development agenda created to replace it should continue to promote progress while bridging the remaining gaps from the implementation of Vision 2020. Vision 2020 seeks to transform Rwanda into a knowledge based economy and with its guidance, Rwanda has successfully and relentlessly grown its ICT since the creation of the National Information Communications Infrastructure (NICI) policy in 2000 spurring major progress in e-health, agriculture and the private sector, and taken policies to improve science, technology and innovation (STI), which have contributed to its socio-economic development. Opportunities for growth, however, still remain.

Rwanda has spearheaded partnerships for the growth of STI, some of which culminated into the creation of the African Institute of Mathematical Sciences. It is these partnerships that will sustain the future of its STI sector, ensuring that it provides the evidence for the country to continue on its transformation to a knowledge-based economy and create a development agenda post 2020 that meets its needs and spurs socio-economic growth.

*“The rapid changes taking place in the global economic and political environment and make plain the recklessness, of relying so heavily on sources of funding, that are likely to dry out.”*

President Paul Kagame, Rwanda, Brookings Institute, September 2017

Some of the young African scholars being trained through the AAS’ programmes



Baitshapi Mokaleng, MPhil Trainee



Kaelo Seatla, PhD Trainee



Lucy Mupfumi, PhD Trainee



Leabaneng Tawe, MPhil Trainee.



Dorcas Maruapula, MPhil Trainee



Kesaobaka Molebatsi, PhD Trainee

The African Academy of Sciences is keen to see an Africa-led and Africa-centred approach to the development of STI. Increased support from African public, private, philanthropic sectors will promote ownership and ensure an Africa-driven science agenda. As such, the AAS is committed to partner with Rwanda to drive this vision.

## Building a synergistic relationship between Rwanda and the AAS

Rwanda has opportunities for growth in STI, which need to be exploited to drive the country's vision of reducing aid dependency along with implementing its other major development objectives as outlined in Vision 2020.

| Rwanda's development priorities  | Synergies with the AAS   |
|--|--|
| Providing sustainable development for science, technology and innovation | <p>The 2005 National STI Policy proposed the creation of a National Research Fund. In 2016 legal provisions for the fund, which will ring fence funding for the country's researchers and eventually allocated 0.5 % of the total nation budget to the NRF.</p> <p>A National Innovation Fund created in 2012 also helped provide support to promote innovation but needs to issue more calls for proposals for greater impact.</p> <p>The AAS can support Rwanda's endeavours, specifically as an NRF and an NIF are crucial steps towards mobilising local funding for STI and reducing reliance on international funding.</p> <p>The AAS built grant management capacities that have positioned it to be Africa's foremost grant making body. We are currently managing funding \$150 M invested by our partners through the Alliance for Accelerating Excellence in Science in Africa (AESA), a funding and agenda setting platform that the AAS created in partnership with the NEPAD Agency. Rwanda can leverage this expertise to build its grant making and research coordinating capacities of its funding bodies.</p> <p>In addition, through our Grand Challenges Africa programme, we are spurring innovation and provide synergy that could benefit the National Innovation Fund.</p> |
| Human resources development and a knowledge based economy                | <p>Rwanda recognises the importance of providing training in STI for evidenced-based policymaking.</p> <p>Rwanda has about 35 researchers per million, some of whom are based at the University of Rwanda. Only 19 % of the country's foremost university has PhDs which translated to almost 300 out of close to 1,500. As a result, the proportion of postgraduates is 19 % because of the minimal number of staff with PhDs to supervise and train to train.</p> <p>The University of Rwanda has benefitted from the Swedish Development Agency funding to support the training of its staff. Complementary efforts are needed to maximise impact and fast track the country's goal of reinforcing its human capacity.</p> <p>Our programmes train scientists, help them develop their careers, and provide the infrastructure they need to conduct quality research. We also seek to build R&amp;D environments that support a vibrant research culture and leadership development over the long-term. Botswana can use this expertise to strengthen its research ecosystems.</p>  |



The AAS is implementing interventions to attract more women into science, which has seen our programmes recruit a ratio of 50 % women as master's, PhD and postdoctoral Fellows. The AAS' programmes are a platform for the country to train its future women scientific leaders and promote gender equity in the scientific sector.

We are also launching Africa Open, an open source publication, which would provide a platform for Rwanda researchers to publish their research and increasing their scientific production from the current 0.80 papers per year produced by 19 % of staff actively engaged in research.

Promoting agricultural growth and food security

Rwanda seeks to promote productive high value agriculture through its Vision 2020.

Being in a continent where climate change will have its greatest impact, increasing the susceptibility to droughts, such as that of 2016, which lowered harvests, Rwanda needs to mitigate the impact of the global phenomenon to accelerate agricultural growth. This means investing and training a future generation of scientists to produce knowledge and innovations for sustaining agricultural growth.

The AAS' climate change programme, Climate Impact Research Capacity and Leadership Enhancement (CIRCLE), is training a future generation of African climate scientists and generating knowledge for the continent to effectively tackle climate change. CIRCLE provides a training model for Rwanda to replicate and invest in to generate the evidence it will need to reduce the impact of climate change on agricultural productivity, ensuring food security and environmentally friendly production methods. Funds like Rwanda's Fund for the Environment and Climate Change, FONERWA, can be instrumental in driving this agenda.

## Exploiting the synergy

The AAS is aggressively building partnerships with African countries to ensure Africa-led investment of R&D. Countries which are collaborating with the AAS include:

- Nigeria, which provided US\$5 M to an AAS Endowment Fund.
- South Africa, which invested close to US\$1 M to support innovative health technologies through the Grand Challenges Africa programme.

South Africa's funding is managed by the AAS but supports its local innovators to collaborate with peers in other African countries, a partnership model that can be replicated between the Academy and Botswana.

## Benefits of investing in research

The benefits for Rwanda include:

- Achieving Rwanda's goal of a continued reduction of international funding to drive its scientific agenda.
- Increased STI funding for Rwandese researchers' enabling them to grow their research output and making the country globally competitive.
- Building capacity locally to ensure home grown solutions for achieving strategic goals of Vision 2020 and creating future development agendas for driving the vision for growth forward.
- Promoting intra-African collaboration, which is necessary to maximise impact.
- Transforming Rwanda to a knowledge based economy that will spur socio-economic growth.



## Next steps

Areas where Rwanda can invest in by exploring the partnership model that the AAS has with countries like Nigeria and South Africa are:

1. Grand Challenges Africa, which promotes Africa-led scientific innovations to help countries better achieve the Sustainable Development Goals by awarding seed and full grants to the continent's most impressive innovators. Current priorities include maternal, neonatal and child health, antimicrobial resistance, biomedical engineering and key areas of infectious diseases and NCDs. Rwanda exploit GC Africa's grant management capacities and networks to leverage support for local innovators.
2. The Developing Excellence in Leadership, Training and Science (DELTA) Africa, a programme led by AESA to develop world-class researchers and scientific leaders to conduct cutting-edge health research in infectious diseases, non-communicable diseases (NCDs), population and public health.
3. AESA Postdoctoral Fellowship Programmes-through AESA, the AAS is implementing postdoctoral programmes to support early career researchers: the CIRCLE programme develops skills and research experience for early career African researchers in the field of climate change in five thematic areas of health, agriculture, water, energy and policy. The AESA-RISE postdoctoral programme will support postdoctoral training and research to produce leaders in areas that include material sciences, engineering, water resource management, marine biology and natural products.
4. The Human Heredity and Health in Africa (H3Africa) initiative, which aims to facilitate a contemporary research approach to the study of genomics and environmental determinants of common diseases with the goal of improving the health of African populations. H3Africa programmes are focused on infectious diseases and NCDs including kidney disease, sickle cell anaemia, diabetes, hypertension, heart disease and stroke to lay the foundation for precision and genomic medicine in Africa.
5. STEM Education where Science, Technology, Engineering and Mathematics (STEM) education focused on capacity building, mentorship and networking are promoted in ways that foster scientific research and ensure that higher education systems are equipped to meet the demands for emerging knowledge based economies.
6. Research Management and Good Financial Grants Practice Research thrives in environments with good research and financial management capacities. The Good Financial Grant Practice (GFGP) was established as an innovative tool for standardising, simplifying and strengthening financial governance, providing a specification for both grantors and grantees of what is good practice for financial management throughout the grant life cycle.
7. Policy and Advocacy, which provides horizon scanning of the scientific landscape, promotes research uptake, production of policy papers and convenes stakeholder forums.

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