

What are Councils Funding? Africa's Research and Innovation Priorities in Practice

Synthesis Report
August 2025

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Executive Summary

Between 2023 – 2025, the Science Granting Council Initiative (SGCI) played a significant role in strengthening the research and innovation ecosystems in 17 African countries by supporting the Science Granting Councils (SGCs) in these countries to fund and manage research and innovation projects.

These projects have contributed to scientific knowledge, capacity building, infrastructure development, and policy advancements. This synthesis report evaluates the contributions of 82 funded research and innovation projects under SGCI-2+, implemented between 2023 and 2025. This synthesis report focuses on research outputs and technological advancements of the funded projects and their alignment with national, regional, and global development agenda, including the Sustainable Development Goals (SDGs) and the African Union's Agenda 2063.

From the technical and monitoring & evaluation reports of these funded projects, some of the key findings include:

- ▶ The funded projects align with national research priorities, and are tailored to address contextually relevant challenges at the national level. Some of the key sectors funded are agriculture, health, energy, and industrialization.
- ▶ Capacity building and research strengthening has been significantly prioritized by each of the 17 SGCs as seen in the design of the projects. All the projects integrate capacity building and strengthening – a number of students, community groups, and farmers have been trained in various subjects and areas of expertise. Council staff members were not left out either.
- ▶ Several research outputs and solutions have been developed, some which were specifically packaged to inform policy through policy briefs; some were distilled into journal articles for knowledge brokerage, a significant number of which have been scaled up and/or piloted. A good number have also been packaged into prototypes and fabrications ready for industrial use. Some of the projects have resulted in patents, while the majority have generated groundbreaking knowledge, particularly in agriculture, medicinal plants, and artificial intelligence.

SGCI-2+ has significantly supported the advancement of national research priorities, capacity building, and innovation across Africa. However, challenges such as funding sustainability, gaps in research commercialization, and regional collaboration need further attention. Other areas that have not been adequately addressed include energy and just transitions, advanced digital technologies, and Gender, Equality and Inclusivity.

The deployment and utilization of research results from these funded projects should be actively encouraged and strategically invested in, to fully unlock the programme's potential – particularly in generating socioeconomic benefits for the intended beneficiaries. Achieving this requires mobilizing resources from both the public and private sectors, highlighting the importance of strengthening public-private partnerships.

Acknowledgements

This synthesis report on what Science Granting Councils (SGCs) are funding is based on a desktop review and analysis commissioned by the African Centre for Technology Studies (ACTS) under the Research and Innovation Management (RIM) Project, funded by the International Development Research Centre (IDRC) of Canada and the United Kingdom's Foreign, Commonwealth & Development Office (FCDO).

We extend our sincere appreciation to IDRC and FCDO for their generous financial and technical support. We also acknowledge the Science Granting Councils (SGCI) for their commitment and efforts in implementing projects under the Science Granting Councils Initiative (SGCI), as well as the SGCI team for their valuable technical contributions.

Through SGCI, the IDRC consortium has advanced the pursuit of a more equal and inclusive research and innovation ecosystem in Sub-Saharan Africa under the RIM project – an endeavor of significant importance.

Finally, we express our gratitude to the ACTS team – particularly those directly involved in the RIM project – for their dedication and support in its implementation.

Cite this report as:

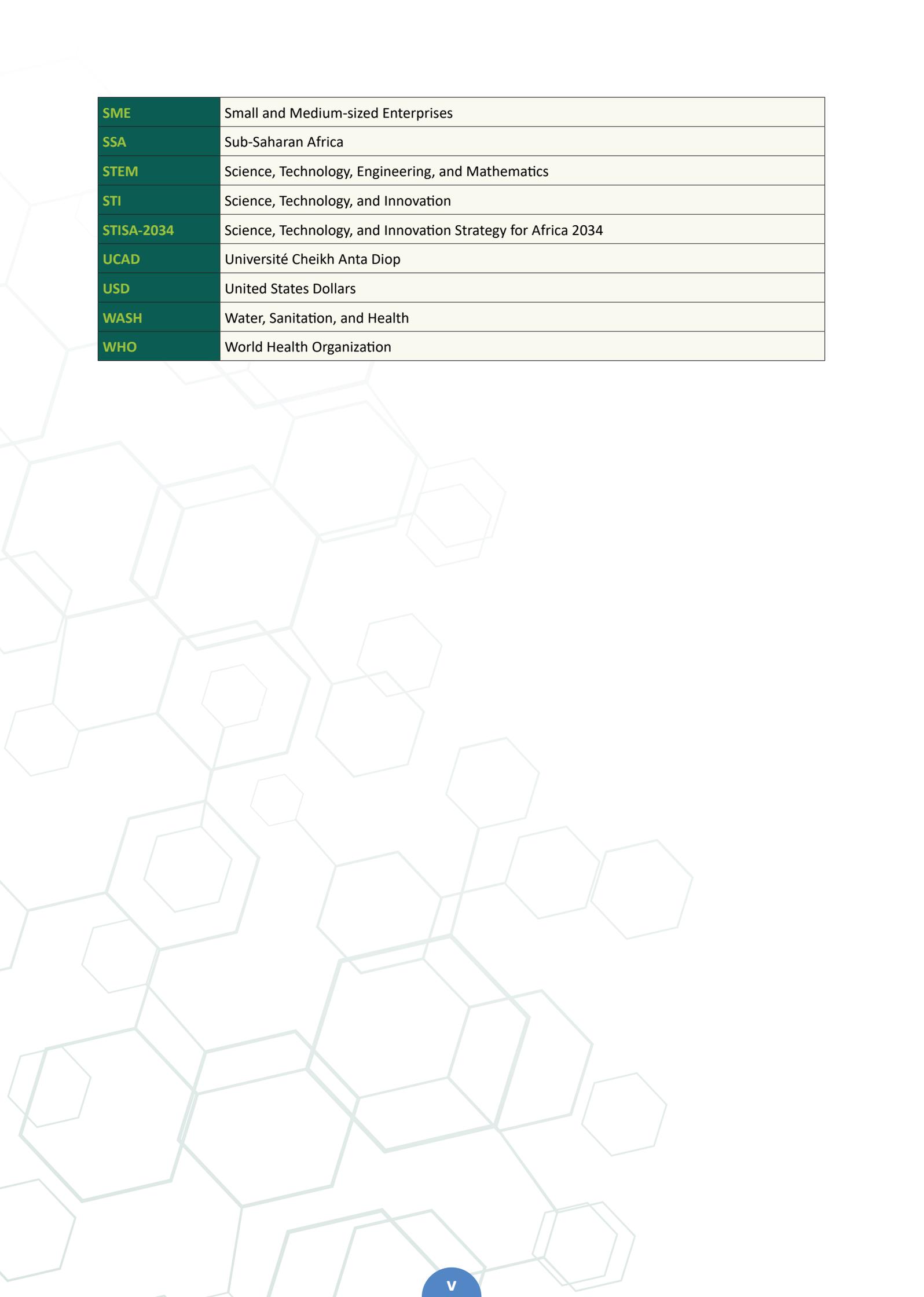
Odongo, N., Lutomiah, A., Ogada, T., Oduor, A., & Ouko, K. (2025, August). What are councils funding? Africa's research and innovation priorities in practice [Synthesis report]. African Centre for Technology Studies.

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Abbreviations

AAS	African Academy of Sciences
AAU	Association of African Universities
ACTS	African Centre for Technology Studies
AfDB	African Development Bank
AFNS	Agriculture, Food and Nutrition Security
AI	Artificial Intelligence
ANSTI	African Network for Scientific and Technological Institutions
ARUA	African Research Universities Alliance
AU	African Union
AUDA-NEPAD	African Union Development Agency – New Partnership for Africa’s Development
CoE	Center of Excellence
COVID-19	Coronavirus disease 2019
DNA	Deoxyribonucleic Acid
ECA	Early Career Academics
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GEI	Gender, Equality and Inclusivity
IAA	Innovation Agencies Africa
IAP	Invasive Alien Plants
ICT	Information, Communication, and Technology
IDRC	International Development Research Centre
IFPRI	International Food Policy Research Institute
IP	Intellectual Property
MDA	Mass Drug Administration
NGOs	Non-Governmental Organizations
NRF	National Research Foundation of South Africa
PPCP	Public, Private Community Partnerships
PPPs	Public Private Partnerships
R&D	Research and Development
RIM	Research and Innovation Management projects
RSTI	Research, Science, Technology, and Innovation
SDG	Sustainable Development Goals
SGCI	Science Granting Councils Initiative
SGCs	Science Granting Councils



SME	Small and Medium-sized Enterprises
SSA	Sub-Saharan Africa
STEM	Science, Technology, Engineering, and Mathematics
STI	Science, Technology, and Innovation
STISA-2034	Science, Technology, and Innovation Strategy for Africa 2034
UCAD	Université Cheikh Anta Diop
USD	United States Dollars
WASH	Water, Sanitation, and Health
WHO	World Health Organization

1. Background and Context

1.1 Introduction

The African continent has long recognized the importance of Research, Science, Technology, and Innovation (RSTI) in driving economic growth, improving societal well-being, and enhancing global competitiveness. However, Africa's RSTI ecosystem has historically faced several challenges, including limited funding, inadequate infrastructure, a brain drain, and poor collaboration between research institutions, governments, and industries. This notwithstanding, African countries have increasingly focused on improving RSTI capacities and leveraging innovation to foster development in the last few years. Taking this into account, there have been significant developments on the policy front as outlined below:

Africa's Science, Technology and Innovation Agenda

- a. The African Union's (AU) Agenda 2063 emphasizes the need for science, technology, and innovation (STI) to promote sustainable development and industrialization. It envisions Africa as a global powerhouse of the future through innovative solutions.
- b. The Science, Technology and Innovation Strategy for Africa (STISA-2024) was introduced to guide policy efforts, aiming to increase African countries' investment in RSTI and support their technological development and integration into global supply chains.
- c. The recently approved Science, Technology and Innovation Strategy for Africa (STISA-2034) has trained its focus on six strategic priorities namely:
 - i. accelerating sustainable and inclusive industrialization,
 - ii. building human capital, infrastructure, and skills,
 - iii. building African capabilities in frontier and emerging technologies,
 - iv. strengthening science diplomacy and partnerships,
 - v. private sector engagement, and
 - vi. addressing youth and gender inequalities.

The five STI priority sectors (health, agriculture, ICT, energy and environment) demonstrates STISA-2034 and the AU's commitment towards the achievement of Sustainable Development Goals (SDGs) and the transformation of the continent.

Pan-African Collaboration and Innovation Initiatives

- a. Many countries have developed national strategies and agencies dedicated to STI, such as South Africa's Department of Science and Innovation (DSI) and Kenya's National Commission for Science, Technology, and Innovation (NACOSTI).
- b. The NEPAD Science and Technology Programme focuses on strengthening continental cooperation in RSTI and creating the necessary conditions for innovation.
- c. The recently launched Innovation Agencies Africa (IAA) Network backed by funding from the [International Development Research Centre \(IDRC\)](#) and supported by the [The National Research Foundation of South Africa \(NRF\)](#), the National Commission on Research, Science, and Technology of Namibia will collaborate with [Kenya National Innovation Agency \(KeNIA\)](#)

and the [University of Johannesburg](#) (South Africa) to spearhead various activities of the IAA Network. The IAA Network strives to strengthen national innovation agencies through cooperative activities, capacity-building efforts and policy harmonization.

- d. The African Development Bank (AfDB) has invested in RSTI through various programs, including the African Technology Foundation, aimed at boosting innovation and technological entrepreneurship.
- e. Pan-African initiatives like the African Innovation and Technology Week foster collaboration between African researchers, businesses, and governments.
- f. The Science Granting Councils Initiative (SGCI) represents one of the most effective platforms for cross-border collaboration in Africa. From 2015, we have seen the rise of collaborations between research councils as well as between African institutions of research and higher education.
- g. The African Research Universities Alliance (ARUA) brings together more than 250 academics from 49 institutions across 27 countries in Africa, Europe, and beyond, seeking to enhance research and graduate training among its member universities through various avenues, including the establishment of Centers of Excellence (CoEs) across member institutions.

Key Developments in Practice

- a. *Rise of innovation hubs and startups:* Innovation hubs like iHub in Kenya and the Innovation Hub in South Africa have become centers for tech startups, promoting a culture of innovation and entrepreneurship. These hubs provide networking, funding, and mentorship for local innovators. Tech startups in fields such as mobile technology, fintech, agriculture, and renewable energy have grown rapidly, including companies like M-Pesa (Kenya), Jumia (Nigeria), and Flutterwave (Nigeria), which have received significant international investment.
- b. *Increased investment in research and development (R&D):* Many African nations have increased their investment in R&D, though the continent still spends less on R&D as a percentage of GDP compared to other regions. Multinational companies are also investing in Africa's R&D ecosystem, with initiatives to foster technological and product development in local markets.
- c. *Capacity building and education:* STEM (Science, Technology, Engineering, and Mathematics) initiatives are increasing across the continent, with the aim to build the next generation of innovators. Africa has witnessed the creation of several research centers and universities that specialize in innovation, such as the University of Nairobi's innovation labs and the African University of Science and Technology in Nigeria.
- d. *Public-Private Partnerships (PPPs):* Public-private partnerships have become increasingly important in the development of RSTI in Africa. Governments, academic institutions, and private enterprises are collaborating to fund projects, share expertise, and scale technological solutions.
- e. *African research networks:* Collaborative networks, such as The African Network for Scientific and Technological Institutions (ANSTI) and The African Academy of Sciences (AAS), foster interdisciplinary research and the exchange of knowledge between African scientists, policymakers, and industries. Under the SGCI-funded RIM project, a network of researchers is in the building – promising to be one of the most organic and effective networking platforms on the continent and bringing together more than 500 researchers at once with a promise for rapid growth.

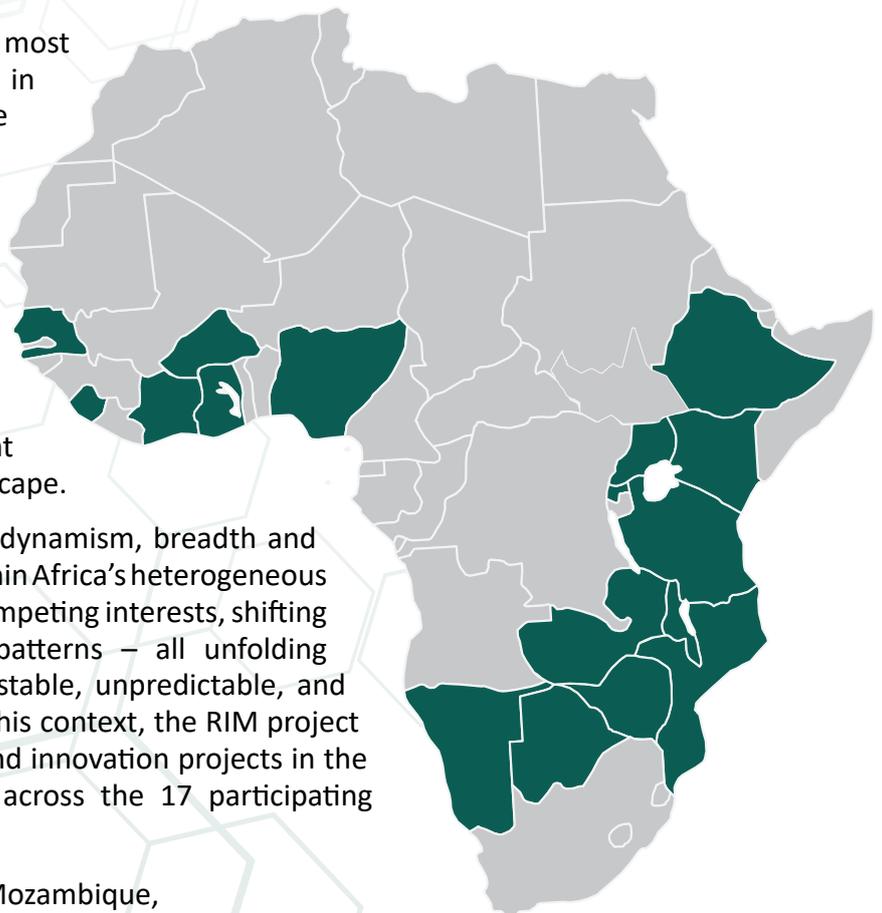
1.2 About the Science Granting Council Initiative (SGCI)

The Science Granting Councils Initiative (SGCI) in Africa aims to strengthen the capacities of selected Science Granting Councils (SGCs) in the Sub-Saharan Africa (SSA) in order to support research and evidence-based policies that contribute to Africa's economic and social development. Since January 2023, a consortium led by the African Centre for Technology Studies (ACTS) which includes the Association of African Universities (AAU) and Cheikh Anta Diop University (UCAD) has been implementing a Research and Innovation Management (RIM) project, focusing on supporting SGCs to fund and manage various research and innovation projects with the aim of building the capacities of the councils in the SSA. One of the key focus areas of the RIM project, is to support the councils to design and manage high quality research competitions and synthesis of research results (develop research outputs and disseminate through various media as well as supporting and convening symposia for researchers). This synthesis report, therefore, aims to identify common/ priority research themes in Africa by shedding light on what SGCs are funding in the 17 African countries.

1.3 The Research and Innovation Management (RIM) Project

The SGCI represents one of the most dynamic and elaborate initiatives in Africa that embodies the complete research, science, technology and innovation ecosystem – boasting an increasing collaborative energy, expansive network, congruence and divergence in priorities and investments, and more. The Research and Innovation Management (RIM) project, backed by the SGCI, accounts for a significant investment into the African RSTI landscape.

The following analysis highlights the dynamism, breadth and strategic impact of the RIM project within Africa's heterogeneous RSTI landscape, which is marked by competing interests, shifting priorities, and diverse investment patterns – all unfolding against a global backdrop that is unstable, unpredictable, and undergoing rapid transformation. In this context, the RIM project is supporting a total of 82 research and innovation projects in the continent. The projects are spread across the 17 participating countries:



- ▶ Botswana,
- ▶ Burkina Faso,
- ▶ Cote d'Ivoire,
- ▶ Ethiopia,
- ▶ Ghana,
- ▶ Kenya,
- ▶ Malawi,
- ▶ Mozambique,
- ▶ Namibia,
- ▶ Nigeria,
- ▶ Rwanda,
- ▶ Senegal,
- ▶ Sierra Leone,
- ▶ Tanzania,
- ▶ Uganda,
- ▶ Zambia, and
- ▶ Zimbabwe.

This report provides a high-level analysis of what councils are funding within the umbrella of the RIM project, and in the process, lifting the lid on the research and innovation priorities of the continent as manifested in these selected projects.

1.4 Objective of the study

The main objective of the study is to identify the sectors and priority themes that Science Granting Councils (SGCs) in Africa are funding under the RIM project.

1.5 Methodology/ Approach

This study employs a desktop qualitative analysis of project documents from the 82 projects selected for funding. The study aims to categorize, classify, and map these projects based on predetermined thematic focus areas. The thematic areas are not necessarily mutually exclusive and may overlap. They include: agriculture, food and nutrition security, health, education, artificial intelligence, clean water and sanitation as well as environment, climate change and clean energy. Other focus areas are economic empowerment, industry and manufacturing, gender equality, social science, mining and natural resource management

2. Findings

This section provides a thematic analysis of the 82 funded projects under the umbrella of RIM, with special focus on agriculture, food & nutrition security, health, energy, environment and climate change. Other areas include emerging technologies and artificial intelligence, clean water & sanitation, industry and manufacturing, social sciences and knowledge generation as well as cross-cutting themes.

2.1 Agriculture, Food and Nutrition Security

This is the single largest funded sector for obvious reasons – African economies are still largely agriculture-driven. Given that the projects under this thematic focus area were not coordinated at the beginning, it reveals a continent that prioritizes agriculture, food and nutrition security.

Generally, more than USD 2,012,502 has been committed towards improving the agriculture, food and nutrition sector, spread across 45 projects. Significant focus has been placed on food systems and food value chains.

Some of the key food items and products being funded in the continent include vegetables (yam), meat (livestock, insects, poultry, fish & sea food), fruits (tomato, cashew, indigenous fruits, pineapple, banana, mangoes, coconut), dairy, cereals (pigeon pea, wheat, rice, maize), cocoa, and other processed foods (noodles, instant porridge etc).

Projects on agriculture food and nutrition security reveal three recurring themes as outlined below.

2.1.1 Resilient Food Systems

It is worth noting that projects on agriculture food and nutrition security (AFNS) integrate other aspects including clean energy, climate-smart agriculture and environmentally-friendly packaging materials. In fact, a recurrent theme across the projects is that of climate change and the building of resilient food systems (diversification, climate-smart agriculture, technology and innovation, building strong partnerships, post-harvest loss reduction and produce drying technology). Moving to non-traditional food sources – hairy crab (Cote d'Ivoire), crickets (Uganda & Rwanda) can also enhance resilience.



2.1.2 Community Inclusion and Economic Empowerment

Research and innovation initiatives under the RIM project have been intentionally designed to empower communities economically, using locally-owned resources. This is important because when communities are included in planning and execution, projects are more likely to align with real needs and local realities. Also, utilizing local resources ensures that once external support ends, communities can continue running and maintaining the projects. Using locally-owned resources (labor, materials, services, knowledge) channels money back into the community rather than external contractors. This stimulates local businesses, creates jobs, and builds skills, which can reduce dependency on external aid.

2.1.3 Agroprocessing and Value-addition

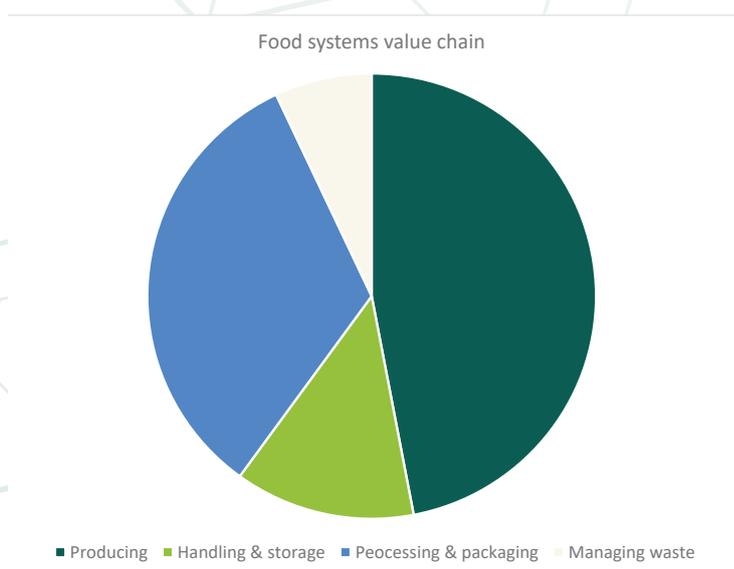
Whether it is for enhancing the shelf-life or for increasing economic returns, most projects have been designed to move away from trading in raw products. Food waste is also being tackled through value-addition – to produce energy or for feed production. Organic and food waste is also being used to produce organic fertilizer.

2.1.4 Harnessing Biotechnology

Harnessing biotechnology to enhance the productivity of indigenous livestock, poultry and fish has also emerged as one of the themes mainly through the following initiatives:

- a. High-performance food formulation for Nile tilapia in Senegal.
- b. Adoption of eight adapted varieties of wheat in Senegal.
- c. Promoting use of artificial insemination to enhance productivity of local goats and chickens in smallholder farming communities.

From a food systems value-chain perspective, the projects span the different stages of the food systems and value chain, from production, processing & value addition, storage, and distribution.



	Stage	No. of projects
1	Food Production	21
2	Handling & Storage	6
3	Processing & Packaging	15
4	Distribution	-
5	Consumption	-
6	Managing Waste	3
	Total	45

2.1.5 Cross-Cutting Themes

The main aim of most projects in agriculture, food and nutrition is creating a resilient, biodiverse, safe and sustainable food system that is accessible and reasonably affordable for all. In response, the RIM projects have highlighted hazards as well as controls in the food systems in the continent to design interventions that work towards food security and nutrition in the continent. Within the One Food framework, the RIM projects have in effect provided evidence (impact of hazards), highlighted risk factors (including plant, animal and environment health), and demonstrated the possibility for enabling change (program and project impact/success as well as advocating for policy).

It also emerged that one of the leading sub-themes is food loss management and alleviation. “Reducing food loss and waste is an adequate solution for food security” – Qu Dongyu, DG FAO (2022). Food waste is a growing challenge in developing countries irrespective of the food insecurity reported in this region – mostly due to a breakdown in the food supply chain. Other emerging sub-themes include deployment of artificial intelligence in agriculture, biotechnology, and genetic engineering for seeds & species improvement.

2.1.6 Key challenges in Agriculture, Food and Nutrition Security

The 45 research initiatives under the RIM project are all addressing common but context-specific challenges within the agricultural sector, specifically the food and nutrition security as a priority area. They include:

- ▶ Drought & associated crop failure
- ▶ Processing and preservation techniques
- ▶ Investment in agriculture
- ▶ Poor livestock productivity
- ▶ Decline in subsistence agricultural production
- ▶ Pests management
- ▶ Poor food handling



Thus, agroprocessing and postharvest losses and food waste reduction remain the priority intervention activities within the AFNS theme.

Table 1: Compendium of agriculture, food and nutrition security projects

#	Project	Country
1	Processing of goat milk into yoghurt enriched with Moringa leaf extracts and marula pulp to improve nutrition, health, and food safety	Botswana
2	Increasing the productivity of cashew trees in orchards and agroforestry fields in the face of drought in the context of climate change in the main production regions in Burkina Faso.	Burkina Faso.
3	Implementation of a hybrid mango dryer powered by solar energy and biogas generated from mango waste	Burkina Faso
4	Genetic characterization of hybrids resulting from the cross between tilapia guineensis (günther, 1862) and tilapia zillii (gervais, 1848) in two sectors (IV and V) of the Ebrié lagoon.	Côte d'Ivoire
5	Saving the coconut tree of life from a devastating pathogen: early detection, spatial and temporal pattern analysis of coconut lethal yellowing, promising strategies for sustainable management of coconut plantations	Côte d'Ivoire and Mozambique
6	Development of a phytoestrogenic food supplement based on the leaves of Manihot esculenta Crantz (Euphorbiaceae) for the management of symptoms linked to menopause	Côte d'Ivoire
7	Sustainable maize production and conservation strategies in the face of climate change	Côte d'Ivoire
8	Support for the economic empowerment of women living near the Azagny National Park through the introduction of local production of Cardisoma armatum (hairy crab) into their agricultural habits.	Côte d'Ivoire
9	Scaling up of agricultural by-product utilization efficiency through the application of bio and physical feed processing technologies	Ethiopia
10	Scaling up post-harvest loss reduction technologies for horticultural crops using biomass waste packaging materials	Ethiopia
11	Development and commercialization of indigenous starter cultures for fermentation of Ethiopian ergo	Ethiopia
12	Developing smart technologies for minimization of post-harvest losses and value addition in the pineapple, mango and tomato value chains (SMARTFRUIT)	Ghana and Zambia
13	Commercialization of cassava for improved food and nutritional security in western Kenya.	Kenya
14	Bio-based Agro-inputs for Sustainability and One Health. Research on food and nutrition security and sustainable agriculture upscaling.	Kenya
15	Advancing Agricultural Sustainability: Leveraging Artificial Intelligence for Optimal Livestock Security and Productivity	Malawi, Zambia & Zimbabwe
16	Promoting use of artificial insemination to enhance productivity of local goats and chickens in smallholder farming communities	Malawi
17	Sustaining rice production in a changing climate: enhancing mitigation and adaptation strategies for smallholder farmers through climate smart solutions, Food systems	Mozambique
18	Development of automated garri frying technology (Jolly fryer)	Nigeria
19	Enhancement of production technology, quality and competitiveness of Rwanda banana beverage products.	Rwanda
20	Development of modern biological control solutions for sustainable management of destructive invasive insect pests of maize and tomato for better food security, safety and nutrition.	Rwanda
21	Cricket farming	Rwanda
22	Development of multi-grain seeding machine (engine power tiller)	Rwanda
23	Diffusion of wheat cultivation in the Senegal river valley: Demonstration test for the adoption of eight adapted varieties	Senegal

24	High-performance food formulation for Nile tilapia <i>Oreochromis niloticus</i> and African catfish <i>Clarias gariepinus</i> based on local products	Senegal
25	Valorization of the neglected and underused edible nutsedge (<i>Cyperus esculentus</i> , Ndir) to improve food and nutritional security in Senegal	Senegal
26	Evaluation of indigenous vegetable species' potential as alternative to tackle malnutrition and food insecurity at rural household	Sierra Leone
27	Scaling up and commercialization of a pigeon pea-based noodles and instant porridge toward improving nutrition security among households in Tanzania	Tanzania
28	Scaling up the productivity of yam (<i>viazi vikuu</i>) in Tanzania through virus indexing, seed yam minisett and tissue culture technologies	Tanzania
29	Reducing postharvest losses and increase farmers income through quality improved dried tomato products	Tanzania
30	Harvest loss reduction in Sardine	Tanzania
31	Establishing a small-scale food waste up-cycling facility for cricket feed production and marketing in Kampala	Uganda
32	Up-scaling the uptake of cocoa innovative technologies for enhanced value addition during primary processing	Uganda
33	Maize germ and Bran as raw materials for high fibre value added bakery and confectionery products/ Up-scaling and commercialization of maize bran and germ value added products in Uganda.	Uganda
34	Advancing agricultural sustainability: leveraging artificial intelligence for optimal livestock security and productivity	Malawi, Zambia & Zimbabwe
35	Smart poultry farming: revolutionizing agriculture in Zimbabwe	Zimbabwe

2.2 Health

Under the RIM project, the health sector attracted a good number of researchers and innovators. About USD 450,000 has been invested in the advancement of health and health research. In this respect, no less than twelve (12) projects are directly involved in the promotion of human health as well as those of plants and animals. Analyzing the health research projects reveals several common themes and characteristics:

- Diseases detection, prevention and treatment/ cure (medicine & medical interventions) with a focus on both infectious and non-communicable diseases.
- Sustainable health systems using AI technology: integrating AI in health and healthcare
- Human health: Maternal, mental wellness (depression & suicide), cancer, menopause management, respiratory diseases, malaria.
- Plant health: Invasive insect pests of maize and tomato, coconut lethal yellowing, use of AI for vector-borne pathogen controls.
- Livestock health: Use of AI to monitor livestock health, use of AI in managing poultry health.
- Pharmacy & medicine: mass drug administration, production of pharmaceutical ingredients.

The projects on health have been dedicated to understanding and addressing infectious diseases, maternal-fetal health, cancer and mental health. This diversity showcases a holistic approach to health research, addressing various aspects of public health.

The projects have been designed to adopt a regional collaborative approach (bilateral & trilateral projects), and an interdisciplinary approach – integrating methodologies from epidemiology, molecular biology, pharmacology, and environmental science. This reflects a recognition that complex health issues require multifaceted solutions, and the need to foster collaboration and partnerships between countries, research institutions, and local stakeholders. The case of the trilateral project (Malawi, Zambia, Zimbabwe) and the bilateral project (Cote d’Ivoire, Mozambique) demonstrate that outcomes of challenges in the health sector have global and broader implications. Adopting a global relevance approach is essential for addressing health challenges that transcend national boundaries.

These projects have also demonstrated a shared commitment to contributing to public health outcomes. This is because the projects aim to uncover determinants of health issues, develop treatments, and inform policies, emphasizing a translational approach to research. Advanced technologies (including AI and drone technologies) have been leveraged to enhance health research and intervention.

The outcomes and impact of these projects will have the potential to influence health policies. Whether by identifying determinants of health issues, evaluating the efficacy of treatments, or modeling the spread of diseases, the research outcomes can inform evidence-based policy decisions.

In summary, the commonalities among the health research projects include a regional focus, diverse health topics, an interdisciplinary approach, a commitment to public health impact, technological innovation, and collaboration & partnerships.

Key Health Projects under RIM

A summary of the health related research initiatives under the RIM project are outlined below:



Maternal-fetal health (Trilateral project in Malawi, Zambia & Zimbabwe)

The trilateral project between Malawi, Zambia and Zimbabwe is a highlight project under the health sector. The focus of this project is to advance maternal health through antenatal services. This trilateral project may be summarized as a **telemedicine decision support system for mid-wives** to detect high-risk antenatal mothers and make mitigation measures.



Mental health and wellness (Kenya)

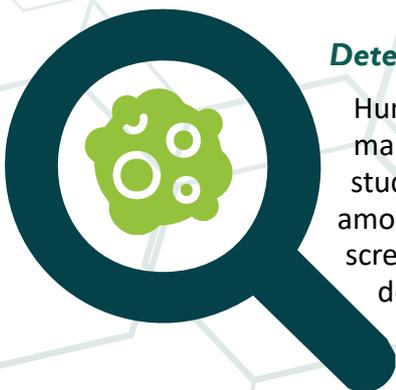
This project seeks to address mental health challenges among youths in Kenya by designing and developing a reliable mental health app for prevention and early detection of depression and suicide among the youth. The project adopts an interdisciplinary approach, bringing together a counseling psychologist, mental health specialist, epidemiologist, project manager, and an app developer.



Mass drug administration and surveillance (Ghana, and Sierra Leone)

MedScaleApp: Scaling up Mass Drug Administration for Schistosomiasis post COVID-19 pandemic. With Ghana still a schistosomiasis endemic area, especially in the rural areas of south Tongu and Krachi west, the project has been designed to optimize the implementation of the World Health Organization (WHO) recommended mass drug administration (MDA) of praziquantel to large populations. The app seeks to enhance the mapping and registration of at-risk populations, in order to optimize robust MDA distribution pathways and coverage in rural Ghana.

In Sierra Leone, there is a project that is incorporating drone and AI technologies for cost-effective vector controls: the use of modern surveillance systems that incorporate new technologies (drone and AI) for entomology. The study involves a multidisciplinary research design that combines drone-based mapping and satellite-based observations.



Detection of Cervical Cancer (Cote d'Ivoire)

Human papillomaviruses (HPV) predominantly affect the cervix, making it a gender-specific health challenge that affects women. This study in Cote d'Ivoire aims to enhance detection of cervical cancer among women using the circulating tumor DNA (ctDNA) as an effective screening marker. The success of this initiative will enhance early detection and treatment of cancer among women to provide health solutions to women in Cote d'Ivoire and Africa at large.

Table 2: Compendium of health and medicine-related projects under the RIM project

#	Project	Country
1	Production of bacteriocins as antimicrobial active pharmaceutical ingredients from locally isolated lactic acid bacterial strains	Ethiopia
2	Developing a two-sided artificial intelligence risk predictive model for early identification of highrisk antenatal mothers: enhancing maternal and neonatal health outcomes	Zambia, Malawi and Zimbabwe.
3	Investigation of circulating tumour DNA in the detection of cancers in HPV-infected individuals (ACiCHPV-CI)	Côte d'Ivoire
4	Saving the coconut tree of life from a devastating pathogen: early detection, spatial and temporal pattern analysis of coconut lethal yellowing, promising strategies for sustainable management of coconut plantations	Côte d'Ivoire and Mozambique
5	MedScaleApp: scaling up mass drug administration for schistosomiasis post COVID-19 pandemic. Geo-spatial epidemiological modelling of selected critical climatic and environment factors in addressing global health pandemic, as shaped by the COVID-19 pandemic	Ghana
6	AI-powered health diagnostics tool: Utilizing artificial intelligence in a sustainable health system for managing malaria	Sierra Leone
7	A digital intervention for the prevention and early detection of depression and suicide among the youth	Kenya
8	Development of modern biological control solutions for sustainable management of destructive invasive insect pests of maize and tomato for better food security, safety and nutrition	Rwanda
9	Incorporating Drone and AI technologies for cost-effective vector controls	Sierra Leone
10	Expanded Pulmonary Aspergillosis assessment in patients with Respiratory diseases (ePARSLE)	Sierra Leone

Disease detection and control remain one of the main intervention activities in the health thematic sector.

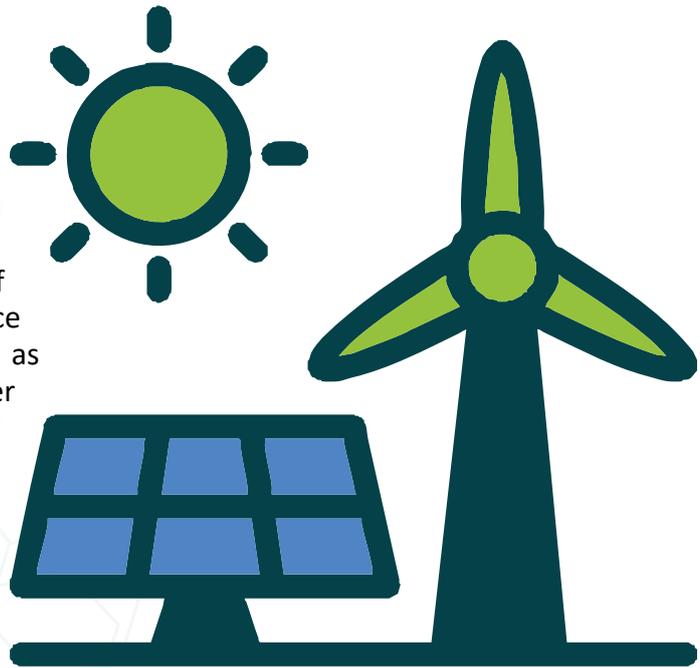
2.3 The Energy Sector

At least five (5) projects are directly addressing the subject matter of energy – clean and renewable energy. Over USD 287,870.56 have been dedicated to projects on clean and renewable energy (biogas, solar, wind etc.).

One of the key areas in the energy sector is the waste to wealth – Bioconversion of waste to energy as a means to advance circular bioeconomy. This is expressed as “valorisation (value addition) of encroacher biomass into a clean, renewable energy.”

#CircularBioeconomy

Another key priority sub-sector under this theme is solar energy, which has also been widely supported by projects as an alternative, sustainable and economically viable source of renewable energy. More projects prioritizing clean energy for drying and cooling food & produce.



Exploring the energy projects under RIM reveals a few common themes and trends. The following focal points and observations stand out.

- ▶ Many projects focus on **diversifying energy sources**, moving beyond traditional methods to explore alternatives such as **solar and biogas**. This approach aligns with global efforts to transition towards cleaner and more sustainable energy solutions.
- ▶ Some projects emphasize the **integration of indigenous knowledge in sustainable energy practices**. Beyond just leveraging traditional knowledge to enhance the effectiveness, sustainability and acceptance of energy solutions; this also acknowledges the cultural heritage of communities in the process.
- ▶ Invasive Alien Plants (IAPs) for eco-friendly energy: Once an environmental problem, these invasive alien plants have been transformed to become a source of renewable energy while generating economic value.
- ▶ Using solar energy to dry and cool agricultural produce as an intervention for reducing post-harvest loss reduction and at the same time enhancing the shelf-life of food produce.
- ▶ Generation of biogas through advanced biogas technology.
- ▶ Unutilized fruits and plants have been used in Mozambique to produce sustainable energy.
- ▶ Technological advancements play a crucial role in energy projects. Initiatives such as the development of novel nano-engineered reagents for mineral froth flotation showcase a commitment to technological innovation in the energy sector.
- ▶ Waste-to-Energy Initiatives: The utilization of waste materials for energy production is a recurring theme. The production of bio-fertilizers demonstrate a commitment to converting waste into valuable energy resources.
- ▶ Agricultural Integration: Some projects explore the intersection of energy and agriculture, creating an interdisciplinary symbiotic relationship between energy production and agricultural

activities.

- Small-Scale and Rural Solutions (improving access to energy): There is a notable focus on addressing energy challenges in small-scale and rural settings.
- A multi biomass fueled continuously running stove and its environmental and social impact.

The commonalities among the RIM-funded energy projects reflect a comprehensive and integrated approach to addressing energy challenges in Africa. The focus on renewable sources, technological innovation, and economic empowerment underscores the commitment to sustainable and inclusive energy solutions. As development partners and stakeholders consider supporting these initiatives, recognizing the interconnectedness of these themes will be crucial for maximizing the impact and ensuring the long-term success of energy projects on the continent.

From the RIM project, circular bioeconomy appears to be the leading intervention initiative in addressing energy needs and problems in the continent.

The analysis underscores the dynamic landscape of renewable energy projects in Africa, showcasing the commitment to addressing energy challenges while promoting sustainable development. These initiatives not only contribute to the immediate goal of energy security but also align with broader objectives such as climate resilience, sustainable agriculture, community empowerment, and technological innovation. The prospects for collaboration, policy implications, and the potential for PPPs position these projects as integral components of a holistic and impactful approach to renewable energy development on the continent. As stakeholders consider supporting these initiatives, a coordinated effort involving governments, private sectors, and the international community will be crucial in realizing the full potential of renewable energy in Africa.

Table 3: A compendium of energy projects under the RIM Project

#	Projects	Country
1	Bioconversion of waste to energy as a means to advance circular bioeconomy: A sustainable strategy for meeting energy needs	Botswana and Mozambique:
2	Low cost, intensified torrefaction system for valorisation of encroacher biomass into a clean, renewable energy	Botswana
3	Sustainable Solutions for Industrial Waste Management in Ethiopia: Transforming Industrial Sludge into Energy-Efficient Bricks, Biomass Briquettes, & Nano-Fertilizers	Ethiopia
4	Scaling up of waste to wealth technology: Transforming Waterhyacinth (Eichhorina Crassipes) Biomass into Renewable Energy to Improve Rural Livelihood,	Ethiopia
5	Low cost, intensified torrefaction system for valorisation of encroacher biomass into a clean, renewable energy	Mozambique
6	AirVolt: an affordable access to electricity with vertical axis wind turbines	Nigeria
7	Creation of biosensor device for water purification using solar energy.	Nigeria
8	Implementation of a hybrid mango dryer powered by solar energy and biogas generated from mango waste	Burkina Faso.

2.4 Environment and Climate Change

In the last two decades, 'sustainability' has become a buzzword, especially in the context of the economic activities' impact on the environment and climate. In the last decade, the theme 'resilience' has also taken centre stage in discussions, with a renewed emphasis on [marginalized] communities. As such several projects being funded under RIM reflect this reality and are focusing, directly or indirectly, towards addressing the challenges of climate change and environmental degradation.



Given that agriculture, mining and tourism are still some of the biggest earners for African economies, they also represent the biggest threats to environmental sustainability and climate stability. It is therefore not surprising that most projects under the agriculture, food & nutrition security have an angle to environment and climate change.

From the different projects that touch on this theme, the surge in demand for clean and green energy is a reflection of the African economies at large.

Some of the key projects related to the environment and climate change are summarized below:

- ▶ **Valorization of invasive alien plants to clean energy sources:** Invasive alien plants, including water hyacinth, have been a menace to the economic livelihoods of local smallholder communities around water bodies. These have stifled both agriculture and fishing activities. Researchers have now turned to creating value out of these unwanted plants – achieving both value creation as well as clearing land for both agriculture and fishing. Some of these projects include:
 - i. Low cost, intensified torrefaction system for valorisation of encroacher biomass into a clean, renewable energy in Mozambique.
 - ii. Scaling up of waste to wealth technology: transforming water hyacinth (*Eichhorina Crassipes*) biomass into renewable energy to improve rural livelihood in Ethiopia.
- ▶ **Scaling up of efficient and clean energy technologies:** Renewable/ clean energy sources have a significant impact on the environment and in combating climate change. Examples of such projects under RIM include a multi biomass fueled continuously running stove and its environmental and social impact in Sierra Leone; and a hybrid mango dryer powered by solar energy and biogas generated from mango waste in Burkina Faso.
- ▶ **Waste-to-wealth:** Examples of these projects include bioconversion of waste to energy as a means to advance circular bioeconomy in Botswana and Mozambique, which are sustainable strategies for meeting energy needs. Using macadamia shells to develop cost effective and environmentally safe way of mineral extraction; sustainable solutions for industrial waste management in Ethiopia; transforming industrial sludge into energy-efficient bricks, biomass briquettes, & nano-fertilizers in Ethiopia and using biomass waste to develop packaging materials. Industrial waste has also been valorized into bricks & nano fertilizers to combat

pollution as well as create economic value.

- ▶ **Renewable energy** - Replacing non-renewable sources of energy with renewable sources – the use of solar drying technology in agriculture. These projects include the use of a biomass-fueled cooking stove to replace charcoal or open-fire based cooking.
- ▶ **Climate-smart agriculture** – Projects on climate smart agriculture include increasing the productivity of cashew trees in orchards and agroforestry fields in the face of drought in the context of climate change in the main production regions in Burkina Faso; sustainable maize production and conservation strategies in the face of climate change in Tengrela in Côte d’Ivoire; sustaining rice production in a changing climate: enhancing mitigation and adaptation strategies for smallholder farmers through climate smart solutions, food systems in Mozambique.
- ▶ **Valorization of food waste:** A few projects are focused in valorization of food waste in response to environmental degradation and adverse climate change associated with food waste. For instance, in Ethiopia, there is a project that is scaling up post-harvest loss reduction technologies from horticultural crops – transforming them into biomass waste packaging materials. But mostly, food waste is being used as a source of clean biogas energy.

Table 4: Environment and climate change related projects under RIM

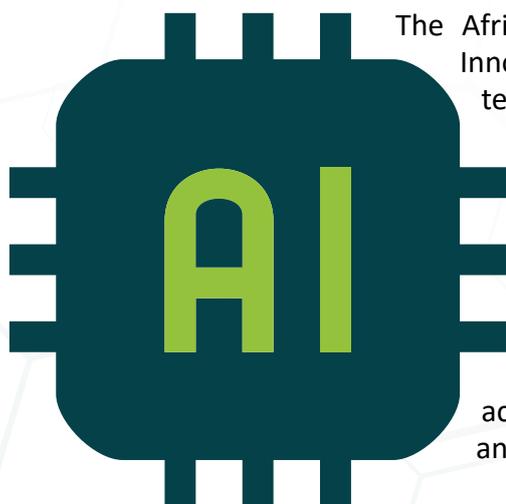
#	Project	Country
1	Managing air pollution (vehicle pollution monitoring & SIZANA-environmental friendly transport system in Rwanda)	Rwanda
2	Development of hydrogel technology to mitigate the effect of drought in desert areas of northern Nigeria	Nigeria
3	Environmentally friendly way of tanning hides, and value addition to the skin and hides value chain	Zimbabwe.
4	Bio-based agro-inputs for sustainability and One Health. Research on food and nutrition security and sustainable agriculture upscaling.	Kenya
5	Environmental effects of artisanal mining and climate change on food security in the Revuè sub-basin in Mozambique.	Mozambique
6	Creation of biosensor device for water purification using solar energy.	Nigeria
7	AirVolt: an affordable access to electricity with vertical axis wind turbines.	Nigeria

Advancing clean energy technologies and expanding their adoption remains the leading intervention that researchers recommend to address the adverse effects of environmental degradation, coupled with climate change.

These RIM-funded projects have revealed an intersection between science, technology & innovation, environment, and climate change. The intersection between these three sectors in developing countries reveals a subtle *socioeconomic transformation* taking centre-stage in science, technology and innovation ecosystems, but which needs to be accompanied by relevant public policy interventions. Through a social constructivist lens, it is important to note that RIM projects are designed to put local communities’ concerns (resilience, socioeconomic interests and well-being) at the centre of all interventions.

Through the application of natural sciences, researchers have employed diverse technologies to manage the adverse effects of human activity on the environment, climate and biodiversity for sustainable development.

2.5 Emerging Technologies and Artificial Intelligence



The African Union Agenda 2063 and the Science, Technology, and Innovation Strategy for Africa 2034 places frontier and emerging technologies at the centre of the digital progression objective for Africa. Both the continental development frameworks set STI, and specifically technological revolution, at the driving seat for meeting the continent’s developmental realities, within the global context of the fourth industrial revolution.

Researchers in Africa have adopted this dream and are increasingly integrating frontier and emerging technologies in both the design and execution of their projects, which cut across health, education, agriculture, as well as water, sanitation and hygiene (WASH) and energy sectors.

The reality of complex interactions among risk factors has shown the need and demand for sophisticated models and tools. Big data and AI have proven to be both useful and ideal as tools, strategies and means to go beyond standardization and into precise, personalized and efficient products and services.

Frontier and emerging technologies are becoming increasingly mainstream in the research ecosystem as evidenced through the following projects under RIM.

Table 5: A compendium of Frontier and emerging technologies under RIM

#	Project	Country
1	AI-powered health diagnostics tool: utilizing artificial intelligence in a sustainable health system for managing malaria.	Sierra Leone
2	Advancing agricultural sustainability: leveraging artificial intelligence for optimal livestock security and productivity. AI is employed in livestock census and registration to ensure security.	Malawi, Zambia, and Zimbabwe
3	Promoting use of artificial insemination (AI) to enhance productivity of local goats and chickens in smallholder farming communities	Malawi
4	AI for water: Water security and sanitation in Namibia. The project seeks to reimagine urban water security by exploring innovative water solutions in the face of climate change. Incorporating drone and AI technologies for cost-effective vector controls.	Namibia
5	Developing a two-sided Artificial Intelligence risk predictive model for early identification of high-risk antenatal mothers: enhancing maternal and neonatal health outcomes	Zambia, Malawi and Zimbabwe.
6	A digital intervention for the prevention and early detection of depression and suicide among the youth.	Kenya

Integration of artificial intelligence in everyday processes and activities is a significant approach that both researchers and innovators are exploring both in industrialization as well as in the service sectors to enhance the broader state of human well-being.

The analysis underscores the dynamic landscape of science, technology, and innovation in Africa, showcasing the commitment to advancing technologies to address increasingly complex challenges while promoting efficient problem-solving in a rapidly changing and sophisticated world. These projects not only contribute to the immediate goal of solving identified problems, but also align with broader regional and continental objectives of a digitally progressive continent, connected, competitive, innovation-focused, and knowledge-driven.

With frontier and emerging technologies ever so rapidly changing human lives and their economies, these highlighted projects demonstrate the commitment of Africa in her building capacity in the advancement and promotion of radical scientific breakthroughs and technological application.

Similarly, these projects also pose a significant challenge to key RSTI stakeholders to invest in fostering an environment that appreciates the potential risks posed by such emerging technologies.

2.6 Clean Water and Sanitation

Access to clean water and sanitation still remains a serious challenge in many parts of Africa in the 21st century. Whereas some progress has been made in certain areas, the larger Africa still faces significant issues of water & sanitation safety, quality, access, availability, affordability, and infrastructure challenges.



Access to clean water and sanitation is hindered by inadequate or non-existent infrastructure in slums and informal settlements, as well as by water contamination from agriculture and industry, which exacerbates waterborne diseases. Key challenges include rapid urbanization, population growth, climate change, infrastructure gaps, and economic constraints.

Population growth and urbanization are twin forces that are putting pressure on systems and infrastructures around the world. Africa is a unique case mainly because urbanization and population growth rates in the continent are among the highest in the world. This, coupled with climate change, presents a unique challenge that Africa must deal with decisively.

The RIM project has a number of projects dedicated to addressing this growing concern. Some of the leading problems being tackled include:

- ▶ Pollution of water bodies
- ▶ Inefficient sanitation and water systems and infrastructure in urban areas
- ▶ Unclean water

Scientists working under the RIM project have designed several initiatives to address this pressing challenge, mainly in Nigeria, Namibia, Ghana and Malawi. The common problem appears to be overwhelmed systems and infrastructure, especially in urban areas. Some of the projects tackling water and sanitation in Africa under the umbrella of RIM are listed in the table below:

Table 6: A compendium of research projects on clean water and sanitation under RIM

#	Projects	Country
1	Sustainable remediation of pharmaceutical residue pollution in water bodies	Ghana
2	AI for water security and sanitation in Namibia. Reimagining urban water security by exploring innovative water solutions in the face of climate change.	Namibia
3	Creation of biosensor device for water purification using solar energy in Nigeria.	Nigeria
4	Climate smart sanitation infrastructure: a promising path towards sanitation systems resilience to extreme weather events in Malawi	Malawi
5	Sustainable urban drainage systems and technologies for adaptation and infrastructure needs (sustain) in Malawi.	Malawi
6	AI for Water: Water Security and Sanitation in Namibia	Namibia

It is important to note that climate change is a leading cause of lack of clean water in most of these projects, and urban areas represent the geographical context of interest for the researchers. In all these interventions, water quality and access remain the key focus of researchers and innovators.

Africa, on average, still remains a mark off from achieving universal access to clean water (SDG 6). A combination of the factors discussed above present complexities that require elaborate investments and mechanisms, intersectoral collaboration and co-creation to achieve meaningful progress. The RIM projects highlighted above present a case for concerted efforts, regional collaboration and effective engagement of local communities to find innovative and sustainable solutions.

2.7 Industry and Mining



The mining industry plays a major role in most African economies. Among the RIM projects, Southern Africa (Zambia, and Zimbabwe) seems to have prioritized the mining industry, for obvious reasons. Many other African countries share the same ambition of industrialization manifested in the modest interest in growing and advancing the manufacturing sector.

Table 7: A compendium of research projects on industry and mining under RIM

#	Projects	Country
1	Beneficiation of local lithium ore and production of cathode precursor (electric vehicle battery).	Zambia.
2	Environmental effects of artisanal mining and climate change on food security.	Mozambique
3	Commercialization of the development of novel nano-engineered reagents for mineral froth flotation project.	Zimbabwe
4	Enhancement of production technology, quality and competitiveness of Rwanda banana beverage products.	Rwanda
5	Development of multi-grain seeding machine (engine power tiller).	Rwanda.
6	Up-scaling the uptake of cocoa innovative technologies for enhanced value addition during primary processing.	Uganda.
7	Scaling up of local production of biocatalysts/enzymes for the food industry.	Ethiopia

The small number of projects within the mining and industrial sectors betrays the ill preparedness of the continent in advancing industrialization. Some scholars argue that manufacturing is only but a small portion of sub-set of industrialization and that the focus needs to be broadened to include interventions that target improvement of processes as well.

While modest, these projects demonstrate the interest and keenness of researchers to contribute to the industrialization of the continent. It also reveals the special interest on industrialization for economic development at the national level and collectively as a continent.

2.8 Social Sciences/ Knowledge Generation



Generation of knowledge still remains a top research priority for the continent. While the hype may be on technology and technological advances, innovations etc, the foundation of these is the creation of knowledge. Basic and social science research have not been left out of the Rim projects – and there is diversity as well. The table below lists some of the projects dedicated to the generation of knowledge.

Table 8: A compendium of research projects Under RIM dedicated to the generation of knowledge

#	Projects	Country
1	Women’s participation in STI research, capacity building and mentorship programmes: The trends, barriers and enablers	Ghana
2	The impact of agribusiness incubation/innovation hubs on youth agripreneurship development and lessons for Ghana’s agro-food industrial transformation.	Ghana
3	Mainstreaming gender in higher education: a prerequisite for advancing science, technology and innovation .	Ghana
4	Improving sustainable vegetable production in southern Mozambique: a comprehensive study of good agricultural practices and their implementation).	Mozambique
5	Environmental effects of artisanal mining and climate change on food security in the Revuè sub-basin in Mozambique.	Mozambique
6	Evaluation of indigenous vegetable species’ potential as alternative to tackle malnutrition and food insecurity at rural households.	Sierra Leone
7	Assessment of the degree of effectiveness of the fundamental right of access to justice in the context of justice sector reform in Mozambique.	Mozambique

The research outputs from these projects have potential to impact most of the sectors listed in the foregoing sections, from health to industry, climate change as well as food security.

Research in Africa is facing a paradigm shift with renewed focus on uptake of research results, commercialization and upscaling. While this shift is taking place, there is still need for generation of knowledge as contexts, environments and culture evolve, which creates the need for knowledge generation research amid this renewed focus on technology and innovation projects. The RIM project testifies to the need for such projects especially in the context of advancing the values of equality, inclusivity, justice, community engagement and learning about new phenomenon including the impact of novel technologies on the fabric of the society.

Greater focus of these knowledge generation projects is placed on gender equality & inclusivity, as well as on climate change mitigation measures.

2.9 Cross-cutting Themes

2.9.1 Gender, Equality and Inclusivity (GEI)

A key pattern evident from the 82 RIM projects is an intentional focus on enhancing gender, equality, and inclusivity within the RSTI ecosystem in Africa. Research projects under RIM have advanced GEI in multiple ways, both in their design and in their implementation.

For example, findings show increased representation of women in the research projects, achieving a high of 45% gender parity.

In addition, several projects target early career academics (ECAs), the informal sector and SMEs. Rwanda for instance, elected to support only ECAs.

It is also important to note that there are at least 11 gendered projects – projects aiming to enhance the generation of knowledge to address gaps in fields that disproportionately affect women. A good example is a project in Ghana focused on “*Mainstreaming Gender in higher education: A prerequisite for advancing Science, Technology and Innovation*”. This will help advance the efforts focusing gender equality in the Science, Technology, Engineering, and Mathematics (STEM) ecosystem. A few other projects have a gendered research design, for instance, one project in Uganda seeks to improve a single fermentation box for cocoa to make it gender sensitive mainly because it is frequently used by women.

For more analysis, please refer to the comprehensive GEI report [here](#).

2.9.2 Economic Empowerment

While most projects are designed to generate knowledge and advance innovations, a significant number have embedded the economic empowerment aspects in their design. This has been manifested in community engagement activities, especially trainings on entrepreneurship and development of other skills necessary for starting and maintaining an enterprise. Examples of these projects include:

- ▶ Capacity Building for the job creation and growth of the leather goods and leather footwear manufacturing enterprises in Kenya.
- ▶ Commercializing and upscaling livestock research: ecologically friendly tanning of livestock hides and skins in Zimbabwe.
- ▶ Support for the economic empowerment of women living near the Azagny National Park through the introduction of local production of *Cardisoma armatum* (hairy crab) into their agricultural habits.
- ▶ Promoting use of artificial insemination (AI) to enhance productivity of local goats and chickens in smallholder farming communities in Malawi.
- ▶ Community empowerment through value addition and agro-processing of indigenous fruits in Mozambique and Botswana.
- ▶ Evaluation of indigenous vegetable species’ potential as alternative to tackle malnutrition and food insecurity at rural household in Sierra Leone.

The specific and intentional support to communities in job creation and enterprise development indicate attempt by researchers in addressing one of the leading challenges facing the African continent – jobs & employment. As such, governments and public agencies need to take a keen and special interest in projects that attempt to solve such immediate and pressing challenges.

2.9.3 Collaboration

A number of RIM projects are designed to be both bilateral and trilateral collaborations between councils and their beneficiaries/ grantees. In total, there are ten (10) bilateral and six (trilateral) projects across borders. Zambia and Mozambique are leading in collaborative projects.

An interesting collaborative project is that between Mozambique and Cote d'Ivoire – “Saving the coconut tree of life from a devastating pathogen: early detection, spatial and temporal pattern analysis of coconut lethal yellowing, promising strategies for sustainable management of coconut plantations in Côte d'Ivoire and Mozambique”. The project is transcending more than just borders – it is transcending language & cultural barriers, and many other unique diversities. As they share lessons, research findings, and best practices, a collective understanding will be enhanced, which will help foster a global community of practice and concerted efforts towards sustainable development.

There are also collaborations between research teams and government bodies, which help ensure studies are well aligned with national priorities and strategies. Many other projects have also collaborated with community groups and NGOs which will help enhance community engagement and the social impact of the projects.

2.9.4 Public Private Partnerships (PPPs)

There are more than thirty (30) funded projects that have adopted the public-private partnerships model in their design. The working definition of PPP in this case refers to partnership between the academia and any entity that can take up and deploy the innovation from primary research institutions. Such entities include and are not limited to associations, Micro, Small, and Medium Enterprises (MSMEs), government agencies, women groups, youth groups, cooperatives etc. The objective of the partnership is to encourage and facilitate the uptake of research outputs from academia, to employ in the socio-economic transformation. Key themes within these PPP projects include a focus on commercialization, Intellectual Property (IP), market analysis, and technology transfer.

The renewable energy projects present significant opportunities for PPPs. Collaboration with private enterprises can facilitate technology transfer, funding, and expertise. For instance, the ‘Biogas Generation’ project could attract private sector involvement for the commercialization and scaling of biogas technology.

The landscape of PPP models is quite diverse and different entities carry out varied responsibilities. Equally, they face different operational contexts and therefore encounter different barriers, challenges, and opportunities. A comprehensive technical report on the PPP projects is provided for in the report [here](#).

3. Conclusion

This high-level synthesis of the 82 projects that councils are funding reveal a greater detail of the research priorities of the 17 African countries implementing the RIM project. Since the projects were selected at the country-level – implying some form and level of randomness – convergence shows similarity in research priorities while congruence of innovation ideas reveal a continent facing common challenges while pursuing a common development agenda.

Whereas these similarities are frequent and common – as manifested in similarity in intervention designs – they do not take away from the idiosyncrasies of individual countries and even the heterogeneity within the countries. It provides insights into the embedded diversity within our similarities and the uniqueness of our challenges – stemming from cultural, economic, and political diversities of the African people, among many other differences.

However, there is more that unites than divides Africa. This is manifested in the striking similarities in the design of interventions by the researchers as highlighted below.

- a. **Common Challenges:** From almost all the 82 RIM projects, there is admission and reference to persisting problems including insufficient infrastructure (utilities, scientific infrastructure etc), funding constraints (especially from government), low levels of private sector involvement in R&D, a weak linkage between research outputs and industry needs, and an even lower level of uptake of research results.
- b. **Science, Technology, and Innovation:** The RIM projects demonstrate a growing recognition of the importance of RSTI in Africa’s development agenda, as captured in various continental strategies (Agenda 2063, STISA-2034) and national policies. The emphasis on aligning RSTI with Africa’s developmental needs, particularly in industrialization, agriculture, and sustainable energy as well as climate change calls for concerted efforts from the highest levels of public policy. In this respect, RSTI promises to help address the persisting systemic, structural, and technological challenges Africa faces.
- c. **Community-Centric Approaches:** Majority of the RIM projects adopt a community-centric approach, involving local communities in project design, implementation and, in some cases, directly benefiting from the energy generated. This ensures that the projects are tailored to the specific needs and contexts of their respective communities. Furthermore, adopting community hubs has the potential for creating lasting networks to enhance knowledge uptake which is key to project sustainability. A new concept of public, private community partnerships (PPCP) is also gaining relevance.
- d. **Cross-Sectoral Collaboration:** Collaboration is a recurring theme, with projects partnering with various stakeholders such as government agencies, research institutions, private enterprises and local communities. This collaborative approach enhances the feasibility, scalability, and sustainability of renewable energy initiatives.
- e. **Emerging Technologies:** Mobile technologies are increasingly being used in both research and as a product of research to solve everyday challenges in a smarter way. Several projects are developing mobile apps as part of their outputs – a strong signal to the employment of advanced technologies both in research as well as in implementation of interventions. Several projects have also integrated artificial intelligence in solutions to address complex challenges.
- f. **Systems-wide approach:** Researchers and innovators are increasingly adopting a systems-wide approach in solving problems. Inter, multi and cross-disciplinary studies are becoming

commonplace. For instance, the trilateral project (Malawi, Zambia, and Zimbabwe) has collaborated with midwives and nurses in more than 10 public hospitals in Zimbabwe, and has gotten support from the permanent secretary at the Ministry of Health and Childcare in Zimbabwe as well as the Medical Research Council of Zimbabwe. They are also in the process of engaging private hospitals in the project.

- g. Evidence-based project designs:** Researchers and innovators have engaged in evaluative and oversight analyses to enhance descriptive and investigative capabilities respectively. Others have employed insight, foresight and oversight analyses to enhance diagnostic, predictive and prescriptive analyses in the RSTI ecosystem.

To overcome the systemic challenges facing the continent, there is need for continued and concerted efforts to realize the full potential of RSTI as a critical and strategic driver of sustainable development and socio-economic transformation of the continent. In this respect, The SGCI is leading the continent in facilitating such concerted efforts, as demonstrated by the design and implementation of RIM project

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