SGCI IOSRS

The state of STI in Africa: Funding flows and the role of the Science Granting Councils

The state of Science Technology and Innovation in Africa: Insights on Funding Landscape and the role of Science Granting Councils

Final report

Submitted by:
Johann Mouton on behalf of the CREST-led project team

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Contact: Marthie van Niekerk • +27 (0)21 808 3708 • mvn3@sun.ac.za

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Science and Technology

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GLOSSARY

Acronym	Full name
AAS	African Academy of Sciences
AATF	African Agricultural Technology Foundation
AAU	Association of African Universities
ACBF	African Capacity Building Foundation
ACET	African Center for Economic Transformation
ACIAR	Australian Centre for International Agricultural Research
ACTS	African Centre for Technology Studies
AERC	African Economic Research Consortium
AESA	Alliance for Accelerating Excellence in Science in Africa
AfDB	African Development Bank
AFENET	African Field Epidemiology Network
AfricaRice	Africa Rice Center
AfWA	Africa Water Association
AGRA	Alliance for a Green Revolution in Africa
AGRODEP	African Growth and Development Policy
AHRC	Arts and Humanities Research Council
AHRI	Africa Health Research Institute
AI	Artificial Intelligence
AiBST	African Institute of Biomedical Science and Technology
AIDS	Acquired Immunodeficiency Syndrome
AIO	African Innovation Outlook
AJ-CORE	African-Japan Collaborative Research on Environmental Science
ALC	African Leishmaniases Consortium for developing a paradigm for eliminating neglected diseases in Africa
ALMA	African Leadership for Measuring brain health in children and Adolescents
AMARI	African Mental Health Research Initiative 2.0
AMED-JP	Japan Agency for Medical Research and Development
AMCOST	African Ministerial Council on Science and Technology

Acronym	Full name
ANEP	Authority for Professional Education
ANID	Agencia Nacional de Investigacion y Desarrollo, Chile
ANZSRC	Australian and New Zealand Standard Research Classification
AOSP	Africa Open Science Platform
APHRC	African Population and Health Research Center
APROMAB	Association of Professionals in the Mango sector in Burkina Faso
ARISE	African Research Initiative for Scientific Excellence
ARS	Agricultural Research Service
ARUA	African Research Universities Alliance
ASLM	African Society for Laboratory Medicine
ASTIF	African Science, Technology and Innovation Fund
ASTII	African Science Technology and Innovation Indicators
ATA	Agricultural Transformation Agency
ATI	Agricultural Transformation Institute
ATPS	Africa Technology Policy Studies Network
AU	African Union
AUPELF	Agence universitaire de la Francophonie
AUSAID	Australian Agency for International Development
AWDF	African Women's Development Fund
BAS	Botswana Academy of Science
BF	Belmont Forums
BfArM	Federal Institute for Drugs and Medical Devices (Germany)
BHP	Botswana Harvard Health Partnership
BHT	Baobab Health Trust
BICC	Bingu International Convention Centre
BMGF	Bill & Melinda Gates Foundation
BTH	Blekinge Tekniska Högskola
CAADP	Comprehensive Africa Agriculture Development Programme
CARGF	Covid-19 Africa Rapid Grant Fund
CARI	Coalition for African Research and Innovation

Acronym	Full name
CARTA	Consortium for Advanced Research Training in Africa
CASCADE	Cascading Climate and Health Risks in Cities
CCCRN	Center for Clinical Care and Clinical Research
CCF	Cheetah Conservation Fund
CeSHHAR	Centre for Sexual Health and HIV AIDS Research Zimbabwe
CeSTII	Centre for Science, Technology and Innovation Indicators
CGIAR	Consultative Group on International Agricultural Research
CHESS	Comprehensive Health and Epidemiological Surveillance System
CIDRZ	Centre for Infectious Disease Research in Zambia
CIHP	Centre for Integrated Health Programs
CISM	Fundação Manhiça
CMAAE	Collaborative Masters in Agricultural and Applied Economics
CMAP	Collaborative Masters Programme
CODESRIA	Council for the Development of Social Science Research in Africa
CoEs	Centres of Excellence
CoRE	Europe Clusters of Research Excellence
COSTECH	Tanzania Commission for Science and Technology
COTVET	Council for Technical Vocational Education and Training
CPA	Consolidated Plan of Action
CPP	Collaborative PhD Programme
CRA	Collaborative Research Action
CREST	Centre for Research on Evaluation, Science and Technology
CSRS	Centre Suisse de Recherches Scientifiques en Côte d'Ivoire
CTAs	Collaborative Technical Agencies
CWTS	Centre for Science and Technology Studies, the Netherlands
CzASE	Critical Zones Africa South & East
DAAD	German Academic Exchange Service
DAC	Development Assistance Committee
DELGEME	Developing Excellence in Leadership and Genomics Training for Malaria Elimination and Anti-Microbial Resistance control in Africa

Acronym	Full name
DELTAS Africa	Developing Excellence in Leadership Training and Science in Africa
DGRI	Direction Générale de la Recherche et de l'Innovation
DHRC	Dodowa Health Research Centre
DIFD	United Kingdom's Department for International Development
DRFN	Desert Research Foundation of Namibia
DRUSSA	Development Research Uptake in Sub-Saharan Africa
DSI	South African Department of Science and Innovation
DTRA	Defense Threat Reduction Agency
DZARC	Debre-Zeit Agricultural Research Center
EAS	Ethiopian Academy of Sciences
ECOWAS	Economic Community of West African States
EDCTP	European & Developing Countries Clinical Trials Partnership
EGPAF	Elizabeth Glaser Pediatric AIDS Foundation
EIAR	Ethiopian Institute of Agricultural Research
EMRs	Electronic Medical Record Systems
EPHI	Ethiopian Public Health Institute
ESRC	Economic and Social Research Council, UKRI
ESTC	Ethiopian Science and Technology Commission
EU	European Union
FA	Future Africa
FAPESP	Fundação de Amparo à Pesquisa do Estado de São Paulo
FCDO	United Kingdom's Foreign Commonwealth & Development Office
FCT	Fundacao para a Ciencia e a Tecnologia
FMIST	Federal Ministry of Innovation, Science and Technology, Nigeria
FNI	Fundo Nacional de Investigação
FONRID	Le fonds National de la Recherche et de l'Innovation pour le Développement
FONSTI	Fonds pour la Science, la Technologie et l'Innovation
FORUM	Forum on Agricultural Resource Husbandry
FOSS	Free and open-source software

Acronym	Full name
FWA	French West Africa
GBIF	Global Biodiversity Information Facility
GCRF	United Kingdom's Global Challenges Research Fund
GDP	Gross domestic product
GERD	Gross domestic expenditure on research and development
GFGP	Good Financial Grant Practice
GHS	Ghana Health Service
GMT	Greenwich Mean Time
GNP	Gross National Product
GRC	Global Research Councils
GTZ	German cooperation Agency
GWCL	Ghana Water Company Limited
H3Africa	Human Heredity and Health in Africa research project
HDSSs	health and demographic surveillance systems
HEST	Higher education, science, and technology
HSRC	Human Sciences Research Council
IAEA	International Atomic Energy Agency
IATI	International Aid Transparency Initiative
ICGEB	International Centre for Genetic Engineering and Biotechnology
ICRH	International Center for Reproductive Health
ICSU	International Council for Science
ICT	Information and Communication Technology
ID	Infectious diseases
IDeAL	Initiative to Develop African Research Leaders
IFPRI	International Food Policy Research Institute
IGFA	International Group of Funding Agencies for Global Change Research
IHI	Ifakara Health Institute
IHRDC	Ifakara Health Research and Development Centre
IHVN	Institute of Human Virology Nigeria
IIASA	International Institute for Applied Systems Analysis

Acronym	Full name
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
IPRO	Intellectual Property Rights Office
IRD	French Institute of Research for Development
ISC	International Science Council
ISRA	Institut Sénégalais de Recherches Agricoles
ISSC	International Social Science Council
ISSER	Institute of Statistical, Social and Economic Research
JRC	European Commission Joint Research Centre
JST	Japan Science and Technology Agency
KCH	Kamuzu Central Hospital
KEMRI	Kenya Medical Research Institute
KHRC	Kintampo Health Research Centre
KUHeS	Kamuzu University of Health Sciences
LEAWEF	Long-term Europe – Africa WEF-Nexus Multilateral Research Programme
LIRA	Leading Integrated Research for Agenda 2030
LMIC	Low- or Middle-Income Country
MAB	Man and the Biosphere
MARCAD	Malaria & Neglected Tropical Diseases Research Capacity Development in West and Central Africa
MCAZ	Medicines Control Authority of Zimbabwe
MCKT	Ministry of Communications, Knowledge and Technology, Botswana
MCTES	Ministry of Science and Technology, Higher and Technical Vocational Education, Mozambique
MEF	Ministry of Economics and Finance, Burkina Faso
MEFT	Ministry of Environment, Forestry and Tourism
MESRI	Ministère de l'Enseignement Supérieur de la Recherche et de l'Innovation, Senegal
MESTI	Ministry of Environment, Science, Technology and Innovation, Ghana
MINECOFIN	Ministry of Finance and Economic Planning, Rwanda
MinT	Ministry of Innovation and Technology, Ethiopia

Acronym	Full name
MNCS	Mean normalised citation score
MoEST	Ministry of Education, Science and Technology, Tanzania
MoFPED	Ministry of Finance, Planning and Economic Development, Uganda
MOH	Ministry of Health
MOHESR	Ministry of Higher Education and Scientific Research
MOTs	Ministry of Technology and Science, Zambia
MoU	Memorandum of Understanding
MTHE	Ministry of Technical and Higher Education, Mozambique
MUJHU	Makerere University Johns Hopkins University
NACOSTI	National Commission for Science, Technology & Innovation, Kenya
NARO	National Agriculture Research Organisation
NASAC	Network of African Science Academies
NCDs	Non-communicable diseases
NCRST	National Commission on Research, Science and Technology, Namibia
NCST_MW	National Commission for Science and Technology, Malawi
NCST_RW	National Council for Science and Technology, Rwanda
NEPAD	New Partnership for Africa's Development
NESG	Nigeria Economic Summit Group
NFAST	National Fund for Advancement of Science and Technology, Tanzania
NGO	Non-governmental organisation
NHRC	Navrongo Health Research Centre
NIH	National Institutes of Health
NIMR	National Institute for Medical Research Tanzania
NMIMR	Noguchi Memorial Institute for Medical Research
NORAD	Norwegian Agency for Development Corporation
NPO	Non-profit organisation
NRF_KE	National Research Fund, Kenya
NRF_ZA	National Research Foundation, South Africa
NRIF	National Research & Innovation Fund, Rwanda
NRR	National Research Repository

Acronym	Full name
NSF	National Science Foundation
NSFC	National Natural Science Foundation of China
NSI	National System of Innovation
NSTC	National Science and Technology Council, Zambia
NSTIC	National Science, Technology and Innovation Council, Sierra Leone
NWO	Nederlands Organisatie voor Wetenschaplik Onderzoek
OATF	Oliver and Adelaide Tambo Foundation
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OFAB	Open Forum on Agricultural Biotechnology
ORID	Office of Research, Innovation and Development
ORTARChi	O.R. Tambo Africa Research Chairs Initiative
OSF	Open Society Foundations
PAMCA	Pan-African Mosquito Control Association
PAPEM	Production units and Multilocal Pre-popularisation and Experimentation Support Points
PARC	Perivoli Africa Research Centre
PASRES	Programme d'Appui Stratégique à la Recherche Scientifique
PBS	Programme for Biosafety Systems
PCU	Project Coordination Unit
PLHIV	People Living with HIV
POTRAZ	Postal & Telecommunications Regulatory Authority of Zimbabwe
PVO	Private Voluntary Organisation
R&D	Research and Experimental Development
R4D	research-for-development
RAES	Réseau Africain de l'Education pour la santé
RBC	Rwanda Biomedical Centre
RCZ	Research Council of Zimbabwe
REACCT-CAN	Research and Excellence in African Capacity to Control and Treat Cancer
ReNAPRI	Regional Network of Agricultural Policy Research Institutes

Acronym	Full name
ReSAKSS	Regional Strategic Analysis and Knowledge Support System
RFS	Relative field strength
RI	Regional and International funders
RoR	Research Organisation Registry
RUFORUM	Regional Universities Forum for Capacity Building in Agriculture
RWJF	Robert Wood Johnson Foundation
S&T	Science and technology
SANTHE	Sub-Saharan Africa Network for TB/HIV Research Excellence
SARIMA	Southern Africa Research and Innovation Management Association
SCINNOVENT	Science, Innovation and Enterprise
SDGs	Sustainable Development Goals
SFA	Science for Africa Foundation
SGAMS	Service Général Autonome de la Maladie du Sommeil
SGC	Science Granting Council
SGCI	Science Granting Councils Initiative
Sida	Swedish International Development Cooperation Agency
SNSF	Swiss National Science Foundation
SSA	Sub-Saharan Africa
SSACAB	Sub-Saharan Africa Consortium for Advanced Biostatistics training
STAs	Scientific and technological activities
STEPRI	CSIR-Science and Technology Policy Research Institute, Ghana
STI	Science, Technology, and Innovation
STIFL	Swiss Tropical Institute Field Laboratory
STISA	Science, Technology and Innovation Strategy for Africa
TAG	Technical Advisory Group
TDRC	Tropical Diseases Research Centre
TETfund	Tertiary Education Trust Fund
TOR	Terms of Reference
TUBITAK	Scientific and Technological Research Council of Türkiye
TVET	Technical and Vocational Education and Training

Acronym	Full name
TWAS	World Academy of Sciences
TWCF	Templeton World Charity Foundation
UCT	University of Cape Town
UIS	UNESCO Institute for Statistics
UKRI	United Kingdom Research and Innovation
UN	United Nations
UNCST	Uganda National Council for Science and Technology
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNHRO	Uganda National Health Research Organisation
UNISA	University of South Africa
USA/US	United States of America
USAID	United States Agency for International Development
USD	US Dollar
UTC	Coordinated Universal Time
UVRI	Uganda Virus Research Institute
WACCBIP	West African Centre for Cell Biology of Infectious Pathogens
WACREN	West and Central Africa Center for Research and Education Network
WARDA	West Africa Rice Development Association
WHO	World Health Organisation
Wits	University of the Witwatersrand
WOS	[CA]Web of Science
WP	Work Package
ZERA	Zimbabwe Energy Regulatory Authority

SGCI countries

Abbreviation	Country
BF	Burkina Faso
BW	Botswana
CI	Côte d'Ivoire

Abbreviation	Country
ET	Ethiopia
GH	Ghana
KE	Kenya
MW	Malawi
MZ	Mozambique
NA	Namibia
NG	Nigeria
RW	Rwanda
SL	Sierra Leone
SN	Senegal
TZ	Tanzania
UG	Uganda
ZM	Zambia
ZW	Zimbabwe

Funder organisation countries

Abbreviation	Country of funding organisation
AT	Austria
AU	Australia
BE	Belgium
BS	Bahamas
CA	Canada
CH	China
DE	Germany
DK	Denmark
EU	European Union
FI	Finland
FR	France
GB	United Kingdom of Great Britain and Northern Ireland
IN	India

Abbreviation	Country of funding organisation
IT	Italy
JP	Japan
LU	Luxembourg
NO	Norway
PT	Portugal
QA	Qatar
RI	Regional/International
SE	Sweden
UK	United Kingdom
US/USA	United States of America

Funder organisations

Acronym	Full name
ACIAR	Australian Centre for International Agricultural Research
AHRC	Arts and Humanities Research Council
AMED-JP	Japan Agency for Medical Research and Development
ANID	La Agencia Nacional de Investigación y Desarrollo
ARS	Agricultural Research Services
BBSRC	Biotechnology and Biological Sciences Research Council
BELSPO	Belgian Federal Science Policy Office
BMGF	Bill & Melinda Gates Foundation
BSF-IL	United States-Israel Binational Science Foundation
CDC	Centers for Disease Control and Prevention
CDMRP	Congressionally Directed Medical Research Programs
CIES	Council for International Exchange of Scholars
CZI	Chan Zuckerberg Initiative
DAFSHE	Danish Agency for Science and Higher Education
Danida	Ministry of Foreign Affairs, Denmark
DFG	Deutsche Forschungsgemeinschaft
DMHES	Danish Ministry of Higher Education and Science

Acronym	Full name
DST-IN	Department of Science and Technology
DTRA	Defense Threat Reduction Agency
EPSRC	Engineering and Physical Sciences Research Council
ESRC	Economic and Social Research Council, UKRI
FAO	Food and Agriculture Organization of the United Nations
FCT-PT	Fundação para a Ciência e Tecnologia
FNR-LU	Fonds National de la Recherche
FRQ	Fonds de Recherche du Québec
GCC	Grand Challenges Canada
HFSP	International Human Frontier Science Program Organisation
ICT-CN	Innovation and Technology Commission
IDRC	International Development Research Centre
IFS	International Foundation for Science
JSPS	Japan Society for the Promotion of Science
JST-JP	Japan Science and Technology Agency
MHLW-JP	Ministry of Health Labour and Welfare
MRC-GB	Medical Research Council, UKRI
NASA	National Aeronautics and Space Administration
NERC	Natural Environment Research Council, UKRI
NIH	National Institutes of Health
NIHR	National Institute for Health and Care Research
Norad	Norwegian Agency for Development Cooperation
NSERC	Natural Sciences and Engineering Research Council
OREF	Orthopaedic Research and Education Foundation
PICO	Policy Innovation and Co-ordination Office
QNRF	Qatar National Research Fund
RCN	Research Council of Norway
RWJF	Robert Wood Johnson Foundation
SAMRC	South African Medical Research Council
SERB	Science and Engineering Research Board

Acronym	Full name
SFOE	Swiss Federal Office of Energy
Sida	Swedish International Development Cooperation Agency
SNSF	Swiss National Science Foundation
STFC	Science and Technology Facilities Council
TWCF	Templeton World Charity Foundation
WHO	World Health Organisation

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Johann Mouton

Stellenbosch

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STRUCTURE OF THE REPORT

The report consists of an Introduction and six chapters. The **Introduction** is devoted to a summary of the terms of reference, the study design and analytical framework, and methodological notes on the coverage of our data set and the data limitations.

Chapter One presents a brief overview of the state of STI in Africa by examining a set of bibliometric and other scientometric indicators.

Chapter Two presents a contextual overview for the remainder of the report by focussing on three factors: (1) STI Funding to African countries between 2000 and 2024; (2) Overview of STI funding to the grouping of SGCI countries for the same period and (3) An overview of funding of the main scientific fields for the SGCI countries for the same period.

In **Chapter Three,** we focus on the major funding organisations which disbursed grants to the SGCI countries.

Chapter Four is devoted to the flow of STI funding to high-level scientific fields.

In **Chapter Five,** we shift our focus to recipient organisations (across various categories) that received funding from (mostly) foreign funders.

Chapter Six reviews the key issues that emerged from our engagements and consultations with the individual SGCs and other stakeholders regarding trends in funding flows and modalities, the changing landscape of multiple-funder partnerships and subsequent shifts in governance relations, including agenda-setting for research in Africa. The conclusions and proposals of our study are presented in **Chapter Seven**.

EXECUTIVE SUMMARY

1 The annual production of scientific articles authored by academics and scientists in Africa continues to show a consistent upward trend.

When we analyse the state of STI in Africa, the results show that the annual production of peer-reviewed articles authored or co-authored by African scientists and scholars continues to increase, not only in absolute numbers but also proportionately to their contribution to world output. The overall number of published articles (using a full paper count) increased nearly eightfold between 2005 (17,230) and 2024 (131,828). While the African contribution to the world is modest, accounting for less than 5%, the upward trajectory from around 1.6% to 4.5% in 20 years is a significant achievement.

2 The overall increase in African-authored or co-authored articles is also mirrored in the annual publication output of scientists in the SGCI countries.

The results for articles affiliated with institutions in the SGCI countries are equally impressive. Not only do we witness the same consistent increase in the number of papers by the SGCI countries – from 2892 to 43,251 between 2000 and 2024 - but also a significant increase in the share of their combined output as a percentage of Africa's output, from 24.9% to 32.8%. This 10-percentage-point increase in output is not insignificant. Another way to compare results across articles published in all African countries and those from SGCI countries is to calculate the compound annual growth rate (CAGR) over this period. Over the review period, the CAGR for all African countries was **11.3%**, whereas the CAGR value for the SGCI countries was **15.3%**. Without doing a deeper analysis of the data, it is not possible to attribute this result to the SGCI and the increase in funding support – specifically to the SGCI countries – but it most likely was a contributing factor.

3 Increase in international collaboration between African scientists and the rest of the world.

In addition to the growth in publication output, international (foreign) collaboration with countries outside Africa is on a consistent upward trend, with 57% of all papers in 2024 being multi-authored, including at least one foreign author (compared to 44% in 2005). Alongside increased production, African-authored papers are also achieving higher-than-average citation impact scores across several fields. This is especially true in the following scientific fields: Mycology, Critical Care Medicine, Fisheries, Astronomy and Astrophysics, and Materials Science. A surprising result is the high salience of African first-authored publications in foreign/extra-African collaborations (African vs non-African first authors), at around 50% in 2024. However, this share declined from 60% in 2005.

4 The governments of most African countries, including the SGCI countries, continue to provide insufficient public funding for R&D. In addition, national statistics on government funding for R&D remain incomplete and/or inconsistent.

Many African countries, including the SGCI countries, continue to provide insufficient public funding to support the scientific enterprise in their respective countries. Many reasons can be put forward

for this situation. The effects of the recent COVID-19 pandemic, the increasingly disastrous impact of climate change, ongoing political instability and even civil wars, and the failure of many African governments to address the resulting energy and water security crises all undermined many countries' ability to increase funding for science. In addition, one could list the lack of private-sector R&D, weak economies, limited financial resources, and weak governance. However, even with all these factors in mind, it is still important to gain a more nuanced picture of African scientists' performance in knowledge production and – ultimately – how this performance relates to trends in foreign funding for science in their countries. Our analysis shows that most African countries remain heavily dependent on foreign sources of funding to support research at their institutions, staff mobility, and human capacity building.

5 Contextualising funding of the SGCI countries within the African context.

The main aim of this study was to gain a better understanding of STI funding flows to Africa, and specifically to the 17 SGCI countries. To this end, the project team had to construct a customised dataset on grant data for Africa. The final version of this dataset shows that African countries received **31,780** grants between 2000 and 2024 from **114** predominantly foreign funders.[1]

Of these **16,976 grants** were disbursed to the SGCI countries. As far as the latter is concerned, our data show a steady, consistent increase in the number of active grants to the SGCI countries up to 2020, followed by a decline thereafter. The decline in the number of grants in recent years could be due to a lag in funders uploading their data. Furthermore, multi-year grants may lack individual-year disbursements, in which case the grant start year is used as a proxy for the annual disbursement. This can partly contribute to the decline observed in the most recent year. It is clear, though, that further and ongoing updates and analysis of the grant data are required to determine whether the 'decline' since 2020 has been sustained or is due to a combination of factors related to uploading, reporting lags, and the like.

The total monetary value of research and STI grants to Africa is just over **$40.82 billion.** Of this amount, just over **$22.78 billion was** disbursed to the SGCI countries. The latter amount constitutes 56% of the total amount. The remainder of non-SGCI countries make up the difference, including South Africa, which received the highest amount (**$6.94 billion**) of any country in Africa.

[1] It is important to emphasise that the figures reported here, both for the number of grants and grant amounts, are based on the actual grants included in our grants database. These numbers should be read as **indicative** rather than exact values – both because we continue to add grants to the database (and these will be reflected every time we update the Dashboard) and because the actual numbers reported here are based on assumptions about which grants to include. These assumptions, and the data limitations that form part of our analyses, are described in more detail in the Methodology section of the report.

6 The distribution of grants and grant amounts at the continental level is unequal, with large differences between countries that received the highest amounts and those that received the lowest.

The results show that East African countries (Kenya, Uganda, Tanzania and Ethiopia), together with Nigeria, received the highest amounts of funding over the reporting period. The countries that received the lowest amounts are mostly either the Francophone countries (Burkina Faso, Senegal and Sierra Leone) or very small countries such as Botswana, Namibia and Zimbabwe. It would be ideal to normalise these values using a normalising factor, such as dividing the funds by population in millions (i.e., per capita funding). However, this is at best a proxy indicator that does not solve the normalisation problem. Ideally, the number of scientists or researchers in each country should be used as the normalising factor. Unfortunately, this information is not currently available for all the SGCI countries.

7 New trends in international science funding: The introduction of private funding over the past two decades has significantly changed the funding landscape in Africa.

Based on our current database, the main category of funders is ODA agencies (notably USAID, FCDO, Sida, Norad, Danida, and IDRC), which disbursed about 38% of all funding for research and research-related activities to the SGCIs. National funding organisations and agencies (including the NIH, CDC, and UKRI) contributed an equally impressive 23% of funding to the SGCI countries. A major trend over the past 25 years has been the impact of grantmaking foundations (notably the Wellcome Trust, the Bill & Melinda Gates Foundation, the Ford Foundation, the Carnegie Corporation of New York, and the Mellon Foundation). Together, the grant-making foundations contributed an estimated 15% of all research funding to the SGCI countries. Another significant funder group comprises multilateral and intergovernmental organisations (most notably the European Commission), which together contributed 11%.

8 The analysis of funding flows across the main scientific fields confirmed the dominance of funding for Health and Biomedical Sciences, Social Sciences, and Agricultural Sciences.

When combined, funding to the Health Sciences and the Biomedical and Clinical Sciences constitutes 46% of all funding to the SGCI countries. The second-highest field is – perhaps surprisingly - Social Sciences (22%), followed by Agricultural, Veterinary and Food Security Sciences (19%). Smaller proportions went to Environmental Sciences (5%) and Engineering Sciences (4%). However, our data revealed significant shifts over time in the allocation of funds across scientific fields. Some salient points:

- Funding has significantly increased in the last 5 years (2020-2024) compared to the early 5 years (2000-2004) across all fields. The most substantial increase is observed for Agricultural Sciences. Initially, the sector experienced relatively minor foreign funding. This changed in the early 2000s when high-profile funders, notably the Bill & Melinda Gates Foundation (BMGF), the European Commission (EC), and the Consultative Group on International Agricultural Research (CGIAR), began funding in this domain. Furthermore, other funders

existing in both periods increased their funding for Agricultural Sciences several-fold in the latter period.

- The second-highest field to witness a substantial increase in funding in the most recent years compared to earlier years is Environmental Sciences. While funding levels have recently increased, the core scientific disciplines—specifically Physics, Chemistry, and Mathematics—along with the crucial application areas of Engineering, ICT, and the Built Environment continue to be comparatively under-resourced.
- Biomedical and Clinical Sciences also experience consistent increases over time, except for a slight decline in the last 5 years.
- Despite the increase in funding for Engineering, ICT and the Built Environment (received approximately $740 million from 2000 to 2024), the field still received a small proportion of overall funding that is disbursed to Africa. Again, more granular, field-specific analyses are required to make more definitive claims about longer-term trends and the field's relative share compared with other fields.
- We have aggregated the Physical, Chemical, and Mathematical Sciences (including fields such as Astronomy), which have collectively received relatively scarce funding over the entire reporting period, totalling only $111 million. The relatively minor share of foreign funding disbursed to these fields may indicate a 'neglect' of the more basic and fundamental sciences as opposed to investment in applied and interdisciplinary fields that contribute to solving health, economic and social problems?
- In a surprising contrast to the core sciences, the Social Sciences have experienced a significant surge in funding, accumulating a total of $3.8 billion across the period. This steep increase is partially explained by the field's breadth, encompassing sub-disciplines that are attractive to foreign funders, such as Education, Economics, Gender and Development Studies, etc. Furthermore, the classification system contributes to this high figure: many grants that primarily focus on Health Sciences (e.g., public health grants often have a social science component) or Agricultural Sciences are also tagged as Social Sciences if their project descriptions include a social or behavioural component.

The breakdown by field remains at a high level of aggregation, and further disaggregation by research disciplines or even research topics is required and will be addressed in the next phase of the project. However, the overall trend indicates that foreign funding is still flowing mainly to fields that can be labelled as 'development research' or 'applied research' and not much to basic or fundamental sciences. The funding is aimed at finding solutions to the key challenges in public health (infectious diseases), agriculture and food science (hunger, crop diseases) and environmental challenges (climate change).

9 **The analyses of funding for recipient organisations in the SGCI countries reveal a diverse and evolving research landscape.**

- In our database, we record a total of 5,263 recipient organisations in the SGCI countries. We classified these organisations into 16 institutional types. It is important to note, however, that these institutional types are neither mutually exclusive nor definitive. The five largest 'categories' of recipient organisations are universities, research institutes and centres,

businesses/companies, NPOs/NGOs, and governments (through sector funding for specific ministries).

- Our dataset identifies nearly 700 **universities** that received foreign funding over the period between 2000 and 2024. As explained, most of these universities receive their funding directly from a foreign funder. Still, in many cases, the African university receives its funding also from a university in the country where the funder is based or through an intermediary such as SFA. Generally, the universities in East Africa appear to receive more funding than the Francophone universities in West Africa.
- More than 650 **research institutes and centres** in the SGCI countries received foreign funding for research and research-related activities. The top-funded institutes and centres—those receiving over $100 million—are in Kenya, Nigeria, and Tanzania. Again, it is necessary to emphasise that some of the institutes listed here receive their foreign funding directly, whilst others are indirect beneficiaries, receiving funding through research organisations or networks in Africa, such as the CGIAR institutes and the Pasteur Institute.
- The third largest group of recipients are **NGOs** that receive funding to conduct research and research-related activities. The kinds of research are often implementation science, policy research and monitoring and evaluation studies. The amount disbursed to this category of recipients is skewed by the large disbursement to the Alliance for a Green Revolution in Africa (AGRA). As indicated in the main report, AGRA is a good example of an intermediary organisation that channels funding that it receives from multiple foreign funders to multiple research beneficiaries in Africa. Recipients in this group mostly focus on medical and health research—particularly HIV/AIDS—as well as agriculture and social development.
- Between 2000–2011 and 2012–2023, universities and research centres increased their share of total funding (from 21% to 24% and 16% to 24%, respectively), while non-profits and governments saw significant declines in their funding share (22% to 17% and 20% to 8%, respectively).

10 The SGCs perform a wide range of functions in addition to serving as science-granting agencies in their respective countries.

Drawing on in-depth interviews with representatives of individual SGCs provided additional information on the SGCs, focusing on their diverse organisational models and, by implication, the positions they assume in their national STI systems; their various roles and responsibilities; how they deal with research information and data management; and the kinds of partnerships they are currently engaged in. This work reveals that the SGCs perform a wide range of functions in their respective national science systems. They differ in important respects. Most importantly, it is evident that despite the disbursement of research funding, they perform a wide range of functions, including research capacity building, establishing and maintaining international agreements and partnerships, organising events and award functions and the like.

11 **Major shifts have and continue to occur in the international funding landscape, with a specific focus on research funding in and for Africa.**

The changes reflect a growing complexity of the landscape, related to the emergence of new players, including new types of intermediary funders and new global funding partnerships, at both multilateral and multi-sectoral (public-private) levels. This aligns closely with shifts in overall governance and, more specifically, in management models of funding arrangements, with evidence suggesting a possible move towards shared responsibilities and decision-making roles between foreign funders and their African counterparts. This, in turn, relates to shifts in what we call the imperatives for STI policy and practice, which include increasing attention to equitable partnerships both between funders and among the internationally collaborative teams of researchers they support. Other imperatives include shifts towards funding agendas aligned with global challenges and, more specifically, with the UN's SDGs, as well as a growing emphasis on support for transdisciplinary research approaches on the one hand and for pan-African collaboration on the other.

By providing concrete examples of all these changes, our study shows that the SGCI is part of the growing complexity of the international funding landscape. In particular, the majority – if not all - of the SGCs are collaborating, and with international funding partners through their participation in multilateral funding actions managed by global consortia such as the Belmont Forum and Global Research Council. The evidence also shows that the group of SGCs is also beginning to act more independently as a funding collective, working with international funding agencies to support pan-African research collaboration.

12 **The evolving funding landscape presents some challenges for the SGCs and the initiative that brings them together.**

Another challenge concerns the emergence on the continent of new types of funding intermediary bodies, such as AGRA and, more recently, the AAS. Unlike funding agencies and science foundations, whether at national, regional, or international levels, these intermediaries lack a formal funding mandate, and the development, management, or oversight of competitive funding schemes is not part of their core mission. However, they function as conduits between foreign funders, including, on the one hand, philanthropic foundations, bodies like the EU and national governments on the continent and, on the other hand, African research communities, often attracting support that enables them to disburse funding for long-term, multi-phase research and capacity development activities. SGCI member councils are not involved in these initiatives, which potentially positions the new intermediaries as funding competitors. This is confirmed by our in-depth analysis of African funding recipient organisations.

13 **The most fundamental challenge is, and remains, one of limited domestic investment in R&D.**

The issue of limited domestic investment raises important considerations regarding the longer-term growth and sustainability of SGCs. It also highlights the extent to which Africa continues to rely on foreign sources of research funding. Several challenges are associated with this reliance, as reflected in stakeholder perspectives:

- Funding agendas may, at times, reflect the priorities and decision-making power of external funders, which can result in partial misalignment with the needs and interests of African science systems and societies.
- Inequities can arise not only between funders but also between researchers based in Africa and those in the global North, potentially limiting the equitable sharing of benefits in international research collaborations.
- Questions have been raised regarding the societal impact of some research investments, particularly where funding is structured around short-term, once-off projects rather than longer-term, programmatic support.
- There appears to be uneven attention to large-scale capacity development, both at individual and institutional levels across the continent.
- Limited availability of comprehensive data on STI funding flows in and for Africa may constrain strategic decision-making and coordinated action.
- Competition for foreign research funding among researchers and institutions can, in some instances, inhibit pan-African collaboration, contribute to fragmentation, and reinforce existing inequalities across African science systems.

At the same time, examples of existing funding arrangements, as well as evolving policy and practice among funders (as discussed in Chapter Six), suggest that many of these challenges are increasingly recognised. There are emerging examples of good practice that point to ways in which they might be addressed.

Further research would be valuable for better understanding the prevalence and significance of these challenges, assessing the extent to which they are being mitigated, and identifying priorities for future action.

14 **Opportunities to increase impactful research funding in Africa are associated with increased global interest in collaborating with Africa and a commitment to equitable partnerships.**

Discussions suggest that the most powerful opportunities for advancing STI in Africa now lie in pursuing greater pan-African cooperation and collaboration, including among funders operating on the continent. This would enable strategic information exchange, better coordination of policymaking and programming, and collective action to plan and implement activities that advance African STI and amplify its visibility and voice in global STI policy and funding arenas. It could also strengthen collective advocacy for greater domestic investment in R&D, enable the development of common

visions for African STI needs and interests, exert greater influence in negotiating how best to meet these, and support a rebalancing of power dynamics in research and funding partnerships. Realising these benefits will require effective leadership and committed support for initiatives such as the Africa Charter for Transformative Research Collaboration, which was launched in 2023 to reshape and address power imbalances in global scientific collaboration.

15 Proposals for future lines of research and action.

Our study has produced a vast amount of new data and findings as well as a better understanding of the methodological and data challenges involved in developing a comprehensive open-access database on STI funding in Africa. As argued in Chapter 7, such a database would provide an invaluable resource for the continent and its external funders and stakeholders. Against this background, an initial list of proposals for future lines of research and action includes the following:

- The SGCI and group of SGCs it convenes would benefit from regular exchange and coordination with other STI leadership groupings across the broader African STI ecosystem. The African STI Leaders Forum, launched in March 2025, provides a powerful opportunity for such pan-African coordination and collaboration, including between different types of funders. Both the SGCI and its member SGCs stand to benefit from playing a central role in the further development of this Forum; their active participation should be encouraged and supported.
- Effective and strategic decision-making and collective action on STI funding in and for Africa will depend on the availability of and access to data. The quality and coverage of both foreign and domestic funding data need to be systematically improved. This will require dedicated and sustained engagement with relevant stakeholders across the continent and beyond to ensure the availability and access to robust, open data management systems. Options for securing longer-term support for these efforts should be explored as a matter of urgency.
- Data on STI funding in and for Africa raises a host of important issues that require further research. Some of these issues have been raised in Chapters 6 and 7. They include, for example, the broader political implications of current STI funding regimes for agenda-setting processes, the dynamics of funding partnerships, and the governance and management of these partnerships. These and other research questions should ideally be identified and research projects planned in collaboration with the users of STI funding data, through processes that facilitate the co-production of knowledge between experts in scientometrics and those working in STI policy and practice.

INTRODUCTION

1. Background

Science granting councils (and related organisations, such as Commissions and Funds) perform crucial functions that contribute to the effective and efficient functioning of national science, technology, and innovation (STI) systems. The mandates, goals and functions of such councils or agencies vary from country to country. Still, they would typically include the following: disbursement of grants for research development and innovation, building research capacity through scholarships and bursaries, setting and monitoring research agendas and priorities, issuing research permits for visiting researchers, formulating and revising national STI policies, providing policy advice to governments, managing bilateral and multilateral STI agreements, and monitoring and assessing the impacts of publicly funded research as well as research funded from other sources. It is particularly important not only to provide such councils with the right tools but also the means to achieve visibility and policy influence at the national and regional levels. Beyond efforts to support strategic communications within Councils, there is a need to synthesise information and provide the evidence base that enables strategic decisions to be made by and about Councils.

The Science Granting Councils Initiative (SGCI) was established in 2015 through a partnership between the United Kingdom's Foreign, Commonwealth & Development Office (FCDO), Canada's International Development Research Centre (IDRC) and South Africa's National Research Foundation (NRF_ZA) after a scoping study was conducted to identify the strengths and weaknesses of science councils in Africa. The overarching objective of the initiative is to enhance science systems in Sub-Saharan Africa, improving countries' capacity to respond to economic and social development needs. The initial phase (SGCI 1) included funding agencies from 15 Sub- Saharan countries and concluded in 2020. The second phase (SGCI 2), overlapping with the first, commenced in 2018 and is funded by the United Kingdom's Foreign, Commonwealth & Development Office (FCDO), the Swedish Development Cooperation Agency (Sida), IDRC, and the NRF_ZA, with the German Research Foundation (DFG) joining in 2019, securing funding for the initiative until the year 2025.

The SGCI focuses on enhancing the member councils' ability to support research and innovation, improve policy development, and foster partnerships among stakeholders. By providing training, resources, and platforms for knowledge exchange, the SGCI seeks to boost the effectiveness of these councils in promoting scientific advancement and addressing regional challenges. Specific SGCI objectives include the digitisation of grant management systems, the development of partnerships between the SGCs, and strengthening the capacities of the SGCs to support evidence-based policies.

Currently, 17 SGCs participate in the initiative. The table below lists the SGCs and summarises when each joined the SGCI. The first twelve SGCI councils listed joined the initiative in 2015, followed by another three in 2016, and, more recently, Nigeria and Sierra Leone, which joined in 2021.

Flag	Country	Name of Science Granting Council (SGC)	Year joined SGCI
	Burkina Faso	Le Fonds National de la Recherche et de l'Innovation pour le Développement (FONRID)	2015
	Ivory Coast	Fonds pour la Science, la Technologie et l'Innovation (FONSTI)	
	Ethiopia	Ministry of Innovation and Technology (MinT)	
	Kenya	National Research Fund (NRF_KE)	
	Malawi	National Commission for Science and Technology (NCST_MW)	
	Mozambique	Fundo Nacional de Investigação (FNI)	
	Namibia	National Commission on Research, Science and Technology (NCRST)	
	Rwanda	National Council for Science and Technology (NCST_RW)	
	Senegal	Ministère de l'Enseignement Supérieur de la Recherche et de l'Innovation (MESRI)	
	Tanzania	Tanzania Commission for Science and Technology (COSTECH)	
	Uganda	Uganda National Council for Science and Technology (UNCST)	
	Zambia	National Science and Technology Council (NSTC)	
	Botswana	Ministry of Communications, Knowledge and Technology (MCKT)	2016
	Ghana	Ministry of Environment, Science, Technology and Innovation (MESTI)	
	Zimbabwe	Research Council of Zimbabwe (RCZ)	
	Nigeria	Tertiary Education Trust Fund (TETfund)	2021
	Sierra Leone	National Science, Technology and Innovation Council (NSTIC)	

2. Problem statement and terms of reference

It is widely recognised that existing data sources on the funding of STI worldwide – and, as far as Africa is concerned, likewise – are fragmented, not standardised, and, in many cases, outdated and incomplete. Despite various attempts to update the existing data sources, as well as standardise and consolidate these, as well as some attempts to use more novel methodologies to gain a more comprehensive understanding of the state of STI (funding flows) in Africa, the reality is that there is still much to learn and many information gaps to fill. Addressing these gaps will support the councils by providing accessible, reliable information to inform their decision-making and offering valuable insights to a broader range of stakeholders.

The Terms of Reference for this study listed two main outcomes:

- Scholars and decision-makers have an enhanced understanding of the state of STI in Africa, with a focus on the role of Science Granting Councils (SGCs) and on issues relating to funding for STI
- Data on the state of STI in Africa should be available for use by the Science Granting Councils Initiative (SGCI) within the broader landscape of STI in Africa

CREST committed itself from the outset to developing and maintaining a fully open-access database of STI grants for Africa. This has meant sourcing all grants directly from the funders, as well as writing our own scripts for data processing and for developing an integrated, comprehensive database. In addition, we undertook to develop a web-based Dashboard that displays the main funding flows from funders to recipients.

3. The study design and methodology

CREST, in partnership with the Centre for Science and Technology Studies (CWTS), Future Africa, and the CSIR-Science and Technology Policy Research Institute (STEPRI), designed the study based on four work packages that address the expected outcomes. Rather than treating Task 2 (the Masterclass) as a separate deliverable, we proposed that it form part of an ongoing Work Package (WP) (Strategic stakeholder management communication and uptake for impact) that spans the other three work packages from initiation to the conclusion of the study. We elaborate on each work package below.

WP1: Review of existing scholarship on STI in Africa with a specific focus on the funding of science in Africa. The purpose of Work Package 1 was to undertake a comprehensive review of the scholarship on STI in Africa, with a specific focus on mapping funding dynamics and shifts in funding flows to and within Africa. To understand these trends and shifts in context, our report also summarises national and (relevant) global developments in STI policy and research priority setting.

WP 2: A bibliometric analysis of the science funding landscape and funding flows in Africa. WP2 aimed to gain a granular understanding of the science funding landscape in Africa, focusing on topics, grant types, and overlaps and gaps within the broader understanding of the state of STI in Africa. WP2 employed a range of bibliometric methods to produce a better understanding of the science funding landscape in Africa today. In addition, we have developed an interactive STI Funding Flow Dashboard that provides a visual platform to show the flows from foreign organisations to countries and organisations in Africa, specifically the SGCI countries.

WP 3: Positioning the work of the SGCs within the larger landscape of science funding and funding flows in Africa. The aim of WP3 was twofold: (1) to establish what the status quo is concerning the capacity of the SGCI councils in managing local and international sources of science funding and (2) to subsequently engage with each council to establish what their most urgent needs and priorities are in ensuring that they are able both to track the international inflows of funding to their country and how these align with their national STI strategic priorities.

WP4: Final Report on STI in Africa. WP4 aimed to prepare and finalise a consolidated report that draws together the individual reports and analyses listed above. This report also includes proposals for future dissemination, uptake, and impact strategy to ensure that the results of the study are optimally utilised, as well as strategies for improving grant management within the SGCs.

4. Analytical framework and methodological issues

4.1 Analytical framework

In the first subsection under this heading, we discuss the high-level analytical framework that informed our analysis, specifically the selection of indicators to illustrate the flow of STI funding from foreign sources to SGCI countries in Africa. In the next subsection, we discuss issues related to terminology, specifically what we include under the term 'STI' in this report. In the subsequent subsections, we discuss the methodological issues and the choices we made regarding the classification and coverage of funders and recipient organisations, and, finally, the limitations of the data sources that affected our final analyses and results.

Figure 1 summarises the high-level analytical framework that informed our selection of indicator categories, indicators and data points.

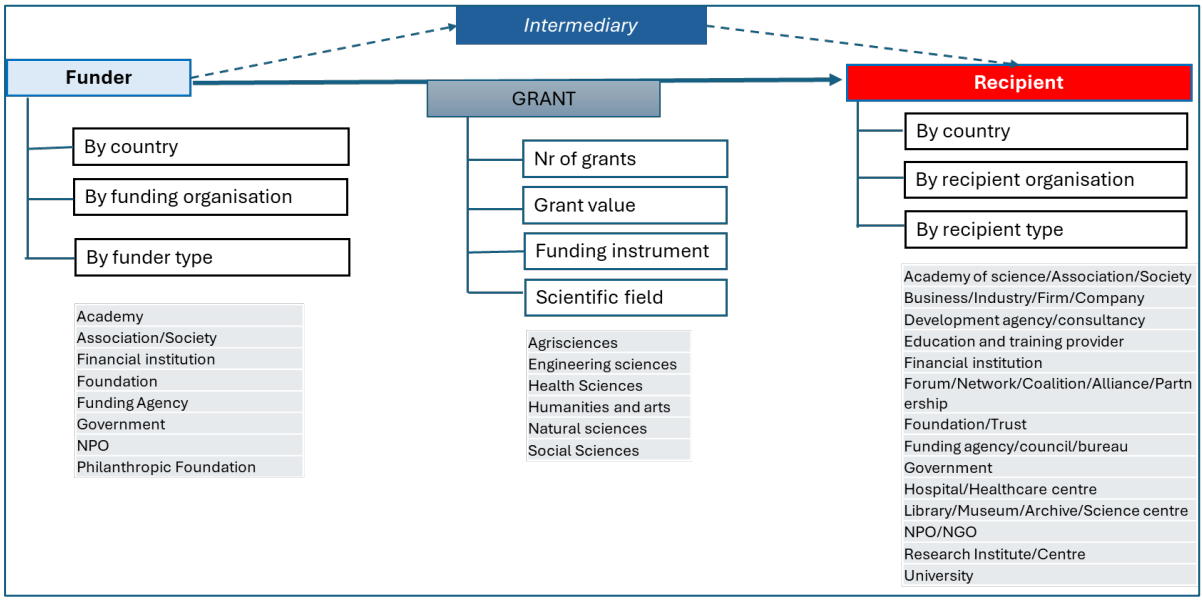


Figure 1: Analytical framework of the study

To track the flow of STI funding, we distinguish between foreign funders (senders of grants) and recipients in SGCI countries in Africa. In Figure 1, this flow is represented in the bold blue line at the top. As our analyses will show, this is the main form of funding in which a funder (irrespective of type) directly disburses research funds to a recipient (again, irrespective of level or type).

However, in some cases, funders do send money to recipient countries and organisations via an intermediary organisation or agency. This is, in effect, an example of the principal-agent model at work, where one or more funders would disburse funds to an 'agent' (e.g., the SFA Foundation) who would, in turn, disburse grants to different countries. The underlying assumption of this model is that the 'intermediary' agency will add value to the funding process by prioritising funding areas, aligning funds received with national development goals, and monitoring the outcomes and impacts of grants.

The principal-agent model of funding is the preferred mode of funding within most modern science systems, where the national government establishes a national funding agency or organisation (e.g. NSF, DFG, ESRC, NRF-ZA, NWO, etc.) through which grants are disbursed to recipients at universities, research institutions, individuals, networks, etc. within the country.

Because many African countries have not followed the principal-agent model of in-country funding – primarily due to a lack of data on R&D expenditure – the principal-agent model is the exception rather than the rule. The obvious exception is South Africa, where the National Research Foundation is the national funding agency for transfers from the Department of Science and Innovation. Another example is COSTECH in Tanzania (although it does not exclusively act as a funding agency).

The Science Granting Councils Initiative (SGCI) has aimed to develop and strengthen this model by supporting 'emerging' science granting councils in selected African countries.

Although the report focuses on funding flows to the 17 SGCI countries, any analysis and interpretation of these flows requires some understanding of the background or context in which they occur. To enable us to interpret the results of our analysis at the SGCI country level in the main sections of the reports, we include three sets of contextual indicators that provide the broader context for the country-specific analyses. These are - (1) grants disbursed to all African countries, (2) grants disbursed to all SGCI countries and (3) grants disbursed to nine main scientific fields to the SGCI countries.

The focus in this report is on mapping funding sources and funding flows from (mostly) foreign funders to African countries (with a focus on the SGCI countries). However, we also conducted extensive **bibliometric** analyses on the main trends in scientific publications of Africa (Chapter 1). The team at CREST conducted these analyses using standard bibliometric indicators using our in-house version of the ^{CA}Web of Science (^{CA}WoS) database.

4.2 Issues of terminology

The TOR for this study specifically calls for an analysis of the flow of **science, technology, and innovation** funding to the SGCI countries in Africa. Unfortunately, there is no standard or 'official' definition of 'STI' as it applies to the field of funding. In our interpretation of the brief, we have therefore decided to work with a definition of 'STI' funding that includes standard definitions of R&D funding (as found in the Frascati Manual).

The 'narrowest' level of STI funding would limit the scope of the study to funding **research and related activities**: this would include funding for conducting research (projects and programmes) as well as the funding of larger entities whose main mission is to do research, like research centres, institutes and even research networks of excellence. Following the latest Frascati Manual, we also include under research 'clinical trials' in the health field.

However, conducting research does not occur in isolation from a broader context of research capacity, equipment and infrastructure. One could refer to funding for these categories as research support or research-related funding, which would include all funding related to building research capacity (research scholarships, research training initiatives, researcher mobility grants, and the like). It would also include funding entities such as forums, networks, academies of science, societies, and associations whose mission is to promote and advance science, foster collaboration and co-operation among scientists, and build and advance science communication and engagement. As far as research infrastructure is concerned, this broader notion would also include funding for research laboratories, digital infrastructures, libraries and data platforms, and computers and computing services.

In addition to the two categories of research and research support, it seems logical that 'STI funding' must include funding for technology- and innovation-related activities. Funding in this category would include grants for technology development, technology transfer and technology transfer offices, technology hubs and incubators, the commercialisation of intellectual property and the like. The current version of our database does not include many examples of this category of grants or 'investment' in innovation in Africa or the SGCI countries, as this would have required a much broader coverage of, for example, the financing of such activities by corporate sector organisations, investment and venture capital firms and the like. Although it is outside the scope of this study to report in detail on each grant, the reader will get a good indication of which of the funding categories listed above apply in specific cases. It is also evident in Chapter 5, which lists the recipient organisations by type.

4.3 Classification of funders and funded organisations, and coverage by section

The final customised dataset for this study contains 31,780 unique grants disbursed to Africa between 2000 and 2024. These grants range in type from mobility grants for individual scientists to funding for research projects, programmes, networks, and capacity-building initiatives, as well as funding for larger programmes, centres, and clusters of networks. We developed a classification of

grant types to simplify our analysis and the utility of the results. A total of 114 unique funding organisations are included in the current version of the dataset.

4.4 Data sources and quality

Given the ambitious scope of the project, encountering limitations in data sources and quality was inevitable. As far as we are aware, this is the first study of its kind to comprehensively map funding from major funders to STI in Africa across various scientific fields. Previous studies have either focused on only certain funders or on specific research fields. Our goal was to include all the major funding organisations and agencies (mainly foreign sources) that channel funding for science and research in Africa. Our timeframe covers the period between 2000 and 2024.

We obtained data from various sources, notably Dimensions (accessed through CWTS), the International Aid Transparency Initiative (IATI), NIH World RePORT, Modari, and funder-specific data portals/repositories. It is worth noting that although we aimed to include as many funders as possible for which data from 2000 to 2024 were available, full coverage could not be obtained for several funders. We prioritised obtaining data from funding organisations/agencies that have provided funding to Africa over the past 25 years, such as the European Commission, FCDO, Sida, Norad, BMGF, Wellcome, and WHO, to name a few. In addition, we also identified potential funders from analysing funding acknowledgements in African publications.

Many grants are related to broader development or aid activities and are not strictly related to STI. We developed a multi-criteria decision framework to select STI-related grants, which is described briefly below.

- Funder-specific selection: all grants from specific funders that are well known for supporting STI in Africa are automatically included. This category includes BMGF, Wellcome, Swiss NSF, NIH, EDCTP, etc.
- Funder-oriented filtering rules: upon inspection of funder data, we developed rules that are specific to the funder's data. This includes selecting grants under specific programmes or schemes.
- Selection by sectors: We used the OECD DAC sectors (325 sectors) when available to identify relevant grants. We identified 12 sectors related to STI.
- R&D recipients: grants to R&D performing organisations are included. This includes universities, research institutes and centres, and academic societies.
- AI model-based detection: LLM models were used to classify grants as STI-related or not, using grants' descriptions when available.
- We performed a full-text search on the grant description using carefully selected keywords that suggest relevance to STI. The returned result is further refined by removing descriptions that contain keywords that strongly suggest general development or humanitarian aid.

Data from different sources employs inconsistent terminology. For consistency, we define a *grant* as the financial aid provided by one or more funding bodies to one or more specific recipient entities (region, country or organisation) for a specific purpose, and *activity* as a unit of work supported by that grant. A single grant can fund different activities or projects. Some sources use alternative terms (e.g., award, project, action, or transaction). Where a hierarchical structure exists in the data source, we normalise it into our grant–activity model, i.e., the grant will refer to the high-level record, and the activities will refer to its linked low-level components. In our database, each grant is linked to one or more activities. Activities may include attributes such as start and end dates, recipient country or region, recipient organisation (where available), and funding amount (where reported). The start date of a grant is the earliest start date of its activities, and the total amount of the grant is the sum of the amounts across all its activities.

In **Appendix A** of the report, we indicate for each funder HOW we obtained their funding data. Data were obtained either directly from funders, downloaded (by Rein Treptow) from these websites, were part of the original data in the Dimensions database, or were uploaded (mostly to ODA agencies) to the IATI platform. We are increasingly committed to entering into data-sharing agreements with funders in the next phase of the study, as this typically produces more comprehensive, accurate, and up-to-date data. We encountered various problems with the IATI data because different funders interpreted the IATI protocols differently. However, we ultimately resolved most of these.

In this report, counting grants refers to counting at the high level of the hierarchy, whereas counting activities refers to counting at the low level of the hierarchy. In some cases, both counts yield the same result when the funding data is flat (i.e., has no hierarchical structure).

We adopted the full- counting method for grant counting, meaning that when a grant is shared among multiple entities, each entity is assigned a value of 1 for that grant. The fractional counting method is used to calculate the monetary value of a shared grant. In this case, the total grant value is divided equally among all recipient countries/organisations if the share of each recipient country/organisation cannot be determined from the grant data.

Many multi-year grants do not have individual-year disbursements, in which case the grant start years are used as a proxy to calculate annual disbursements by grant count and value. In this case, the annual count shows the number of *active* grants (i.e., the same multi-year grant can be counted multiple times across different years only if individual-year data is available for that grant).

We assigned a scientific field to grants. Our classification is based on the Australian and New Zealand Standard Research Classification (ANZSRC), which is also the framework used in the Dimensions database from which many of our grants were uploaded. We collapsed its high- level class (containing 22 fields) into more consolidated categories (containing only 9 fields). While some of the data have a field classification, the majority do not. We classified grants using two approaches:

- If the data comes with thematic topics, we map them to our classification.

- In the absence of thematic topics, we leveraged LLM models together with Google Gemini to classify grants using the grant description. Then, we consolidated the results of these two AI models to derive the final classification.

Despite the effort to classify all grants, some grants are not assigned to any field for the following reasons:

- The grant does not have a description.
- The description is too general or ambiguous, which means that the AI models could not definitively determine their category.
- The grant is classified, but it did not pass the final consolidation filter.

The recipient organisations have multiple variants across data sources and even in the same data sources. This necessitated organisation disambiguation, in which we standardised organisation names using rigorous multi-step algorithms. When possible, we linked the organisation to the Research Organisation Registry (RoR).

To summarise, the primary data challenges were as follows:

- Identifying STI grants from general development aid data.
- Grant classification and the absence of thematic topic in the source data.
- Recipient organisations disambiguation
- Multilateral grants
- Incomplete and missing data in the original data source
- Inconsistent terminology across data sources.
- Lack of documentation for some data sources.

In conclusion: While we have made every effort to ensure the accuracy of our data, the methodological challenges and identified data limitations mean that the final estimates of grant amounts, both at the SGCI level and the country level, remain estimates. In some instances, this may lead to overestimation, while in others, the limitations may result in underestimation (e.g., missing values, missing organisations). Despite these potential issues, we believe the data provides a solid foundation for analysis. Refining the data remains a high priority for future studies to further enhance accuracy and reliability.

CHAPTER ONE: THE STATE OF STI IN AFRICA

1.1 Brief historical overview

Sociological research on African research systems has been conducted since at least the early 1960s. Nevertheless, there is still a dearth of studies on the dynamics of higher education, and science and technology compared with those on other continents. Studies covering the last two decades of the previous century showed slow growth in African science until the 2000s (Waast & Gaillard, 2001; Arvanitis, Waast, and Gaillard, 2000; Narváez-Berthelemot et al., 2002; Tijssen, 2007). More recent studies, however, have shown a growth in Africa as far as world science production is concerned (Mouton & Boshoff, 2010; World Bank, 2014; Confraria & Godinho, 2015; Pouris & Ho, 2013; *World Science Report* of UNESCO, 2015)[2].

These studies provided much-needed background on these trends, first by showing the decline of university research in Africa in the late 1990s. International forces associated with the globalisation of trade in the 1980s and 1990s had devastating effects on national economies. The serious pressure on import capacity and essential economic and social investments increased the dependence of the typical sub-Saharan African country on external aid.

Concomitantly, international agencies, most notably the World Bank, privileged expenditure on basic education at the expense of higher education (Psacharopoulos *et al.,* 1986). As a result, many universities were thrown into a financial crisis, with laboratories and libraries suffering from inadequate maintenance and the timely replacement of equipment, overcrowded lecture rooms, a decline in scholarship, and the subsequent flight of top academics. Case studies covering the period 1990-2005 demonstrated that research at former well-resourced institutions such as Makerere University (Uganda), the University of Ibadan (Nigeria), and the University of Dar es Salaam (Tanzania) had deteriorated (Cloete *et al.,* 2011). Africa's share of world scientific publications declined steadily over this period. Sub-Saharan Africa's share declined from 1% in 1987 to 0.7% in 1996 (Tijssen, 2007).

The cumulative effect of funding policies, huge growth in student enrolment in higher education, and continuing political instability in many countries created what Mouton (2008) referred to as the era of the 'de-institutionalisation' of science (Mouton, 2008). The fragility of academic communities and the lack of confidence in authoritarian Governments (El-Kenz, 1997; Hanafi & Arvanitis, 2016), as well as in societies themselves, in locally produced science, created a weak 'social inscription of science' (Waast, 2006). At the time these studies were conducted, it was concluded that sub-Saharan scientific institutions remained susceptible to political and military upheavals, severely under-resourced, and lacked articulation of science governance with ministerial responsibilities.

The precarious state of science and technology in many African countries was highlighted in various publications some decades ago. In April 1980, during a conference which included a variety of

[2] The French Institute of Research for Development (IRD) has designed indicators based on WoS for major African countries that confirm this trend. See http://www.beep.ird.fr/cop/cop_liste.php – last accessed on 24 May 2025.

African leaders, the Lagos Plan was drafted and launched. Although not a core component of the Plan, the Lagos Plan of Action called for expanded training, funding, and research in science and technology to develop human capital and improve living standards. The Lagos Plan of Action recognised that, despite past efforts, Africa needed to develop science and technology. The plan called for member states to hold science and technology fairs regularly to encourage the exchange of knowledge among African scientists. The plan notably encouraged governments to mobilise 1% of their Gross National Product (GNP) to strengthen their scientific and technological capacities.

If we fast forward, a similar goal was adopted by the African Science Technology and Innovation Indicators (ASTII) Initiative – a programme within the African Science and Technology Consolidated Plan of Action (CPA). The CPA was adopted in 2005 by the African Ministerial Council on Science and Technology (AMCOST) as a framework for science, technology, and innovation (STI) to address the socio-economic challenges facing the continent. Again, the target for GERD/GDP at 1% was restated.

Except for South Africa, in 1994, no African state has achieved this goal to date. Most Sub-Saharan countries devote, on average, less than 0.3% of their GNP to scientific research and development, ten times less as a proportion than the Organisation for Economic Co-operation and Development (OECD) countries. As a result, national funding, particularly in Sub-Saharan Africa, is mainly absorbed by salary costs, and the system therefore depends heavily on foreign aid. Table 1 presents the latest available data (since 2010) on GERD/GDP for countries with available data. Table 2 compares the average GERD/GDP ratio for Africa with middle- to high-income countries.

Table 1: GERD/GDP (Latest available data)[3]

Country	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Botswana	0.27	0.56										
Burkina Faso			0.20			0.61		0.17	0.25	0.25		
Côte d'Ivoire					0.07							
Ethiopia		0.60				0.27						
Ghana (latest data is for 2010)												
Kenya											0.41	0.81
Malawi								0.17*				
Mozambique			0.38*	0.31								
Namibia		0.40*	0.35							0.73*	0.65	
Nigeria								0.28				
Rwanda					0.65			0.76				0.79
Senegal				0.58								
Sierra Leone +												
South Africa	0.67	0.66	0.71	0.73	0.75	0.76	0,69	0.62*	0.61*	0.62*	0.62	
Uganda			0.14									

[3] It should not go unnoticed how few countries even produce and/or publish R&D statistics. This situation has not changed despite efforts by the African Union Development Agency - New Partnership for Africa's Development (AUDA-NEPAD) and the ASTII initiative.

Country	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
United Republic of Tanzania		0.51										
Zambia (latest data is for 2008)												
Zimbabwe +												

Sources: Data (except where noted) extracted on 30 July 2025 09:20 UTC (GMT) from UIS.Stat

Notes: Coverage differs between years and countries. Additional notes available on UIS.Stat

+ No data on UIS.Stat (1996 - 2021)

* Malawi data for 2019 from our correspondence with the NCST (the survey report is reportedly available at NCST – we could not find a copy). Mozambique data for 2014 and Namibia data for 2013 from the African Innovation Outlook III (2019). Namibia data for 2021 from the Namibia National Research and Experimental Development (R&D) Survey for 2021/2022. Rwanda data for 2022 from the Rwanda National Research and Experimental Development (R&D) Survey for 2022/2023. South Africa data for 2019 to 2021 from South African National Survey of Research and Experimental Development Statistical Reports (2019/20, 2020/2021, and 2021/2022).

Table 2: Comparison between Sub-African and other countries (GERD/GDP)

Region and countries	2015	2016	2017	2018	2019	2020	2021	2022
World	1.72	1.73	1.75	1.78	1.83	1.94	1.92	1.95
Least Developed Countries	0.27	0.27	0.27	0.27	0.27	0.28	0.28	0.28
Sub-Saharan Africa	0.39	0.41	0.41	0.39	0.38	0.38	0.38	0.38
Northern Africa and Western Asia	0.80	0.86	0.88	0.90	0.95	1.04	1.03	1.05
Europe and Northern America	2.26	2.28	2.31	2.36	2.43	2.59	2.56	2.59
Europe	1.92	1.92	1.95	1.95	1.98	2.05	1.98	1.98
Northern America	2.69	2.75	2.78	2.89	3.03	3.30	3.35	3.42
Low-income countries	0.31	0.30	0.29	0.28	0.27	0.28	0.28	0.28
Lower middle-income countries	0.50	0.50	0.50	0.50	0.51	0.52	0.52	0.53
Middle-income countries	1.09	1.11	1.11	1.13	1.18	1.26	1.26	1.30
Upper middle-income countries	1.32	1.36	1.36	1.39	1.47	1.58	1.57	1.62
High-income countries	2.33	2.34	2.37	2.42	2.48	2.65	2.63	2.66

Source: Data extracted on 30 July 2025 09:20 UTC (GMT) from UIS.Stat

Sources of foreign research funding

The fact that so few of the SGCI countries have conducted R&D surveys at all also means they lack national data on another variable, i.e., the source of funding. Not only does a Frascati-compliant survey gather data on R&D expenditure nationally and by sector, but it also includes a section in which respondents must indicate what percentage of R&D expenditure is from foreign sources.

During the interviews conducted with the SGCs in 2024, it was again confirmed that what was already evident: for the majority (13) of SGCI countries, the available R&D data is almost a decade old (or older), with two (Côte d'Ivoire and Sierra Leone) having no R&D data available. Only four countries have relatively recent (2016 to 2024) R&D survey data available. While the SGCs are not necessarily the entities responsible for R&D surveys in their countries, two SGCs (in Uganda and Zambia) have indicated that they are either completing R&D survey reports or conducting R&D

survey fieldwork. Thus, few countries have a recent comprehensive overview of research expenditure and funding. The SGCs also differ in the extent to which they collect data or have data available to them regarding funding entering the National System of Innovation (NSI).

While all the respondents to the SGC interviews indicated that their SGC disburses funds, some stated that the SGC only disburse funds from the Government (TETfund), or mainly disburses funds from the Government (e.g., the primary source of FONSTI's funds is from the Government, 80% of FONRID's funds are from the National Government, RCZ only disburses funds from the Government and the SGCI). In some cases, the SGC disburses funds from a specific fund (e.g., COSTECH with NFAST; Malawi's NCST with the S&T Fund). Respondents often indicated that they are aware that research funds from foreign sources are being disbursed directly to institutions within their country, without them being included in the process; however, the extent of this is unknown to them, as they lack the infrastructure and data to track these processes.

The inability of many African countries to provide sufficient public funding to support the scientific enterprise in their respective countries is a 'persistent' feature of the scientific landscape in Africa. Many reasons can be put forward for this situation. The effects of the recent COVID-19 pandemic, the increasingly disastrous impact of climate change, ongoing political instability and even civil wars, and the failure of many African governments to address the resulting energy and water security crisis all undermined many countries' ability to increase funding for science. In addition, one could list the lack of private-sector engagement, weak economic conditions, limited financial resources, and weak governance.

Against this background, it is not surprising that foreign funding for STI in Africa (mostly from Europe and North America), has become the major source of research funding on the continent: by funding individual researchers through a range of capacity-building and mobility and exchange programmes; in funding research centres, institutes and networks to be able to conduct research; in funding universities and other knowledge-productive activities and also investing in larger pan- African initiatives such as the recent European Union (EU) funding of Clusters of Research Excellence. This topic is the focus of our report, which will show how trends in foreign funding have changed since 2000 and how new funding modalities have affected the role of national granting councils in the STI ecosystem across the continent and within their respective countries.

To conclude this section, we present indicators of the research and publication performance of African scientists, suggesting that increased foreign funding has produced a range of positive outcomes for the continent. The bibliometric analysis of key indicators of articles and review articles in the next section is based on the [CA]Web of Science.

For most of the indicators, we report on the past two decades of publication output, world share, relative field strength, citation impact and trends in research collaboration.

1.2 Bibliometric analyses of the scientific publication output of Africa

1.2.1 Research publications and world share

The research publication output of Africa has been steadily increasing since 2005, with an average annual growth rate of about 12% over this period. The overall number of published articles increased nearly eightfold between 2005 (17,230) and 2024 (131,828). While the African contribution to the world is modest, accounting for less than 5%, the upward trajectory from around 1.6% to 4.47% over 20 years is a significant achievement, given that other continents have also increased their publication output.

Table 3: African publication output and world share (2005 – 2024)

Publication year	Number of articles	World Share
2005	17,230	1,60
2006	19,748	1,72
2007	22,990	1,89
2008	26,192	1,98
2009	29,698	2,09
2010	33,417	2,25
2011	38,377	2,40
2012	41,175	2,46
2013	45,461	2,57
2014	51,011	2,77
2015	56,771	2,96
2016	64,397	3,21
2017	70,245	3,35
2018	76,332	3,49
2019	85,014	3,64
2020	100,753	4,00
2021	116,401	4,27
2022	127,445	4,52
2023	121,833	4,45
2024	131,828	4,47
TOTAL	**1,276,318**	

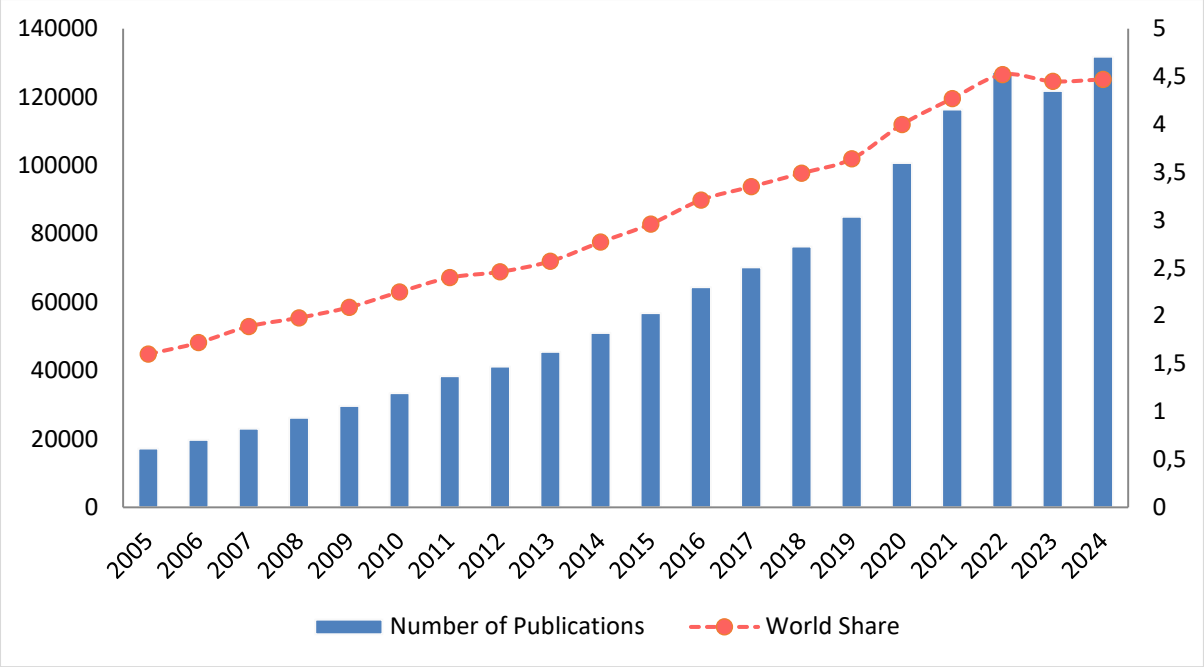
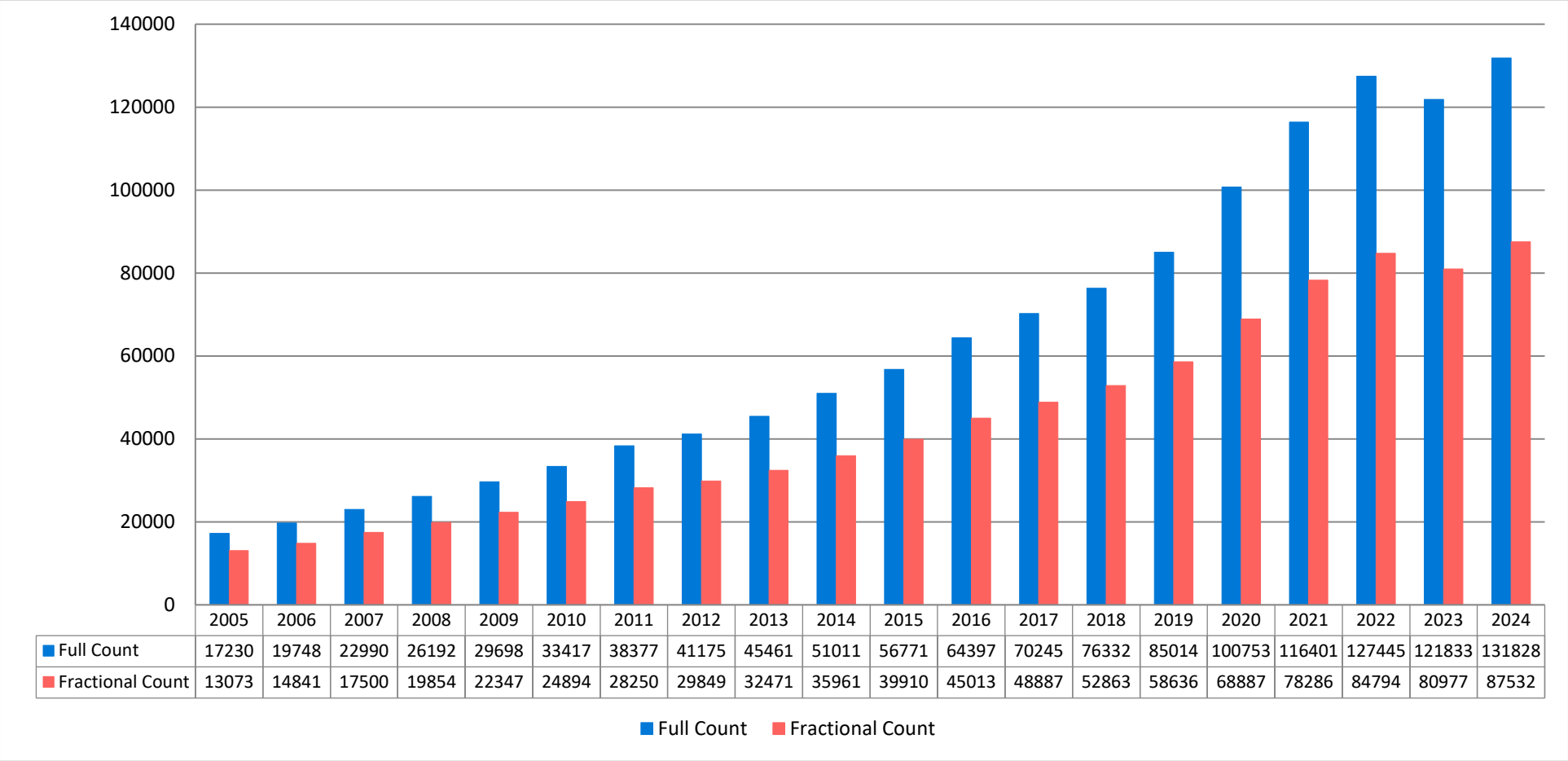


Figure 2: African publication output and world share (2005 – 2024)

The breakdown of Africa's research output by fractional counts instead of by full paper counts (the ratio between the African contribution and the foreign contribution in each article) shows that Africa contributes significantly to its publications, since the gap between the full paper count and the fractional count is not remarkably large. However, this gap has been widening over the last 5 years, suggesting a tendency towards foreign collaboration.



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Full Count	17230	19748	22990	26192	29698	33417	38377	41175	45461	51011	56771	64397	70245	76332	85014	100753	116401	127445	121833	131828
Fractional Count	13073	14841	17500	19854	22347	24894	28250	29849	32471	35961	39910	45013	48887	52863	58636	68887	78286	84794	80977	87532

Figure 3: Number of publications (articles and review articles) by full count and fractional count: 2005 to 2024)

At the country level, the well-documented unequal contributions of individual countries show that many African countries produce moderate to small numbers of research publications. The eight most productive countries (marked in red) collectively account for nearly 80% of Africa's total share.

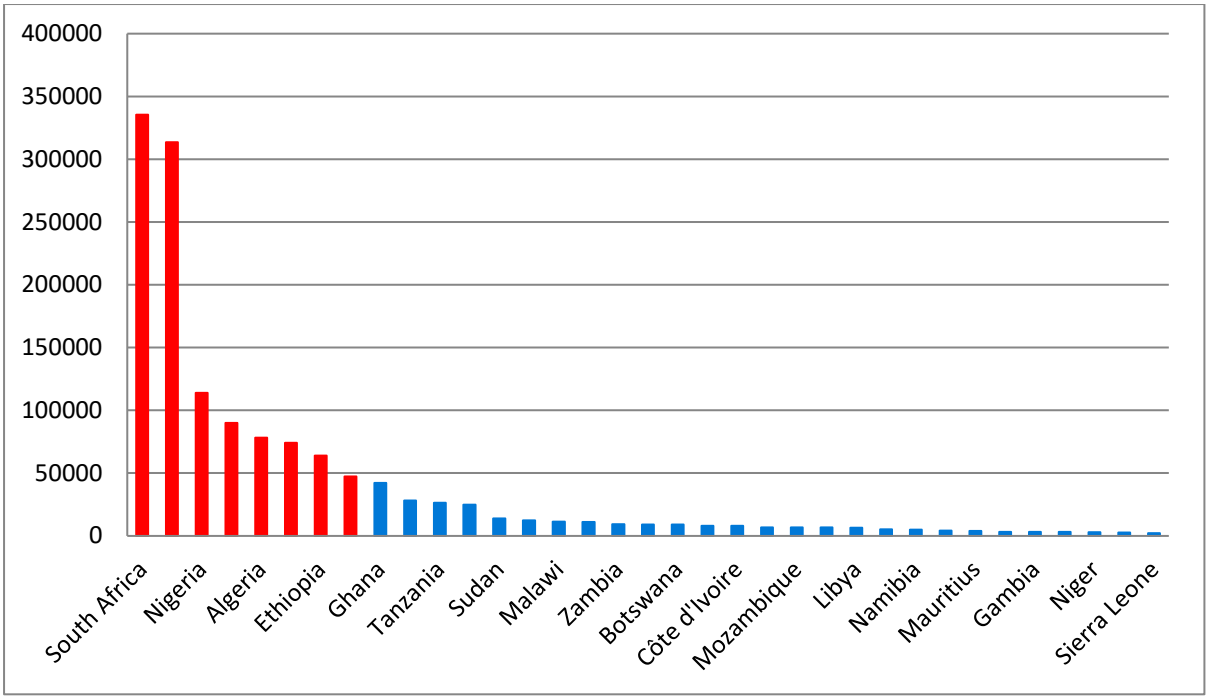


Figure 4: Output of the top knowledge-productive countries in Africa - including the SGC countries (2005 – 2024)

Table 4: Relative country share of total number of publications by the top knowledge-productive countries in Africa (2005 – 2024)

Country	Number of publications	Relative share
South Africa	335,463	25.2%
Egypt	313,539	23.6%
Nigeria	113,950	8.6%
Tunisia	90,003	6.8%
Algeria	78,243	5.9%
Morocco	74,164	5.6%
Ethiopia	63,972	4.8%
Kenya	47,352	3.6%
Ghana	42,123	3.2%
Uganda	28,201	2.1%
Tanzania	26,488	2.0%
Cameroon	25,002	1.9%
Sudan	13,896	1.0%
Zimbabwe	12,473	0.9%
Malawi	11,483	0.9%

Country	Number of publications	Relative share
Senegal	11,101	0.8%
Zambia	927	0.7%
Burkina Faso	9,075	0.7%
Botswana	9,033	0.7%
Benin	8,040	0.7%
Côte d'Ivoire	7,938	0.7%

1.2.2 African-authored articles by main scientific field

In this section, we present data on the disaggregation of publications by main scientific fields (6 fields). The field classification is based on the journal subject categories embedded in the WoS database. In Figure 5, we show the overall distribution by main field for the period from 2005 to 2024.

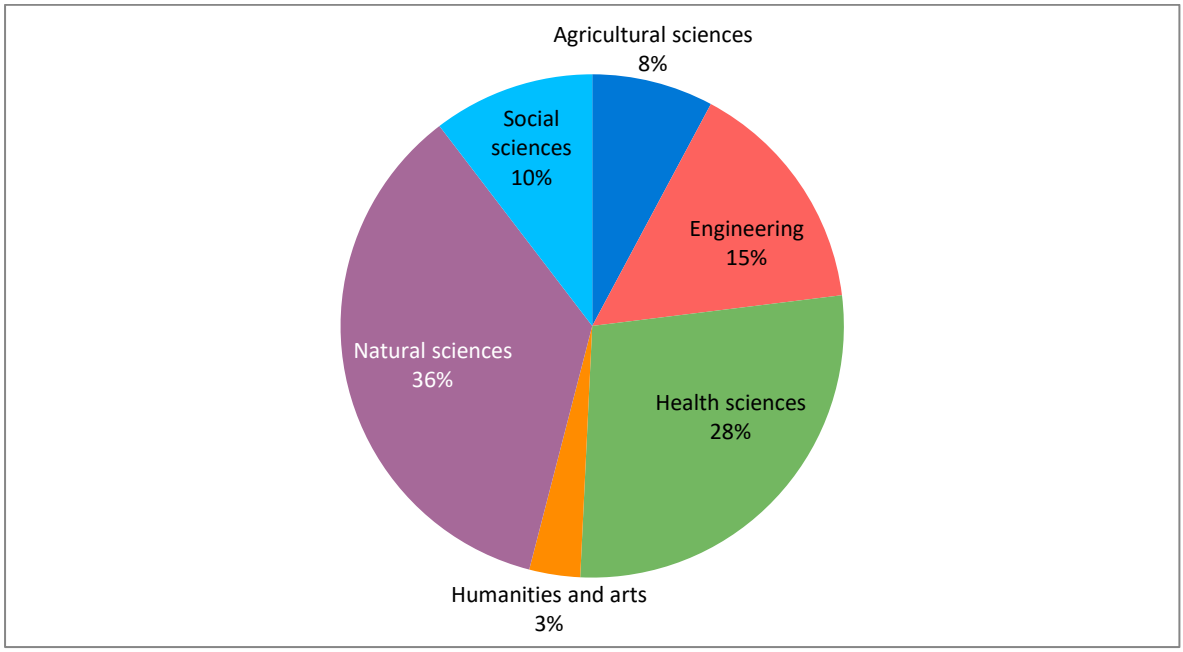


Figure 5: African publications by main scientific field (2005 – 2024)

The articles in the natural sciences (including life sciences, physical and chemical sciences, environmental and geological sciences, as well as mathematics and computer science) account for 36% of all papers. The second-largest cluster of papers (28%) is in the health sciences, including both biomedical sciences and public health.

In the figure below, we show trends over time in the relative share of the main scientific fields in Africa's total output.

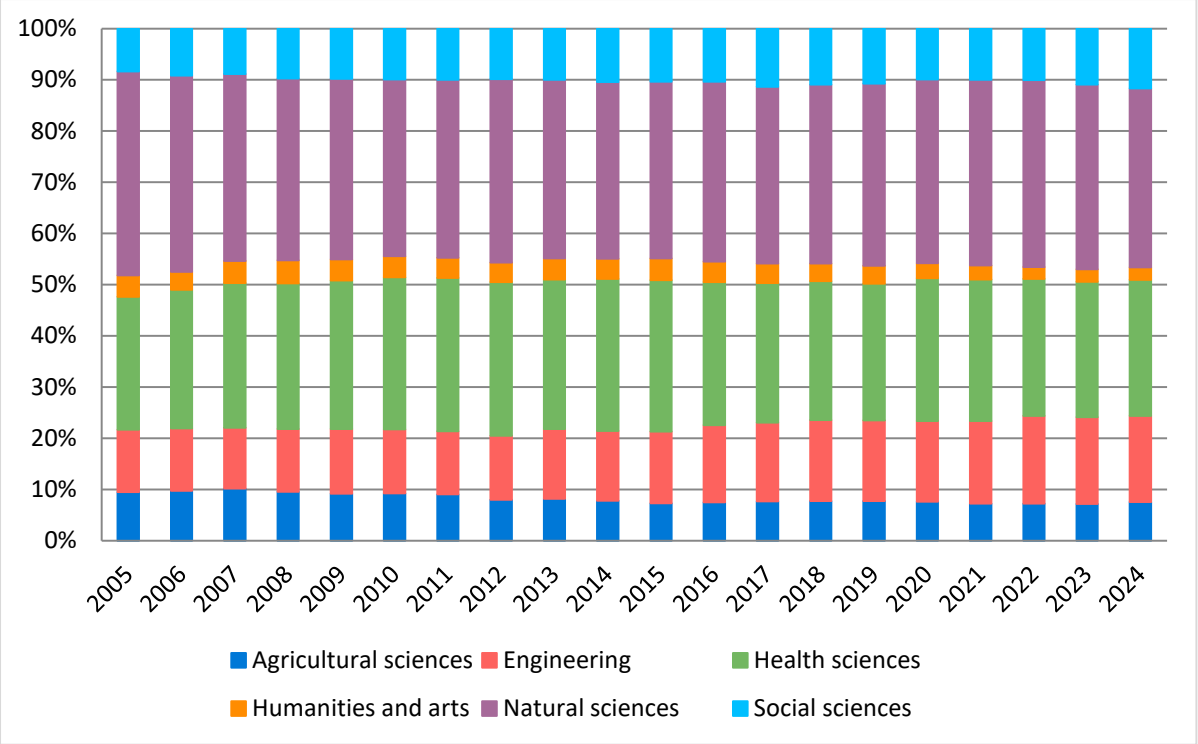


Figure 6: Annual breakdown of African publications by main scientific field (2005 – 2024)

At the **scientific field** level, the natural sciences and health sciences have dominated research output, whereas the agricultural sciences and the humanities make comparatively strong contributions to overall research output. This trend has remained mostly consistent over two 10-year windows: (2005 to 2014) and (2015 to 2024), as shown in Figures 7 and 8 below.

The only small shifts are that engineering and social sciences make slightly higher contributions in the latter period. The share of papers in engineering science increased by 5 percentage points (13% to 18%), and the share of papers in the social sciences by 1 percentage point. In Figures 8 and 9, we compare the distribution of papers by main field between the first decade (2005 to 2014) and the most recent period (2014 to 2024).

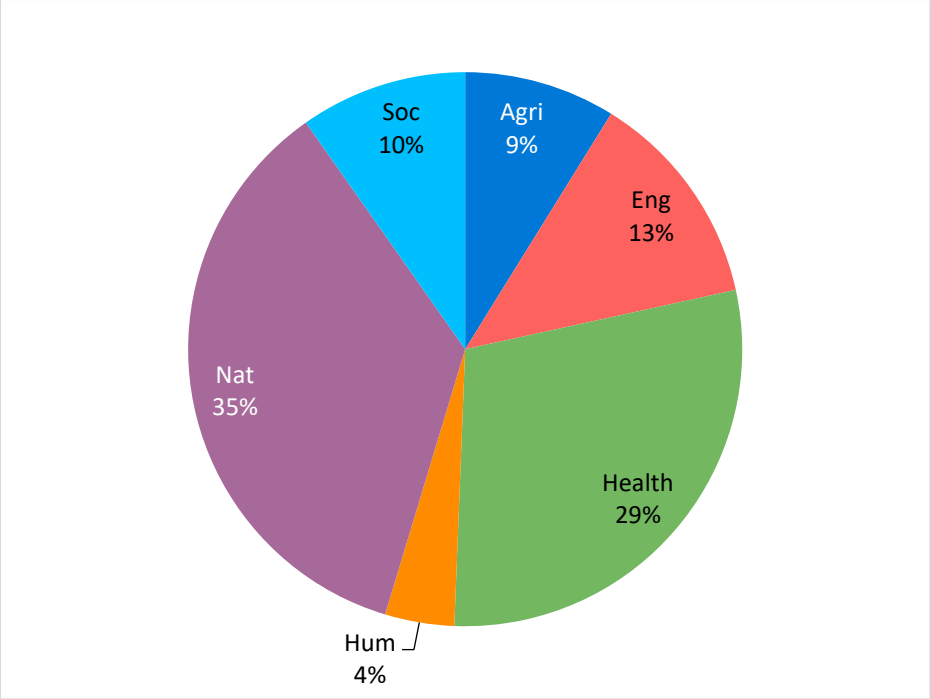


Figure 7: Distribution of publications by main scientific field (2005 – 2014)

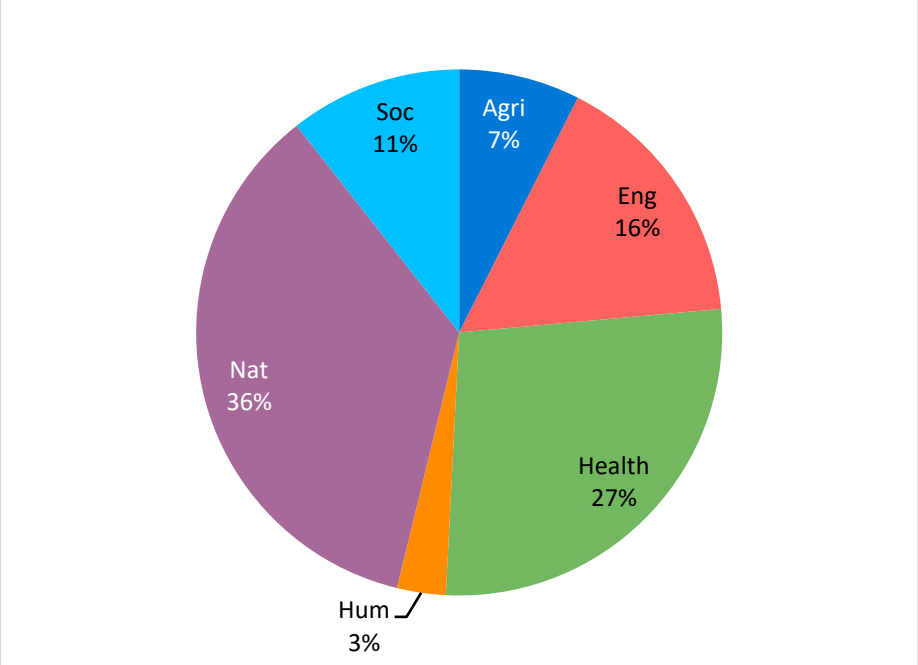


Figure 8: Distribution of publications by main scientific field (2015 – 2024)

In Figure 9, we present the proportional share of African-authored papers by main field over the past ten years. Across all fields, Africa's share increased from around 3% in 2015 to 4.4% in 2024 (the black line indicates the share). Africa's contribution to agricultural sciences papers is consistently higher than its contribution to other fields.

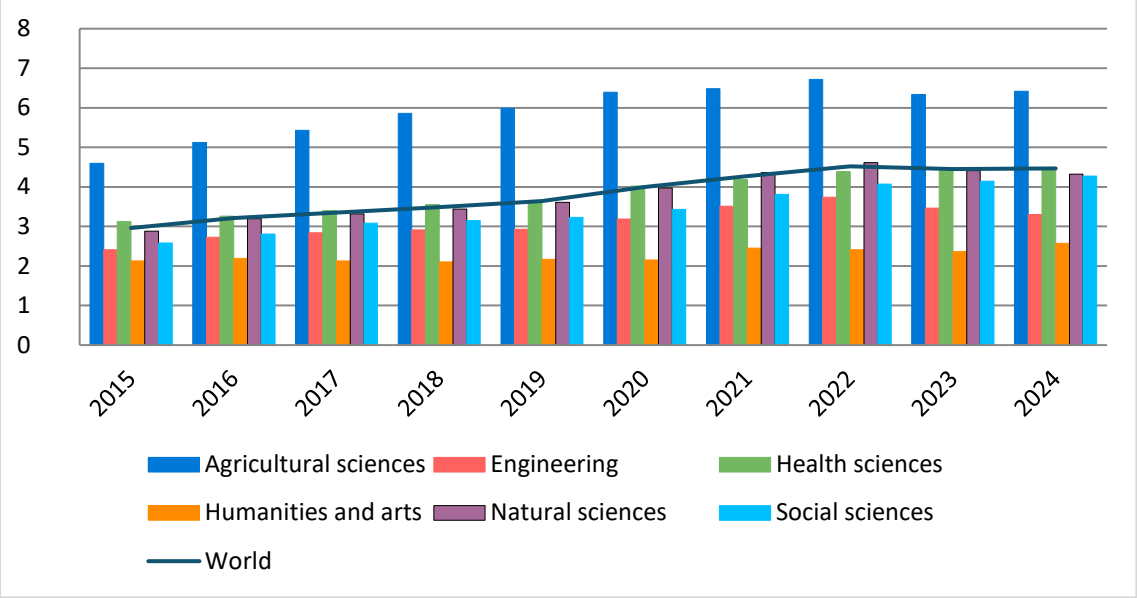


Figure 9: Africa's share of the world's publications by main science domain (2015 – 2024)

1.2.3 Trends in research collaboration

Africa has seen an increasing tendency towards foreign (extra-African) collaboration (from 44% in 2005 to 57% in 2024). National collaboration (in which all authors of a paper are from the same country) is the second-most-preferred mode of collaboration (35% in 2024). Conversely, Africa-only (intra-Africa) collaboration constitutes a very small proportion of all papers (3%). In line with international trends, single-authored publications have declined significantly from 18% in 2005 to a relatively small share of all papers of 5% in 2024.

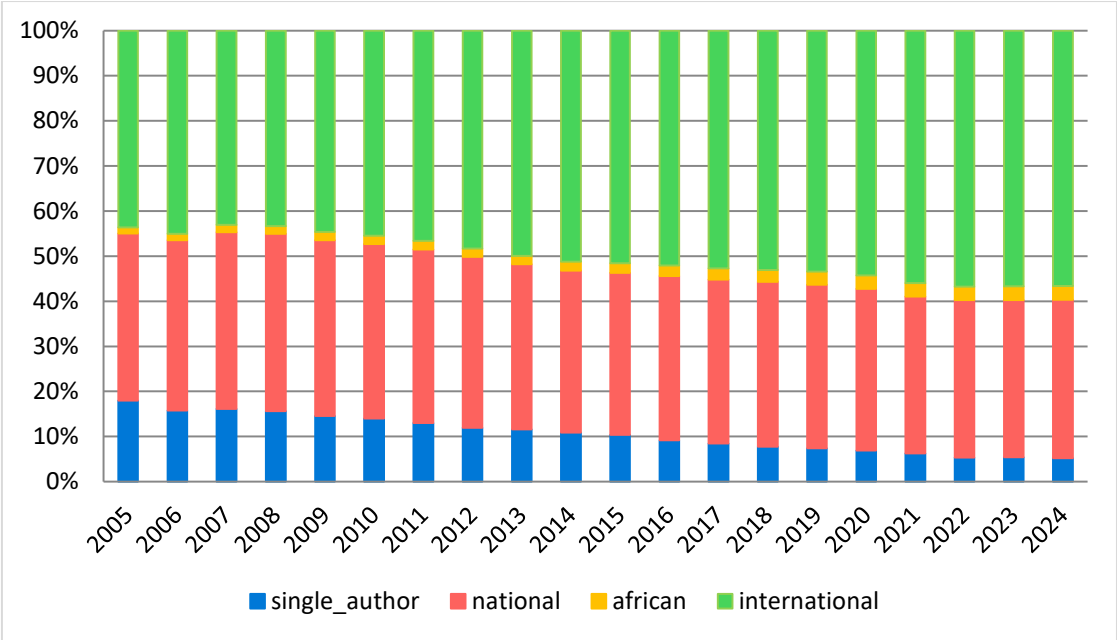


Figure 10: Trends in research collaboration

The collaboration with countries outside Africa is shown over two 10-year reference periods: (2005-2014) and (2015-2024). In both periods, Africa tends to collaborate intensely with the USA and Europe. Notably, in the latter period, the collaboration with China and India has intensified. To a lesser degree, Africa also collaborates with Canada, Russia, Australia, Brazil, Iran and Turkey, especially in the latter period.

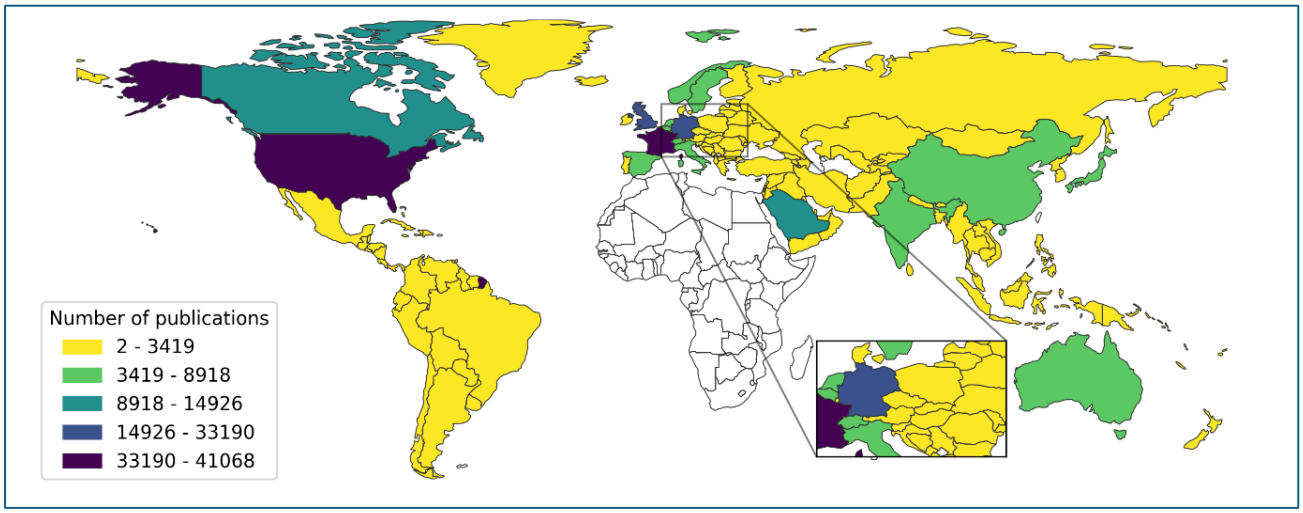


Figure 11: Intensity of foreign collaboration in the early period (2005 – 2014)

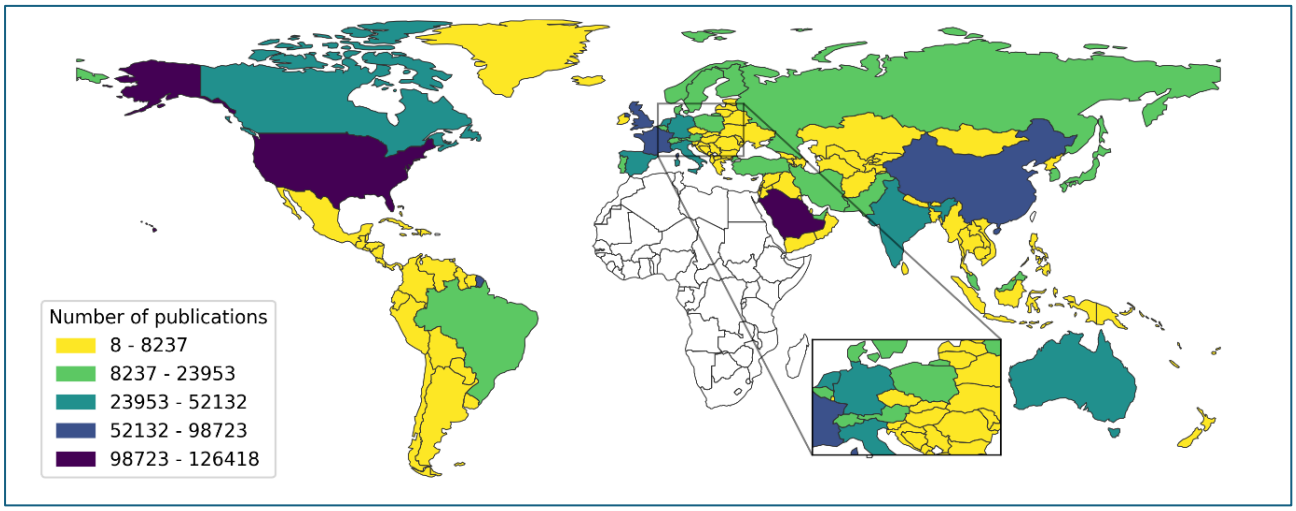


Figure 12: Intensity of foreign collaboration in the most recent period (2015 – 2024)

1.2.4 Scientific impact and visibility

We have measured the 'visibility' or citation impact of African-authored publications using a standard indicator: the *mean normalised citation score* (MNCS). The MNCS is based on the number of citations a publication receives within a specific period relative to the expected number of citations within the same period in a specific scientific field. An MNCS with a value of 1.0 signifies an average performance, values exceeding 1.0 signify better performance than the world average (higher impact), and values below 1.0 signify worse performance than the world average (lower

impact). In the early years of the new millennium, the average citation impact score of Africa's publications was below the world average. Since then, the average citation score has been increasing, and over the past two years, we have witnessed an even steeper increase in citation impact.

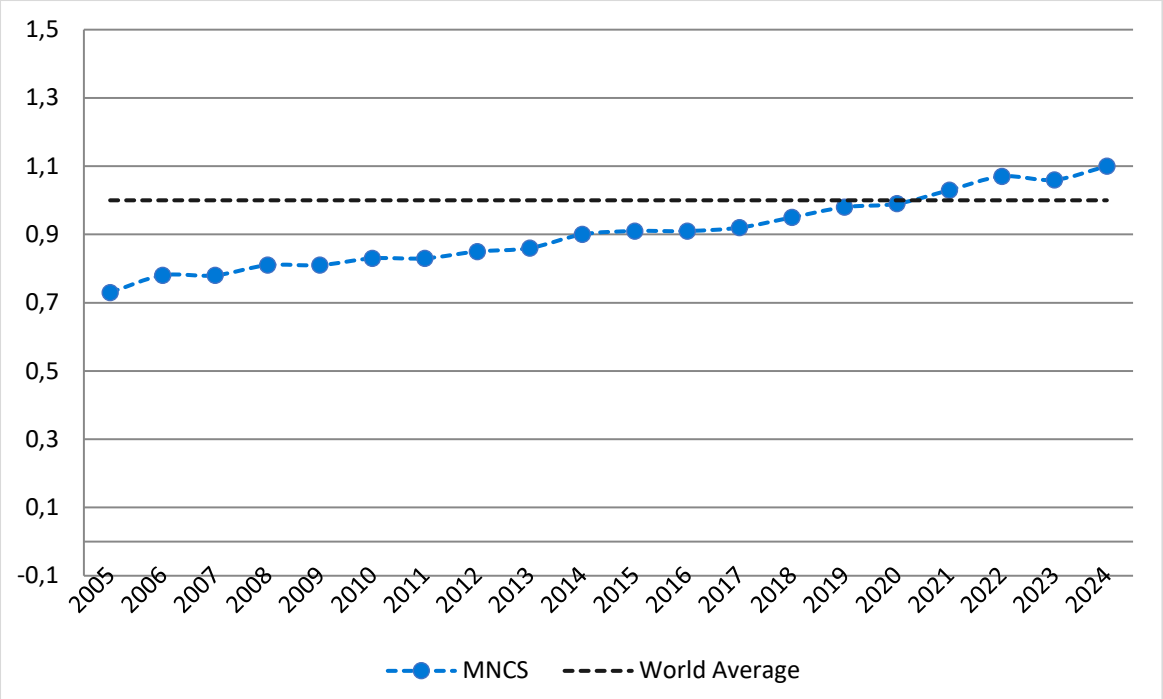


Figure 13: Trends in citation impact as measured by the MNCS (2005 – 2024)

Disaggregating citation impact by collaboration type shows that Africa performs well when collaborating with authors outside the continent. In contrast, in all the other three categories (single-authored papers, national collaboration and intra-African collaboration), the impact is lowest, converging to around 0.8

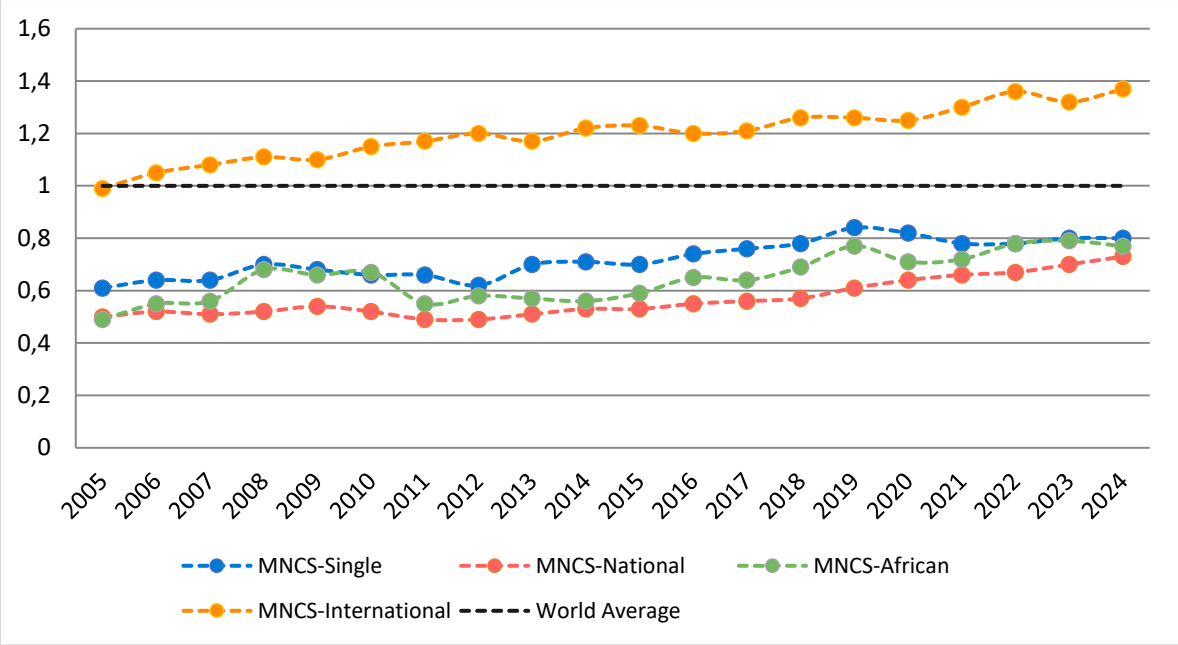


Figure 14: Relationship between trends in collaboration type and citation impact (2005 – 2024)

Disaggregating the impact/visibility by fields shows that all fields recorded an increase in their normalised field impact score. The only exception is the humanities, which exhibit the most pronounced fluctuations but have had the highest impact over the last two decades compared with other fields. Over the last 4 years, engineering, natural sciences, and agricultural sciences have seen a noticeable increase, surpassing the world average in terms of visibility and impact.

The MNCS was used to identify the top 20 fields (threshold of at least 500 publications) for the most recent period (2013-2022). The dominance of papers in medicine and health sciences, astronomy and astrophysics, and some areas of the arts and humanities is obvious.

Table 5: Scientific fields with the highest citation impact between 2015 and 2024

Subject category	MNCS	Nr of publications
Mycology	1,72	1640
Fisheries	1,71	3117
Critical Care Medicine	1,70	1651
Medicine, General & Internal	1,66	25995
Astronomy & Astrophysics	1,59	8870
Physics, Mathematical	1,54	3920
Mathematics, Interdisciplinary Applications	1,52	5895
Archaeology	1,51	1953
Anthropology	1,49	2825
Physics, Particles & Fields	1,48	5200
Mechanics	1,46	9283
Materials Science, Composites	1,45	2739

Subject category	MNCS	Nr of publications
Sport Sciences	1,44	2678
Materials Science, Characterisation & Testing	1,44	1286
Agricultural Engineering	1,43	1755
Hospitality, Leisure, Sport & Tourism	1,42	2667
Physics, Atomic, Molecular & Chemical	1,41	4824
Materials Science, Ceramics	1,38	2611
Evolutionary Biology	1,37	3304

1.2.5 African authors as first authors of papers

The trends in increased publication output, citation impact and research collaboration presented above could mean that African scientists – because of the commensurate growth in multi-authored papers which has been a feature of global publication trends over the past two decades – are also embedded in these trends. However, we were also interested in 'testing' a related hypothesis: whether the increased visibility of African scientists would be reflected in the sequence of author names on the relevant papers. Stated differently, is there a clear trend in the percentage of African-authored or co-authored papers, in terms of the first author of the respective papers? The results of our analyses, shown below (Figure 15), were surprising. Over the past 23 years, the proportion of papers with an African author (or an author affiliated with an African institution) has remained stable at around 40%.

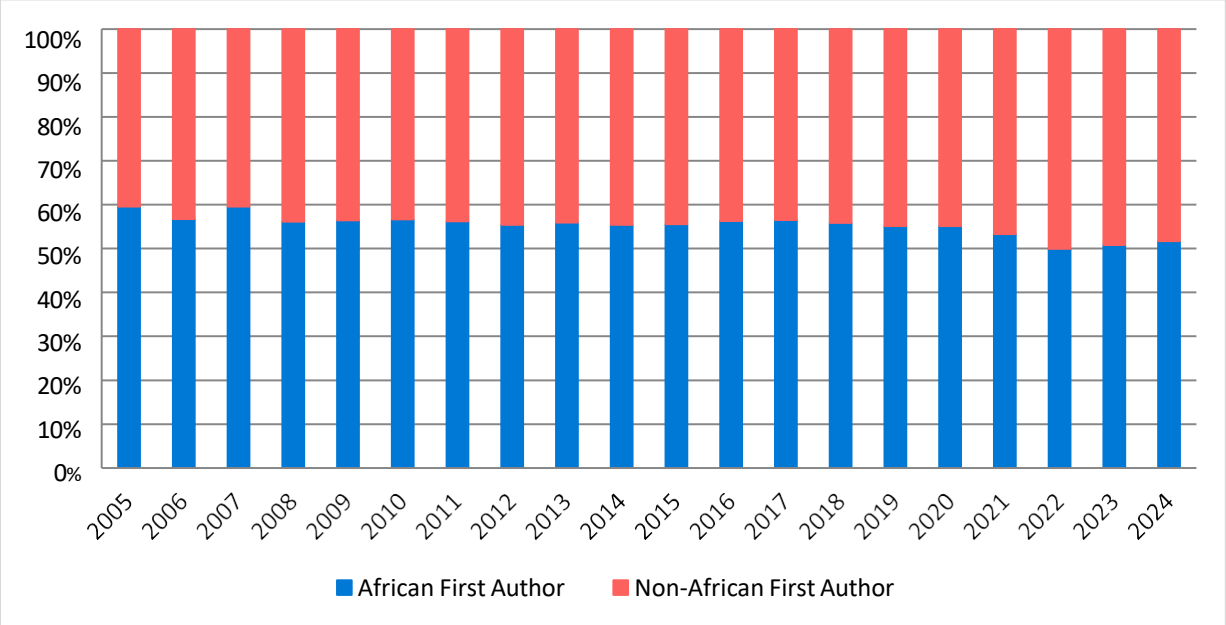


Figure 15: High salience of African first-authored publications in foreign/extra-African collaboration (African vs non-African first authors) (2005 – 2024)

We also found that African-first-authored papers, whether authored by African or foreign (extra-African) authors, increased their citation impact (visibility) over time. In and of itself, this finding is not that surprising, as it is a well-established fact that multi-authored papers generally generate, on average, more citations. However, it reinforces the fact that we have witnessed increasing

collaboration between African and other scientists, which has translated into increased visibility (citation impact) of African-authored articles.

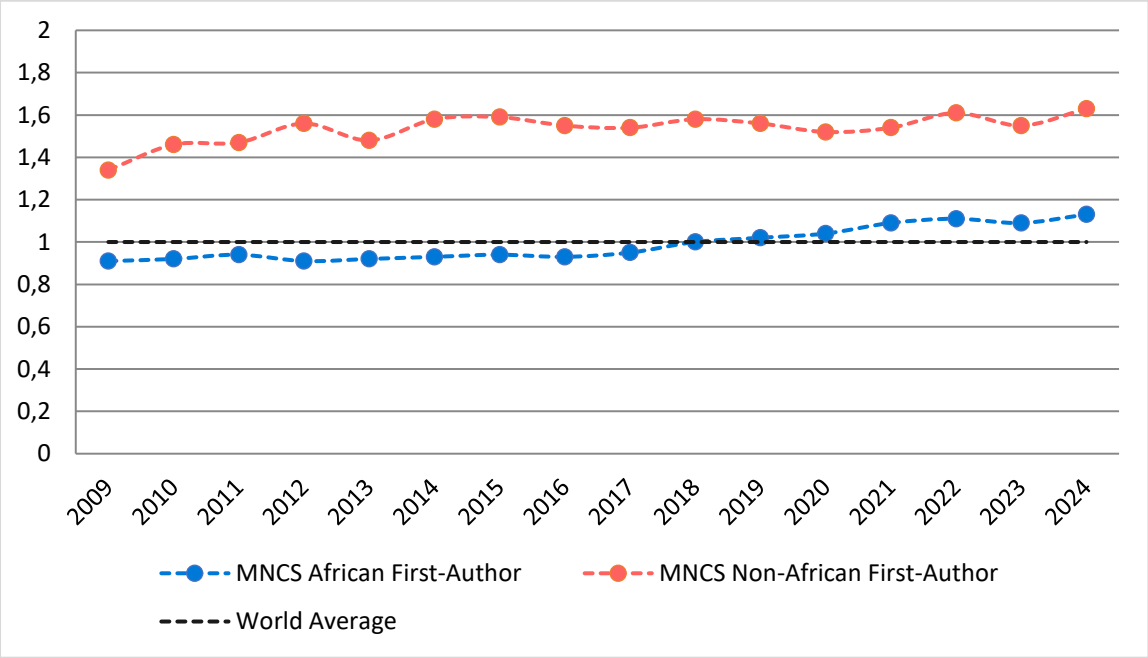


Figure 16: Citation impact of first-authored publications (2009 – 2024)

1.2.6 Research publication profile of the SGCI countries

The next section presents the same bibliometric results, filtered for the 17 SGCI countries. In addition to showing the world share of output from these countries, it includes a column showing the share of the SGCI countries in Africa's total output. The results are interesting as they show, not only the same consistent increase in the number of papers by the SGCI countries – from 2892 in 2000 to 43251 in 2024 -, but also that the share of their combined output as a percentage of Africa's output has increased from 24.9% in 2000 to 32.8%. This 10-percentage-point increase in output is not insignificant. Without doing a deeper analysis of the data, it is not possible to attribute this result to the SGCI and the increase in funding support – specifically to the SGCI countries – but it is most likely that it was a contributing factor.

Table 6: African-authored papers from the SGCI countries (2000 to 2024)

Publication years	Number of publications	Africa share	World share
2000	2,892	24,92	0,35
2001	2,854	23,64	0,34
2002	3,032	23,73	0,36
2003	3,217	23,88	0,36
2004	3,341	23,68	0,36
2005	4,057	23,55	0,38
2006	4,800	24,31	0,42

Publication years	Number of publications	Africa share	World share
2007	5,997	26,09	0,49
2008	6,927	26,45	0,52
2009	7,644	25,74	0,54
2010	8,714	26,08	0,59
2011	9,908	25,82	0,62
2012	10,194	24,76	0,61
2013	11,270	24,79	0,64
2014	13,224	25,92	0,72
2015	14,545	25,62	0,76
2016	16, 602	25,78	0,83
2017	19,160	27,28	0,91
2018	21,619	28,32	0,99
2019	24,830	29,21	1,06
2020	31,184	30,95	1,24
2021	37,052	31,83	1,36
2022	41,752	32,76	1,48
2023	39,806	32,67	1,46
2024	43,251	32,81	1,47

Table 7: Number of Africa-authored publications by country and year (2005 – 2024):

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Burkina Faso	117	168	162	208	245	245	297	365	324	377	487	484	500	554	603	613	734	838	832	922	9562
Botswana	168	220	260	251	238	215	293	274	331	413	326	470	526	596	583	712	772	787	803	795	9636
Côte d'Ivoire	123	142	175	222	230	233	268	305	275	310	371	373	406	495	611	613	738	674	683	691	8591
Ethiopia	289	339	449	479	574	685	849	905	1,140	1,428	1,537	1,888	2,532	3,014	3,962	5,845	7,706	10,308	9,041	11,002	65,203
Ghana	239	276	350	438	483	589	707	846	1,001	1,176	1,477	1,892	2,134	2,543	2,982	3,609	4,518	5,479	5,404	5,980	43,029
Kenya	643	785	906	999	1,110	1,276	1,521	1,567	1,728	2,018	2,156	2,373	2,603	2,860	3,187	3,782	4,381	4648	4,358	4,451	50,156
Malawi	123	142	214	253	266	294	366	385	393	454	496	576	683	754	798	897	1,119	1,122	1,049	1,099	12,033
Mozambique	61	72	85	105	122	128	195	178	177	211	295	355	403	437	517	584	738	681	663	721	6,909
Namibia	87	90	78	80	110	75	118	136	168	196	230	245	294	354	378	436	471	520	513	532	5,336
Nigeria	1,250	1,451	1,984	2,570	2,777	3,154	3,310	3,160	3,326	4,011	4,281	4,975	5,822	6,830	7,617	9,950	11,584	12,172	11,867	11,859	117,856
Rwanda	17	32	44	44	74	96	133	142	174	214	259	311	344	397	446	608	768	837	858	1,057	6,898
Sierra Leone	8	8	12	16	24	27	30	41	52	80	109	156	143	150	161	203	255	283	249	313	2,355
Senegal	224	208	260	264	312	335	431	493	513	495	622	605	681	674	704	780	789	890	863	958	11,983
Tanzania	355	466	491	501	604	693	762	736	900	1,100	1,190	1,263	1,398	1,487	1,813	2,089	2,400	2,528	2,662	3,050	27,721
Uganda	278	364	478	473	589	773	845	874	1,014	1,126	1,216	1,378	1,593	1,612	1,825	2,113	2,649	2,790	2,981	3,230	29,151
Zambia	105	137	152	171	171	213	255	269	302	343	389	492	588	541	611	734	891	974	948	986	9,667
Zimbabwe	200	207	290	264	259	291	311	353	417	541	504	659	755	754	901	1,030	1,206	1,272	1,150	1,109	13,545
Total	**4,287**	**5,107**	**6,390**	**7,338**	**8,188**	**9,322**	**10,691**	**11,029**	**12,235**	**14,493**	**15,945**	**18,495**	**21,405**	**24,052**	**27,699**	**34,598**	**41,719**	**46,803**	**44,924**	**48,755**	**429,631**

Salient points

The available data on public expenditure (especially on African governments' expenditure on science and research) show no significant change over the past two decades. In fact, with a few exceptions, most African governments (including the SGCI countries) continue to spend less than 0.4% of their GDP on GERD. Information on the percentage of funding sourced from foreign funders is typically found in the OECD R&D surveys, which are conducted every two years. Unfortunately, at the last count, recent reports on such surveys in African countries are non-existent. In a few cases, one does find this information. The latest information on foreign funding as a percentage of overall R&D expenditure in the country is reported for South Africa (16%).

Even when such information is available, we believe that the R&D surveys underestimate the extent to which foreign STI funding is effectively channelled into a specific country. One reason we believe these amounts are lower than the actual amount of foreign funding is under-reporting by country-level institutions (especially universities), which are unlikely to disclose all grants received, given the high competition amongst national universities for foreign funding. A second reason why R&D survey reports probably underestimate foreign inflows of funding is that they do not specify how (through which channels and modalities) such funding reaches the intended beneficiaries in the country. Many foreign grants are disbursed directly to individuals, research projects and programmes and research organisations (including NGOs) that are not always included in R&D surveys.

In the next section of the report, we present and discuss trends in foreign STI funding for Africa. We present disaggregated data at the country, organisation and scientific field level. We also present results that show the link between these funding flows and different funding-organisation modalities, and hence different modes of funding flows.

The results will show that the number and monetary value of STI funding to Africa have increased significantly over the past 25 years. Can one conclude from this that the improved performance of African scientists, as far as publication output and citation impact is concerned, can be attributed to increased funding? We believe that this is a reasonable conclusion.

CHAPTER TWO: THE FLOW OF RESEARCH GRANTS TO AFRICA

To provide the necessary context for funding flows to the specific SGCI countries in the report's next chapters, we devote the first part of this chapter to funding flows (the number of research grants and estimated grant values) to all African countries between 2000 and 2024. Our findings present the main funders for the entire continent over this period, disaggregated by region and year, along with annual trends. In the second half, we focus on the flow of grants and estimated grant values to the 17 SGCI countries.[4]

2.1 Grants disbursed to all African countries: 2000 - 2024

Any scientometric database, whether it captures bibliometric data or, in this case, grant data, is, by definition, dynamic. Individual records are added every day from multiple sources. It is, therefore, important to emphasise that the number of grants and grant values reported here present a 'snapshot' in time. As we continue to update the database and display it on the Dashboard, new data will inevitably be captured, leading to new shifts and trends that will require ongoing analysis and interpretation. The current version of our grants database contains information on 31,780 grants disbursed to African countries between 2000 and 2024. These grants supported **40,635** projects or activities to an estimated value of **$40.8 billion**. The breakdown of grant numbers by year is provided in Figure 17. The graph shows an increase in the number of active grants between 2004 and 2020, followed by a steep decline since then. The decline in the number of active grants in recent years (2021 to 2024) could be due to a lag in uploading funders' data to various platforms, or simply to a decline in disbursements by a specific funder to Africa. Further analysis of these trends will be conducted as the database expands.

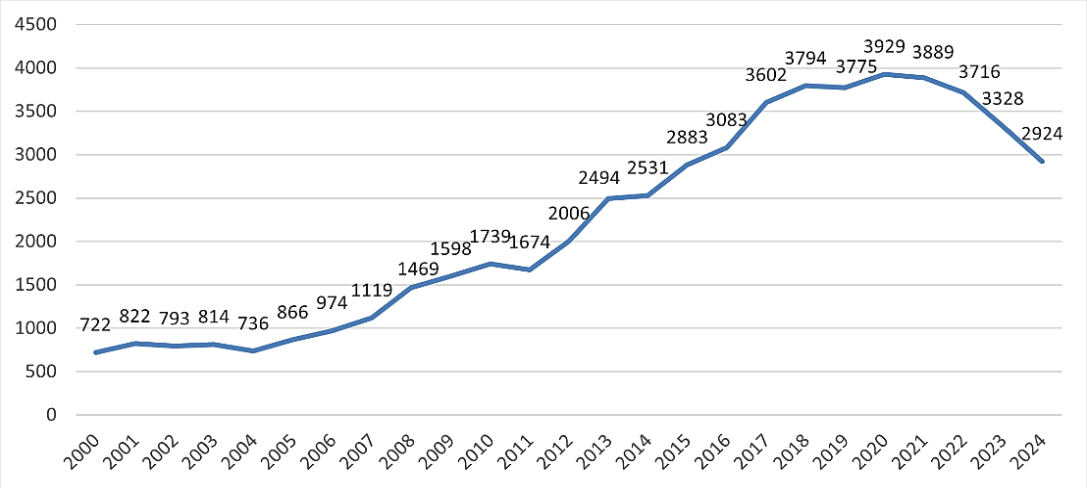


Figure 17: STI funding (number of grants) to Africa by year period (2000-2024) (n = 31,780)

[4] Some readers of this report have access to the STI Funding Dashboard, where more detailed queries and results are available. The Dashboard, which CREST now maintains, will be updated regularly, and users will receive notifications about new funders added, changes in the number of grants, and other features that add value to the Dashboard. It is, therefore, important to keep in mind that the results that we report here reflect the status quo as of December 2025.

The trend in the values of these grants (disaggregated by year) is shown in Figure 18.

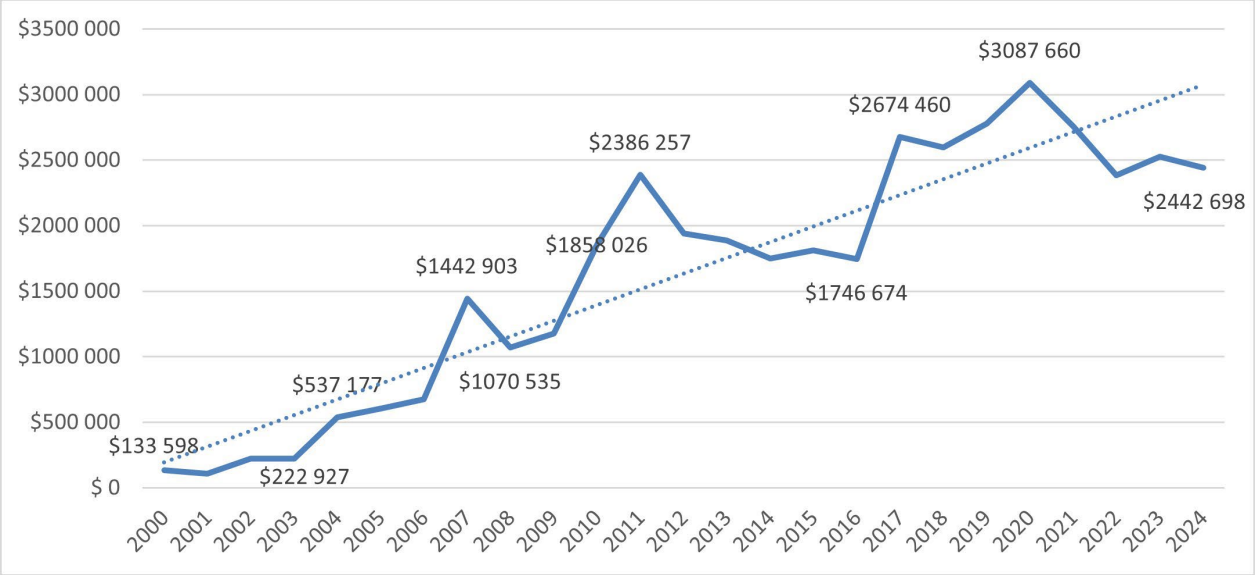
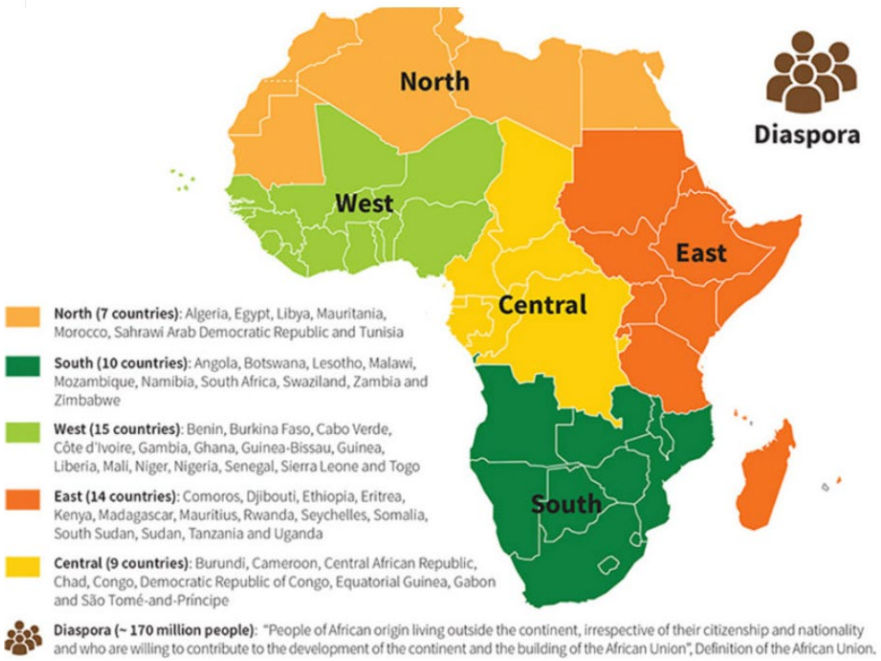


Figure 18: STI funding to Africa (Grant values in US$ '000s) (2000-2024)

The **31,780** grants in our database are not evenly distributed across the African continent. Using the African Union's classification shown in Figure 19, we have subsequently disaggregated these grants into the six regions (the five regions highlighted below, as well as the diaspora). Figure 20 presents a summary view of the distribution of the grant amounts by region for this period.



The **17 SGCI** countries are all located in Sub-Saharan Africa and are distributed as follows:

West (Burkina Faso, Cote d'Ivoire, Ghana, Nigeria, Senegal and Sierra Leone)

East Africa (Ethiopia, Kenya, Rwanda, Tanzania and Uganda)

South (Botswana, Malawi, Mozambique, Namibia, Zambia and Zimbabwe)

Source: https://thestateofafricandiaspora.com/the-6th-region/

Figure 19: The six regions of the African Union

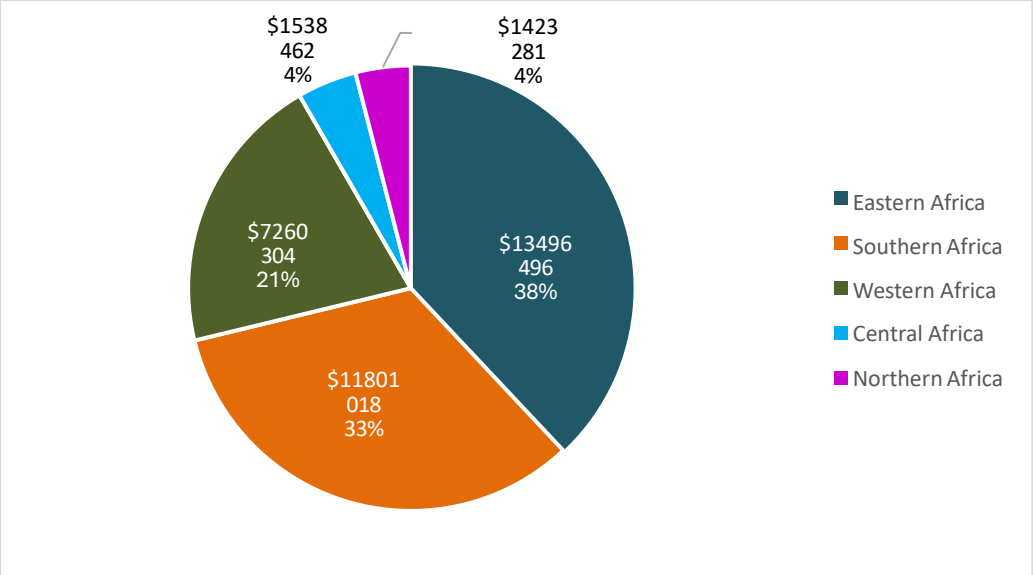


Figure 20: Distribution of grant amounts to Africa by AU regional classification (Total grant amount $35.5 billion)

The analysis shows that Eastern Africa received the largest amount (approximately $13.5 billion), accounting for 38% of all funding disbursed. The second-highest region to receive funding is Southern Africa, with a share of 33% (equivalent to $11.8 billion). The share of Western Africa is 21% (equivalent to $7.3 billion). The share of Northern Africa and Central Africa is significantly smaller. It should be noted that funding disbursed to regions (e.g., south of the Sahara) that are not linked to specific countries is excluded from the comparison above. Therefore, the total funding amount of $35.5 billion reported above is less than the total funding received in Africa ($40.8 billion).

2.2 Funding disbursed to 17 SGCI countries: 2000 to 2024

Our focus in this subsection shifts to an overview of grants to SGCI countries. We begin by presenting the results for the 17 countries together. Of the 31,780 grants disbursed to Africa during the reporting period, 16,976 (53%) went to the SGCI countries. The annual breakdown is shown in Figure 21 overleaf.

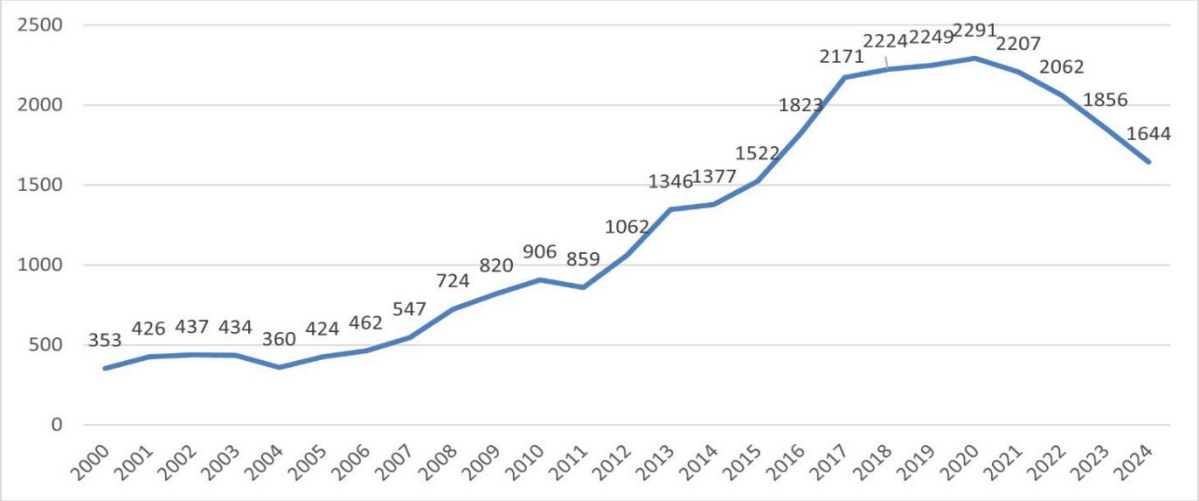


Figure 21: Number of grants disbursed to SGCI countries between 2000 and 2024 (n= 16,976)

Figure 21 shows a steady, consistent increase in the number of grants to the SGCI countries from 2004 to 2020, followed by a relatively steep decline through 2024. The recent decline in the number of active grants is partly due to a lag in funders' uploading data to public platforms.

Figure 22 displays the trend in grant amounts disbursed to the SGCI countries over the same period. Over this period, an estimated amount of **$22.8 billion** was disbursed to the SGCI countries. Even though we see broad correspondence between overall trends in the number of active grants and in grant values, there are greater year-to-year fluctuations in grant values. This could be partially explained by the fact that grant amounts can vary more, especially with multi-year grants, for which we do not have data on their individual-year disbursements. Hence, we default to using the grant start year as a proxy for capturing the time dimension.

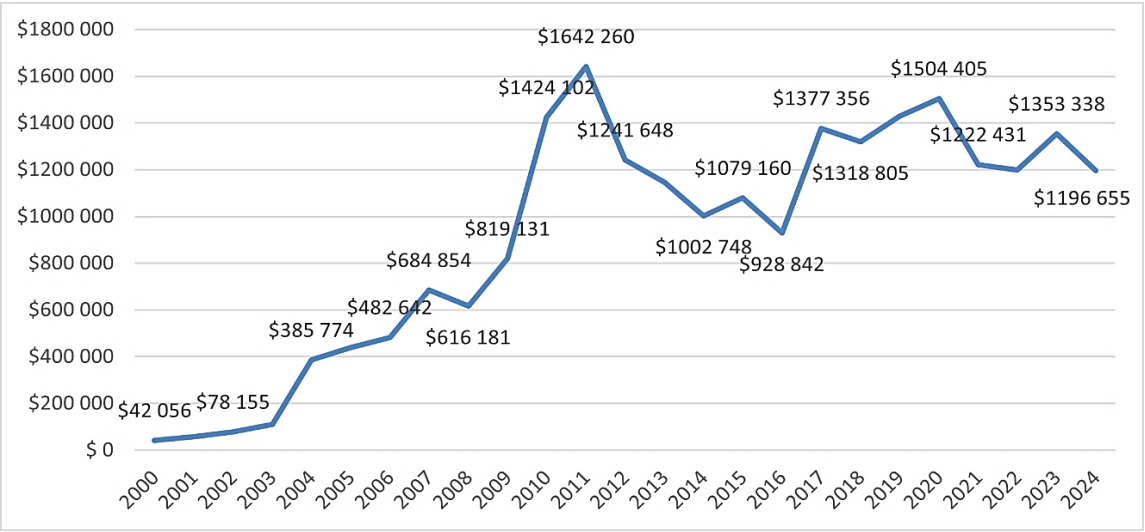


Figure 22: STI funding to SGCI countries (Grant values in US$) (2000-2024)

Table 8 presents the total grant funding (number of grants and funding amounts) awarded to each SGCI country, while Tables 9 and 10 show the shifts in the number of grants and funding amounts over time using multiple 5-year windows. The results show that East African countries (Kenya, Uganda, Tanzania and Ethiopia), together with Nigeria, received the highest amounts of funding over the reporting period. The countries that received the lowest amounts are mostly either the Francophone countries (Burkina Faso, Côte d'Ivoire and Senegal) or small countries such as Botswana, Namibia and Zimbabwe.

Table 8: Number and amount of all grants made to the SGCI countries from 2000 to 2024

COUNTRY	Number of activities	Number of grants	Funding amount (US$)
BOTSWANA	674	634	$352.752.595
BURKINA FASO	1,303	1,084	$394.862.264
CÔTE D'IVOIRE	918	817	$460.820.980
ETHIOPIA	2,569	2,185	$1.797.450.606
GHANA	2,200	1,940	$1.188.072.021
KENYA	4,574	3,899	$4.265.466.214
MALAWI	1,373	1,219	$937.015.209
MOZAMBIQUE	1,585	1,192	$1.495.305.626
NAMIBIA	699	638	$249.353.334
NIGERIA	2,400	2,114	$2.638.757.580
RWANDA	1,131	940	$965.777.456
SENEGAL	1,453	1,267	$605.560.469
SIERRA LEONE	617	555	$249.168.388
TANZANIA	2,946	2,309	$1.882.984.909
UGANDA	3,678	2,724	$3.676.900.524
ZAMBIA	1,468	1,228	$1.068.648.840
ZIMBABWE	1,442	1,182	$550.468.720
Total			**$22.779.365.735**

Table 9: Number of all grants made to the SGCI countries from 2000 to 2024 by 5-year interval periods

COUNTRY	2000-2004	2005-2009	2010-2014	2015-2019	2020-2024
BOTSWANA	40	53	213	1,150	407
BURKINA FASO	71	158	326	1,336	630
CÔTE D'IVOIRE	39	79	236	1,164	505
ETHIOPIA	277	311	814	2,149	1488
GHANA	135	274	576	1,808	1268
KENYA	168	486	932	2,920	2519
MALAWI	82	186	467	1,637	911
MOZAMBIQUE	197	209	495	1,632	879
NAMIBIA	54	46	192	1,133	429
NIGERIA	174	274	539	1,824	1258
RWANDA	22	82	355	1,491	826
SENEGAL	53	160	361	1,447	779
SIERRA LEONE	2	23	164	1,192	507

COUNTRY	2000-2004	2005-2009	2010-2014	2015-2019	2020-2024
TANZANIA	309	370	878	2,255	1611
UGANDA	218	350	806	2,477	2032
ZAMBIA	131	157	448	1,557	869
ZIMBABWE	187	147	300	1,406	828

It is important to point out again that the total number of grants in the table for SGCI countries is significantly higher than the distinct total of grants that went to all SGCI countries, because the same grant can be **disbursed to multiple recipient countries.** The general trend across all countries is a marked disparity between the number of active grants in the two earliest and the two latest periods. The later period shows a multiple-fold increase in the number of active grants.

However, a noticeable decrease in the number of active grants is observed in the latest period, 2020-2024, compared to the period before 2015-2019. However, in monetary terms, the period 2020-2024 saw the highest disbursement amount, as shown in Table 10.

Table 10: Summed grant values disbursed to SGCI countries (2000-2024)

COUNTRY	2000-2004	2005-2009	2010-2014	2015-2019	2020-2024
BOTSWANA	$9.600.527	$163.710.473	$99.660.924	$29.870.982	$49.909.692
BURKINA FASO	$6.090.543	$33.513.539	$71.985.094	$157.033.403	$126.239.686
CÔTE D'IVOIRE	$28.976.018	$67.375.992	$159.338.638	$92.255.590	$112.874.743
ETHIOPIA	$56.610.669	$155.943.461	$469.375.291	$564.559.166	$550.962.017
GHANA	$23.122.831	$121.690.624	$275.188.271	$395.060.868	$373.009.427
KENYA	$84.071.750	$789.296.684	$950.749.667	$986.634.906	$1.454.713.208
MALAWI	$15.374.505	$124.592.717	$184.587.757	$313.319.008	$299.141.222
MOZAMBIQUE	$50.456.060	$193.411.482	$576.171.308	$389.101.163	$286.165.612
NAMIBIA	$48.497.952	$76.095.716	$44.766.401	$33.472.819	$46.520.444
NIGERIA	$44.524.158	$244.509.957	$1.063.781.015	$545.297.645	$740.644.807
RWANDA	$19.863.267	$156.423.864	$251.267.117	$305.395.828	$232.827.379
SENEGAL	$12.263.043	$40.942.990	$92.506.863	$206.209.788	$253.637.786
SIERRA LEONE	$0	$1.309.690	$65.466.394	$107.042.133	$75.350.173
TANZANIA	$56.502.949	$249.118.116	$563.260.958	$622.590.701	$391.512.186
UGANDA	$150.302.596	$429.292.278	$1.099.589.056	$959.171.131	$1.038.545.461
ZAMBIA	$40.714.919	$143.152.815	$351.889.214	$259.012.283	$273.879.609
ZIMBABWE	$26.775.957	$50.855.363	$136.509.993	$167.964.015	$168.363.391
TOTAL	$673.747.744	$3.041.235.761	$6.456.093.961	$6.133.991.429	$6.474.296.843

The general trend across all countries is that the early periods saw significantly lower funding than the latest periods, as major funders (e.g., Bill & Melinda Gates, EU, EDCTP) had not yet begun funding. We also noticed that many ODA agencies that submitted to the IATI platform did so only for more recent periods. The latest period witnessed the highest funding amount received. However, this should be read with caution as it is not inflation-adjusted. In any analysis of time series data of this kind, it is not uncommon to find year- to-year fluctuations. Over the past 15 years, total

disbursements to SGCI countries have remained relatively stable, ranging from $0.7 to $6.5 billion in each five-year window. It should also be noted that the grant start year is used when annual disbursement data is not available in the source data. This could also contribute to the fluctuation observed in the table. The fluctuations across all SGCI countries are also mirrored at the country level, where, in some cases, we observe large relative changes compared to the previous year. Given that a detailed assessment at the individual grant level lies beyond this study's terms of reference, any strong conclusions regarding these trends would remain speculative.

CHAPTER THREE: AN ANALYSIS OF RESEARCH FUNDING TO THE SGCI COUNTRIES DISAGGREGATED BY FUNDER

3.1 A typology of funders

The dataset contains information on **107** funding organisations or 'funders' that have disbursed research grants to the SGCI countries between 2000 and 2024.

A review of the literature on the classification of STI and research funders reveals that there is no universally accepted classification framework or typology. Funding organisations are classified in terms of a range of dimensions or factors, including their legal status (which differs from country to country), taxation laws (also different across countries), degree of autonomy (usually in relation to some government department or agency), their main mission and whether funding of research or STI is one of their main missions, as well as other functions they perform and the geographical scope (international, regional and/or national).

For this report, we have developed a classification framework that distinguishes eight main types of funders. As is often the case with any classification in the social sciences, these eight types are not always mutually exclusive. In a small number of cases, a particular funder could, for example, be classified as an implementing agency for an ODA or as an NGO. In other cases, the distinction between multilateral funders and partnership funding is not absolute. Also, how money flows from a ministry or government department through different agencies to the final recipient of a grant varies from country to country. The international funding landscape is becoming increasingly complex. In Chapter 6, we describe the main trends in the development of that landscape and position the SGCs and the SGCI within it.

That said, we consider the typology presented here sufficiently clear and demonstrating face validity for both research funders and funding recipients. In the remainder of the chapter, we report the

results of our analysis of the number of grants and the amounts disbursed by these funders to the SGCI countries in Africa since 2000. The discussion of these results is organised into eight groupings, allowing for more meaningful comparisons within each.

We also want to remind readers that the data source for each funder discussed here is listed in Appendix A of the report.

In Figure 23, we present an overview of the grant amounts by type, summed over the entire period, followed by Table 11, which disaggregates the amounts by year.

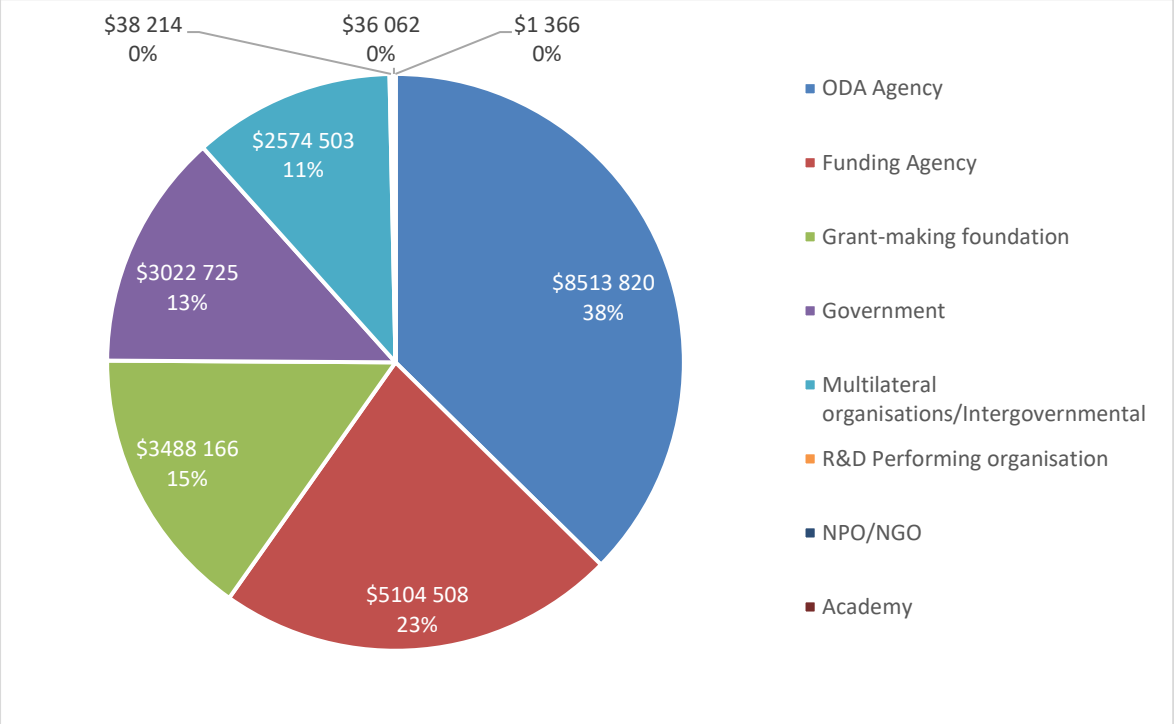


Figure 23: Breakdown of grant amounts disbursed by funder type (US$ '000s) (2000 – 2024)

Table 11: Trend in grant amounts disbursed by funder type by 5-year windows (2000 – 2024)

FUNDER TYPE	2000-2004	2005-2009	2010-2014	2015-2019	2020-2024
ODA Agency	$176.972.454	$768.922.817	$2.084.269.716	$2.724.350.391	$2.759.305.106
Grant-making foundation	$6.371.438	$671.638.172	$595.809.184	$688.671.752	$1.525.675.330
Multilateral and intergovernmental organisations	$53.777.980	$128.876.768	$104.957.363	$1.218.465.016	$1.068.426.358
Government	$12.076.287	$264.816.269	$888.805.157	$887.414.379	$969.613.326
Funding Agency	$424.549.588	$1.206.981.729	$2.780.970.828	$603.475.637	$88.530.584
NPO/NGO	$0	$0	$50.000	$2.343.440	$33.668.194

FUNDER TYPE	2000-2004	2005-2009	2010-2014	2015-2019	2020-2024
R&D Performing organisation	$0	$0	$1.106.706	$8.309.436	$28.798.141
Academy	$0	$0	$125.005	$961.379	$279.807
TOTAL	**$1.329.967.096**	**$6.235.694.568**	**$5.402.764.960**	**$6.245.986.904**	**$19.214.413.528**

In the remainder of the chapter, we discuss trends in grant amounts to SGCI countries by funder type, ranked by the grant values they have disbursed.

3.2 ODA Agencies

Many countries – especially in the global north – and, more recently, in Asia and the Middle East – support developing countries through overseas development aid or assistance. Overseas Development Aid (ODA)—also known as Official Development Assistance—is a form of government-provided financial support aimed at promoting the economic development and welfare of countries classified as developing by the OECD's Development Assistance Committee (DAC). ODA was formalised in 1969 by the OECD DAC to standardise the reporting and measurement of foreign aid by donor countries.

The top donor countries in the world are typically richer and typically work through implementing agencies, e.g., USAID (through strategic initiatives such as PEPFAR). In Germany, the government works through BMZ, GIZ, and the KfW Development Bank; in the Scandinavian countries, through SIDA (Sweden), NORAD (Norway), and DANIDA (Denmark). In the UK, the Foreign, Commonwealth and Development Office (FCDO) is a ministerial department of the UK government. As such, it operates under ministerial authority and forms part of the executive branch of government. It was formed in 2020 through the merger of the Foreign and Commonwealth Office (FCO) and the Department for International Development (DFID). JICA manages Japan's ODA; France works through the AFD (Agence Française de Développement) and prioritises Francophone countries in Africa.

Although most ODAs have as their primary mission providing development aid or assistance to developing countries in the form of humanitarian aid and other social and educational services, the ones we have included in our study typically also have a research or science funding mission. As part of our methodological checks, we have included various filters to exclude as many non-research or non-STI funding grants as possible, ensuring that we do not overestimate ODA funding for research in Africa. We have also conducted another check in this regard by listing all recipient organisations of the ODA agencies and excluding organisations that evidently received funding for 'standard'

development aid activities, such as food relief, educational support, hunger-related aid, refugee-related aid, and so on. We have grouped the funders listed below under the heading of 'ODA **Agencies**' and not merely as ODAs.

Table 12: List of ODA agencies by grant amount (2000 – 2024)

ODA AGENCIES	US$	Coverage period
Agence Française de Développement	$18.225.971	2018-2024
British Council	$32.353.472	2016-2024
Danish International Development Agency	$163.058.893	2000-2024
Foreign, Commonwealth and Development Office	$2.077.177.526	2001-2024
International Development Research Centre	$578.448.917	2007-2024
Norwegian Agency for Development Cooperation	$367.308.484	2000-2024
Nuffic	$17.304.730	2018-2023
Swedish International Development Cooperation Agency	$1.399.614.689	2000-2024
Swiss Agency for Development and Cooperation	$60.251.400	2017-2024
United States Agency for International Development	$3.762.199.560	2006-2024

Six ODA agencies – USAID, FCDO, Sida, IDRC, NORAD, and Danida – stand out as the major ODA agencies providing research support to the SGCI countries (accounting for over 90% of total ODA agency funding).

The United States Agency for International Development

The United States Agency for International Development (USAID) is an independent federal agency within the executive branch of the U.S. government. Established in 1961 by President John F. Kennedy through executive order, it was created to consolidate U.S. foreign aid programmes under a single institution. Since then, USAID has been mandated to support global development, provide humanitarian relief, and foster strategic international partnerships.

In Africa, USAID invests across key sectors including health, agriculture, education, governance, and climate resilience, delivering support through bilateral country programmes, multi-country research consortia, and targeted small-grant initiatives. Notable funding initiatives include the BRILLIANT Consortium in South Africa, which advances HIV vaccine research; the African Researchers' Small Grants Programme (SGP), supporting neglected tropical disease research in 16 countries including Nigeria, Kenya, and Uganda; the AfWASA Research Grants, which fund water, sanitation, and hygiene research in West and Central Africa; the Feed the Future programme, focused on agricultural innovation and food security in Ethiopia, the Democratic Republic of Congo, and Liberia; and the Health Evaluation, Research and Development (HERD) Project, which strengthens health systems and supports implementation research across multiple African countries. Key African research partners supported by USAID include Makerere University (Uganda), KEMRI (Kenya), the South African Medical Research Council, the University of Ibadan (Nigeria), Addis Ababa University (Ethiopia), and the University of Ghana, as well as regional networks like the African Research Network for Neglected Tropical Diseases.

The Foreign, Commonwealth & Development Office

The Foreign, Commonwealth & Development Office (FCDO) is a ministerial department of the UK government, operating under ministerial authority within the executive branch. It was established in 2020 through the merger of the Foreign & Commonwealth Office (FCO) and the Department for International Development (DfID). FCDO funds a broad-spectrum portfolio. Themes include clean energy, climate adaptation, food and agriculture, global health, humanitarian response, AI and other technological innovation, education, growth, conflict, hazards, women & girls and inclusion. Capacity strengthening programmes focus mainly on systems and institutions. Funding is largely delivered through a range of partners (often co-funders) and FCDO's Research Commissioning Centre (RCC). Funds are disbursed to many research partners in universities, research institutions, NGOs and private-sector organisations, including several hundred entities in Africa.

Prominent African recipients of FCDO funding include the Aga Khan University in Kenya (brain health in children through the ALMA Consortium), the University of Zimbabwe (mental health systems under AMARI-II), and Université Cheikh Anta Diop de Dakar in Senegal (malaria and neglected tropical diseases through MARCAD Plus). Other notable partners include the African Research Excellence Fund (AREF), which develops research leadership across the continent; the University of Ghana, with projects in infectious diseases and climate-health research; Makerere University in Uganda, focusing on health systems and implementation science; and the South African Medical Research Council (SAMRC), a lead partner in HIV vaccine trials under the BRILLIANT Consortium. The FCDO also supports African research capacity and broader science, innovation, and development systems. For example, the African Academy of Sciences (AAS) plays a central role in delivering major FCDO-supported programmes such as DELTAS Africa, which strengthens research leadership and institutional capacity across the continent. In addition, FCDO-funded initiatives such as the Royal Society–FCDO Africa Capacity Building Initiative support research and training in areas including renewable energy, water, and environmental sciences.

The Swedish International Development Cooperation Agency

The Swedish International Development Cooperation Agency (Sida) was established on 1 July 1995, succeeding the Swedish International Development Authority (1965–1995). Operating under Sweden’s Ministry for Foreign Affairs, Sida directs research funding towards priority areas including health and infectious diseases, climate change and environmental science, food systems and agricultural innovation, gender equality in STEM, and science policy and innovation systems.

In Africa, Sida supports several major research initiatives. The African Economic Research Consortium (AERC) strengthens research and policy capacity in sub-Saharan Africa by funding collaborative PhD programmes in economics. The Consortium for Advanced Research Training in Africa (CARTA) builds a critical mass of African scholars through training in public health and health systems research. Sida also supports the International Foundation for Science (IFS), which provides grants to early-career African researchers in areas such as food security, water management, and biodiversity. In addition, through the TWAS–Sida Research Grants Programme, run in partnership with The World Academy of Sciences (TWAS), Sida funds both individual scientists and research groups working in the basic

sciences—including biology, chemistry, physics, and mathematics—in science-and-technology-lagging countries across Africa.

The International Development Research Centre (IDRC)

We have included the IDRC (Canada) in this grouping, although its legal status and mode of operation differ somewhat from those of the other listings. The International Development Research Centre (IDRC) is legally constituted as a Crown corporation under Canadian federal law, established by the International Development Research Centre Act of 1985. This legal status gives IDRC a high degree of operational autonomy while remaining publicly accountable. It is one of the few national research funders globally with a mandate focused exclusively on international development research, especially in low- and middle-income countries. IDRC's footprint in Africa is among the most substantial of any Canadian research funder, with a strong emphasis on locally led solutions, gender-transformative research, and policy-relevant science. The International Development Research Centre (IDRC) has built one of the most extensive and sustained research funding networks across Africa, with a strong emphasis on locally led solutions, policy-relevant science, and regional capacity-building. Its grants flow directly to African institutions, often as lead implementers, across health, climate, education, governance, and digital innovation.

The Norwegian Agency for Development Cooperation

The Norwegian Agency for Development Cooperation (Norad) was officially established in 1962 by the Government of Norway to administer and coordinate Norway's international development assistance. Norad is a governmental administrative body, operating primarily under the Ministry of Foreign Affairs. For forest and climate-related investments, Norad reports to the Ministry of Climate and Environment. Norad manages funds for both long-term development cooperation and humanitarian assistance across thematic areas, working in partnership with multilateral organisations, NGOs, government institutions, and the private sector. Examples of African research institutions funded by Norad include 20 national research councils in sub-Saharan Africa through the Science Granting Council Initiative (SGCI), the pan-African Council for the Development of Social Sciences Research (CODESRIA), the Tanzanian Commission for Science and Technology (COSTECH), African Journals Online (AJOL), International Centre of Insect Physiology and Ecology (icipe), and African-based CGIAR institutions. In addition, more than 60 African universities receive support through the Norwegian program on higher education and research (NORHED).

The Danish International Development Agency

The Danish International Development Agency (Danida) was established in 1962 to formalise and expand Denmark's international development efforts. As the development arm of the Ministry of Foreign Affairs, Danida administers aid and fosters partnerships in low- and middle-income countries, with a particular focus on Africa and Asia.

Danida-funded research in Africa focuses on climate change adaptation, sustainable agriculture and food systems, public health and health systems strengthening, water governance, youth employment and education, gender equality, and natural resource management. Notable African partners include

the University of Dar es Salaam in Tanzania (climate adaptation and marine ecosystems), Makerere University in Uganda (health systems and agriculture), the University of Ghana (food security, migration, youth employment), the University of Nairobi in Kenya (urban development and water governance), and the University of Cape Town in South Africa (climate justice and energy transitions). Other important recipients are KNUST in Ghana, Sokoine University of Agriculture in Tanzania, and the University of Ouagadougou in Burkina Faso, working on renewable energy, biodiversity, rural livelihoods, and sustainable agriculture.

3.3 Funding agencies

Research funding agencies have as their main mission the management of the disbursement of research and STI funding to research performers or individual researchers, and research teams within a country. It is therefore important to emphasize that most of the funding disbursed by these funding agencies in Europe and elsewhere would either (a) be channelled through local universities in their respective countries who then enter into partnerships with universities and other research organisations in Africa; or (b) be channelled through intermediary agencies such as the African Academy of Sciences or the Science for Africa Foundation. In some cases, funds from these agencies are also managed under the umbrella of bilateral country-to-country agreements between such an agency and, for example, a funding agency or science granting council in Africa.

The government typically funds such agencies through one of its ministries, such as the Ministries of Science, Technology, Higher Education and Innovation. Our focus in this study is on research grants awarded by foreign funding agencies outside Africa to recipients on the African continent, specifically the SGCI countries. A high-level scan of national funding agencies shows that different terms are used to refer to these agencies. It is typical, within the Commonwealth tradition, to refer to such agencies as research or science councils. In other countries, they are also referred to as 'research foundations' or 'science foundations' or even 'science funds'.

We have decided to refer to these as 'funding agencies' as the term 'agency' signifies that these organisations are by and large not the 'agent' within a country that is given the responsibility by its 'principal' (the government or government ministry or department) to act on its behalf in disbursing science or research funds. Although historically such agencies (e.g. the National Science Foundation) may have only had to perform the function of disbursing grants in a fair, transparent and systematic manner, recent developments show that many of these agencies increasingly assume other roles such as managing S&T agreements, building research capacity, developing partnerships and

networks in science and many more. Together, these agencies account for 23% of all research and STI funding for SGCI countries. We list the 10 agencies with the highest disbursements.

Table 13: List of funding agencies by grant amount (2000 – 2024)

FUNDING AGENCIES	Sum of US$	Coverage period
Arts and Humanities Research Council (UK)	$6.408.278	2016-2021
Biotechnology and Biological Sciences Research Council (UK)	$21.874.802	2008-2020
Centers for Disease Control and Prevention	$4.406.763.663	2001-2022
Economic and Social Research Council (UK)	$48.736.941	2006-2021
Innovate UK	$9.511.475	2012-2022
Medical Research Council (UK)	$51.708.922	2000-2022
National Institutes of Health	$397.372.208	2000-2022
Natural Environment Research Council (UK)	$50.110.060	2010-2019
Science and Engineering Research Board	$5.224.089	2016-2017
Swiss National Science Foundation	$98.877.607	2000-2024

Centers for Disease Control and National Institutes of Health

Two of the largest funders of research in biomedicine, public health, disease surveillance, outbreak response, and public health guidance in Africa are the NIH and the CDC. Both are operating divisions within the U.S. Department of Health and Human Services (HHS), the federal department responsible for public health, medical research, and healthcare policy in the USA. Although neither organisation is the official national funding agency in the USA—that role belongs to the National Science Foundation—both disburse significant levels of research funding and grants, warranting their inclusion in this grouping.

The CDC disburse funds primarily through cooperative agreements, technical assistance programmes, and global health initiatives. While the CDC is a U.S. federal agency, it plays a major role in strengthening public health systems across Africa, particularly in areas such as infectious disease surveillance, laboratory capacity, emergency response, and noncommunicable diseases. Three of the most prominent funding modalities utilised by CDC have been PEPFAR implementation (HIV/AIDS surveillance and research), the Global Health Security Agenda (GHSA) and Field Epidemiology Training Programmes (FETPs).

The National Institutes of Health comprises 27 institutes and centres, each with its own research focus and budget authority. The funding breakdown by research area shows that approximately one-third has been allocated to HIV/AIDS and sexually transmitted diseases; around 20% to other infectious diseases (malaria, schistosomiasis, leishmaniasis); just over 10% to chronic diseases; and the remainder to child development, biodiversity, and basic science. It is important to note that much of this funding flows through U.S. universities and institutions that collaborate with African researchers, resulting in most projects and subsequent publications having collaborative principal investigators and authors.

The science councils of the UK (UKRI)

In the UK, the term 'science councils' refers to the seven research councils and Innovate UK, which operate under UK Research and Innovation (UKRI), the national funding agency for science and research. These councils are non-departmental public bodies (NDPBs), meaning they are publicly funded but operate at arm's length from government. Their legal framework is defined by the Higher Education and Research Act of 2017. They are included in the table above because they all, to varying degrees, provide research funding to African scientists.

- Arts and Humanities Research Council
- Biotechnology and Biological Sciences Research Council
- Economic and Social Research Council
- Engineering and Physical Sciences Research Council
- Medical Research Council
- Natural Environment Research Council
- Science and Technology Facilities Council

UKRI disburses research funding to African countries primarily through competitive grant schemes**,** strategic partnerships**,** and capacity-building programmes. These are designed to support collaborative research between UK institutions and their African counterparts, especially in areas such as global health, climate resilience, and the social sciences**.** African researchers apply through UKRI's online portals, often in collaboration with UK-based institutions. Funds are disbursed to the lead institution, which may be in Africa or the UK, depending on the scheme.

3.4 Grant-making foundations

A foundation is defined as a formal organisation, usually non-profit, that manages an endowment or budget to support charitable, educational, or scientific activities. It has a specific legal identity, usually operates under a clearly defined governance structure (such as a board of trustees), and has mission-driven focus areas. It is commonplace to distinguish between different types of 'foundations. Different countries distinguish between public and private foundations, between charitable foundations and trusts and so on.

For our purposes, we have decided to use the phrase 'grant-making foundation' to indicate that we focus exclusively on foundations whose primary, or one of their primary, missions is to disburse funds to support science and research. We believe the list below captures the most prominent grant-making foundations that support research in Africa, specifically in the SGCI countries.

Table 14: List of grant-making foundations by grant amount (2000 – 2024)

GRANT-MAKING FOUNDATIONS	US$	Coverage period
Andrew W. Mellon Foundation	$17,859,800	2000-2024
Bill & Melinda Gates Foundation	$2,534,350,404	2003-2024
Carnegie Corporation of New York	$98,911,255	2004-2024
Ford Foundation	$57,957,736	2006-2024
John Templeton Foundation	$1,731,962	2012-2021
Novo Nordisk Foundation	$1,731,962	2023-2024
Spencer Foundation	$284,010	2000-2016
Templeton World Charity Foundation	$1,816,976	2014-2019
The Wellcome Trust	$773,545,895	2003-2024
Worldwide Cancer Research	$428,198	2013-2014

We elaborate on the largest foundations in this list: the Bill & Melinda Gates Foundation, the Wellcome Trust, the Carnegie Corporation of New York, the Ford Foundation, and the Andrew W. Mellon Foundation. Together, these foundations account for more than 98% of all research funding by foreign foundations to the SGCI countries.

The Bill & Melinda Gates Foundation[5]

Since its founding in 2000, the Gates Foundation is estimated to have disbursed over $100 billion globally, with Africa the largest beneficiary of its funding. Recently, Bill Gates pledged that most of his $200 billion fortune will be directed towards Africa by 2045, focusing on health, education, and innovation (Gates Foundation, 2025). We estimate that the Foundation has disbursed approximately US$5 billion to research and STI-related activities in Africa. Key areas of Investment in Africa have been

- Health: HIV/AIDS, malaria, TB, maternal and child health
- Agriculture: Crop resilience, food security, smallholder support
- Education & Innovation: Digital learning, AI in healthcare, research capacity

It predominantly operates through direct grants to governments, NGOs, and research institutions, as well as through strategic partnerships with African philanthropies such as the Dangote Foundation.

[5] In January 2025, the organization adopted the name Gates Foundation, retiring its previous name.

The Wellcome Trust

The Wellcome Trust is legally constituted as a charitable foundation under UK law, with a unique governance structure that blends philanthropic independence with corporate oversight. It is registered as a charity in England and Wales and governed by its Constitution, an updated version of Sir Henry Wellcome's original will. Established in 1936, the Wellcome Trust actively disburses research funding and grants, particularly in biomedical science, public health, infectious diseases, mental health, and climate and health. Its funding model supports both African-led research and international collaborations involving African institutions.

The main SGCI country recipient organisations are various biomedical and public health research institutes, including:

- KEMRI-Wellcome Trust Research Programme (Kenya) - A flagship partnership on infectious diseases, vaccines, and health systems, which received more than £26 million in 2023 alone.
- Africa Health Research Institute (AHRI, South Africa) - A leading centre for HIV, TB, and population health research, supported through strategic grants and infrastructure investment.
- Malawi-Liverpool-Wellcome Programme (MLW) - Based at the University of Malawi; focuses on clinical trials and epidemiology.
- MRC/UVRI & LSHTM Uganda Research Unit - A Longstanding collaboration on HIV, emerging infections, and vaccine trials.

In addition, the Trust also provides significant funding to universities and academic institutions, including:

- University of Cape Town (South Africa) - Largest African recipient of Wellcome funding; supports mental health, climate-health, and doctoral training.
- Makerere University (Uganda) - Partner in mental health and implementation science research.
- University of Ghana - Engaged in genomics, ethics, and public health research.

The Carnegie Corporation of New York

The Carnegie Corporation of New York is a private philanthropic foundation, registered as a 501(c)(3) non-profit organisation under U.S. federal law. It was established in 1911 by Andrew Carnegie with the mission of advancing education and knowledge. As a private foundation, it is governed by a board of trustees and funded through its endowment—not public donations. Carnegie Corporation has been one of the most consistent and influential funders of higher education and research in Africa over the past two decades. Its focus areas are:

- Doctoral education and research productivity
- Retention and advancement of early-career African academics
- Support for African university networks

- Policy research and data on higher education systems
- Bridging the African academic diaspora with local institutions

The Carnegie Corporation has been a major initiator and contributor to some of the most impactful regional networks and collaborations in Africa, most notably the *African Research Universities Alliance* (ARUA), *Council for the Development of Social Science Research in Africa* (CODESRIA), *Partnership for African Social and Governance Research* (PASGR) and the *African Institute for Mathematical Sciences* (AIMS)

The Ford Foundation

The Ford Foundation is a private philanthropic organisation registered in the United States as a 501(c)(3) non-profit. This designation means it is tax-exempt and authorised to operate for charitable, educational, and scientific purposes under U.S. law. It was founded in 1936 by Edsel and Henry Ford, and its headquarters is in New York City. It operates independently from the Ford Motor Company (no affiliation since 1974) and is governed by a Board of Trustees. The areas targeted for research funding by the Foundation are: (a) Social justice and governance, (b) Climate and energy transitions, (c) Gender equity and human rights, (d) Public interest law and civic engagement, and (e) Economic inclusion and digital innovation. It works through regional offices in Southern Africa (Johannesburg) and East Africa (Nairobi). We estimate that the Foundation has disbursed nearly $60 million towards research and STI in the SGCI countries since 2000.

3.5 Governments

Research funding from foreign governments to Africa is channelled through various modalities and mechanisms. We have already seen how some ‘national research agencies’ and ‘ODA Agencies’ act on behalf of specific governments. We could have included all forms of foreign government funding to Africa in either of these categories. However, we decided that the specific missions of funding agencies (dedicated to research funding) and ODA Agencies (dedicated to overseas development aid but ALSO research funding) are sufficiently distinct to keep these as separate categories. It is also often the case that funding in this category is sector-specific, e.g. agriculture, food security, socio-economic development and so on.

In this section, we discuss foreign government support to Africa and the SGCI countries that are typically disbursed through one of the following modalities:

- A government implementing agency
- Through science and technology co-operation agreements
- Through co-funding of alliances, consortia and partnerships with other governments and, sometimes, also other research funding agencies.

Table 15: List of government ministries and departments by grant amount (2000 – 2024)

GOVERNMENTS	US$	Coverage period
Department for Business, Energy and Industrial Strategy (UK)	$364.552.491	2010-2024
Department for Science, Innovation and Technology (UK)	$118.759.321	2006-2024
Department of Foreign Affairs (Ireland)	$61.550.673	2016-2023
Department of Health and Social Care (UK)	$26.773.463	2018-2024
Federal Ministry for Economic Cooperation and Development (Germany)	$536.256.039	2000-2024
Ministry for Foreign Affairs (Finland)	$87.774.232	2012-2024
Ministry of Foreign Affairs (Netherlands)	$194.755.631	2001-2024
United States Department of Defense	$19.303.733	2015-2024
United States Department of Health and Human Services	$122.716.248	2007-2024
United States Department of State	$15.943.860	2012-2024

Some illustrative examples from different countries are briefly described below to show how governments utilise various mechanisms and pursue different strategies.

Finland

The Ministry for Foreign Affairs of Finland is a constitutionally established government ministry, operating under the authority of the Finnish Government and governed by specific legislation and administrative rules. The Ministry for Foreign Affairs of Finland disburses research funding and grants to Africa, primarily through its development cooperation programmes, multilateral contributions, and joint funding mechanisms with Finnish research institutions. Its key channels of Research Funding to Africa are support for development research via the *Academy of Finlan*d, the *Fund for Local Cooperation (FLC)* which is managed by Finnish embassies in African countries (e.g. Pretoria, South Africa) and contributions to *the African Development Fund (ADF)*, which supports research on climate adaptation, infrastructure, and governance, and the *African Circular Economy Alliance (ACEA)*, and the *Nordic Africa Institute*.

Germany (Federal Ministry for Economic Cooperation and Development, BMZ)

Its legal status as a supreme federal authority means it has full ministerial powers to allocate budget, set policy, and negotiate international agreements within its domain. The BMZ disburses research funding to Africa, typically through partner organisations and intermediary institutions rather than direct calls from the BMZ itself. The key funding mechanisms for Africa are (a) *AGNES* Intra-Africa

Mobility Grants (which is supported by the Alexander von Humboldt Foundation); (b) *DAAD* In-Region Scholarships; and (c) *Engagement Global / bengo Grants.*

US Department of Agriculture

The United States Department of Agriculture (USDA) does not directly disburse large-scale research grants to African institutions as USAID or NIH might. However, it does contribute to Africa- linked research through collaborative programmes, technical partnerships, and indirect funding mechanisms—especially via its *National Institute of Food and Agriculture (NIFA)*. USDA engages with Other U.S. Funders in African Research through initiatives such as the PEER Program (Partnerships for Enhanced Engagement in Research): Interagency Coordination (examples are collaborations with the USAID on agricultural development and food security, the NIH on zoonotic disease and One Health research and the NSF on climate-smart agriculture and environmental modelling).

US Department of State

The US Department of State is a federal executive department of the United States government, established by statute and governed by the US Constitution and federal law. It is not a separate legal entity like a non-profit or corporation—it is part of the executive branch, headed by the Secretary of State, and operates under the authority of the President of the United States. The US Department of State disburses research funding and grants to Africa, primarily through its Public Diplomacy programmes, Fulbright initiatives, and regional embassy-led grants. While it is not a research funding agency in the traditional sense (such as the NIH or NSF), it plays a significant role in supporting academic exchange, policy-relevant research, and civil society partnerships across the continent. Its key grant mechanisms are the *Fulbright African Research Scholar Program (ARSP)* (which is funded by the Department's Bureau of Educational and Cultural Affairs), the Embassy Small Grants Programmes, and the *Alumni Engagement Innovation Fund* (AEIF).

3.6 Multilateral and intergovernmental organisations

The reason for including a separate category of multi-lateral and intergovernmental organisations is to focus on some of the largest 'funders' of research in Africa who do not easily fit into any other category. In some of the previous sections, we have seen that governments do collaborate through intergovernmental partnerships and co-funding of multilateral alliances. However, under this heading, we elaborate on three of the largest multilateral and/or intergovernmental funders, viz. the European Commission, the Consultative Group on International Agricultural Research (CGIAR), and the World Health Organization (WHO).

Table 16: List of multilateral and intergovernmental organisations by grant amount (2000 – 2024)

MULTILATERAL AND INTERGOVERNMENTAL ORGANISATIONS	US$	Coverage period
Consultative Group on International Agricultural Research	$50.217.611	2021-2024
Defense Threat Reduction Agency	$3.094.586	2015-2020
European Commission	$1.002.808.066	2000-2024
Food and Agriculture Organization	$636.000	2020-2024
Global Crop Diversity Trust	$3.201.000	2008-2023
International Fund for Agricultural Development	$9.740.288	2020-2023
International Union for Conservation of Nature and Natural Resources	$12.720.540	2020-2023
The European and Developing Countries Clinical Trials Partnership	$1.446.471.917	2016-2023
World Health Organization	$45.613.477	2000-2021

The EDCTP

The European and Developing Countries Clinical Trials Partnership (EDCTP) is constituted as an association under Dutch law, with full legal personality. It operates as an independent legal entity headquartered in The Hague, Netherlands, with a liaison office in Cape Town, South Africa. It was originally launched in 2003 as a European initiative to combat HIV/AIDS, malaria, and tuberculosis. It was reconstituted as the EDCTP Association to implement the second phase (EDCTP2) and now the third phase (EDCTP3).

The EDCTP is one of the most significant funders of clinical research in Africa, particularly in sub-Saharan Africa. Its mandate is to support collaborative research that tackles poverty-related infectious diseases and strengthens research capacity across the continent. The EDCTP disburses Research Funding to Africa through collaborative clinical trials, research capacity strengthening, fellowship programmes, and strategic partnerships. It often works directly with African governments, universities, and research institutes. It coordinates with the Global Health EDCTP3 Joint Undertaking, which aims to support at least 100 research institutes in 30 African countries by 2030.

The European Commission (EC)

The European Commission is the executive arm of the European Union (EU). The EU is a political and economic union of 27 member states. It is the overarching entity that sets shared goals for peace, prosperity, and integration. The European Commission (EC) is one of the EU's core institutions, alongside the European Parliament and the Council of the EU. The EC deploys several funding instruments to support research and innovation in Africa, primarily through its flagship programme Horizon Europe, which runs from 2021 to 2027 with a budget of €95.5 billion. Within this, the Africa Initiative III is a standout package dedicated to African-led research. The EC also disburses funds to Africa through the African Union Research Grant (AURG), a joint programme with the AU that promotes African scientific excellence and aligns with the Consolidated Plan of Action (CPA) for science and technology. In addition, the EC disburses significant funding through 'intermediaries' such as local universities (who establish partnerships with African R&D organisations) as well as with funding agencies within Africa.

The Consultative Group on International Agricultural Research (CGIAR)

The Consultative Group on International Agricultural Research (CGIAR) was established in 1971 as an informal donor partnership and subsequently, in 2010, as the CGIAR Consortium. It actively disburses research funding and grants to Africa, both directly and through its network of international research centres. CGIAR operates through 15 international research centres, many of which have regional hubs, field offices, and long-term partnerships in African countries. Examples of African-focused funding include (a) AICCRA (Accelerating Impacts of CGIAR Climate Research in Africa), (b) CGIAR Research Programmes and (c) the Gender Impact Platform.

CGIAR funding reaches a wide range of African entities, including:

- National Agricultural Research Systems (NARS) — e.g., Kenya Agricultural & Livestock Research Organization (KALRO), Ethiopia's EIAR
- Universities — e.g., University of Ghana, Makerere University, University of Nairobi
- Regional bodies — e.g., CORAF (West and Central Africa), ASARECA (Eastern Africa)
- Government ministries and extension services

CGIAR's main funders include (a) National governments (e.g., USA, UK, Germany, Netherlands); (b) Multilateral organisations (e.g., World Bank, European Commission); (c) Development agencies (e.g., USAID, FCDO) and (d) Private foundations (e.g., Bill & Melinda Gates Foundation). These entities support CGIAR's mission to advance agricultural innovation and food security worldwide.

The World Health Organization (WHO)

The World Health Organization (WHO) is a specialised agency of the United Nations, established in 1948 under its own constitution. It holds international legal personality, meaning it has the authority to treaties, own property, and operate independently within the framework of international law. WHO funds research in Africa through several mechanisms, especially via its TDR (Special Programme for Research and Training in Tropical Diseases). The TDR funds implementation research, clinical trials, and capacity building, and supports African institutions such as the University of Ghana School of Public Health, Institut de Santé et Développement (ISED) in Senegal, and Makerere University in Uganda. The WHO also support regional training centres at eight African universities to deliver master 's-level training in implementation research. Multicountry research projects are funded in epidemic preparedness, climate-health research, and antimicrobial resistance across multiple African countries. These are often embedded in One Health frameworks and community-based surveillance systems.

3.7 R&D Performing Organisations

R&D Performing organisations

Universities and research institutes, incl. Pasteur Institute, Institute of Tropical Medicine, ICIPE

The main performers of research and development in most countries are universities, colleges and research institutes and centres. Some disburse research funding to Africa usually under some bilateral or partnership arrangements

Another small category of foreign funders includes research-performing institutions such as research institutes and universities. Although they do not directly contribute large amounts to African recipients, they are worth including as a separate category.

Table 17: List of R&D performing organisations by grant amount (2000 – 2024)

R&D PERFORMERS	US$	Coverage period
Institute of Tropical Medicine Antwerp	$7.498.531	2017-2024
Japan International Research Center for Agricultural Sciences	$108.000	2021-2021
London School of Economics and Political Science	$12.100.171	2016-2024
London School of Hygiene & Tropical Medicine	$9.649.059	2018-2024
National University of Ireland	$2.339.109	2021-2022
Pasteur Institute	$4.417.450	2014-2020
Scotland's Rural College	$983.830	2022-2023
Swedish University of Agricultural Sciences	$1.118.132	2021-2024

London School of Economics and Political Science

The London School of Economics and Political Science (LSE) is constituted as a company and is also recognised as an exempt charity. While a member institution of the University of London, it operates with substantial autonomy. Governance is overseen by the LSE Council, whose members act as both company directors and charity trustees.

LSE disburses research funding and fellowships in Africa primarily through the Firoz Lalji Institute for Africa (FLIA) and selected departmental initiatives. Its Africa-focused funding portfolio includes visiting and research fellowships, PhD and postdoctoral support, and scholarships. The core research themes span governance and public policy, international relations and security, economic development and inequality, humanitarian action and advocacy, and climate change and migration.

Main African partners and recipients:

- Makerere University (Uganda): Governance and transitional justice research
- University of Ghana & University of Ibadan (Nigeria): Fellowships and alumni networks

- University of Cape Town & University of Pretoria (South Africa): Inequality and public policy collaborations
- Addis Ababa University (Ethiopia): Migration and development research

London School of Hygiene and Tropical Medicine

The London School of Hygiene & Tropical Medicine (LSHTM), incorporated by Royal Charter in 1924, disburses research funding in Africa and manages major competitive grants from the UK, the EU, and philanthropic donors. It maintains permanent research units in The Gambia and Uganda. It has taken a leading role in Africa-focused initiatives such as MalariaGEN and H3Africa (genomics), PERFORM2Scale (health workforce strengthening in Ghana, Malawi, and Uganda), and the CREATE PhD Programme (Wellcome Trust-funded, supporting African health research capacity). LSHTM's funding model prioritises equitable partnerships, African leadership, and locally embedded research infrastructure.

LSHTM's Africa footprint spans partnerships with universities and research institutions in Zimbabwe, Zambia, Ethiopia, Ghana, Nigeria, Uganda, Kenya, and South Africa. Notable partners include:

- Universities: University of Cape Town & Stellenbosch University (South Africa), Makerere University (Uganda), University of Ghana, University of Ibadan (Nigeria), University of Nairobi (Kenya), and University of Zimbabwe.
- Research Institutes: MRC Unit The Gambia at LSHTM, MRC/UVRI & LSHTM Uganda Research Unit, Kenya Medical Research Institute (KEMRI), Noguchi Memorial Institute for Medical Research (Ghana), and Tanzania's National Institute for Medical Research (NIMR).
- Regional Consortia: ALERRT (African coaLition for Epidemic Research, Response and Training), PERFORM2Scale, and CREATE.

LSHTM also administers donor-funded grants (Wellcome Trust, NIHR, UKRI, EU Horizon Europe, and the Bill & Melinda Gates Foundation) to African partners for joint research in clinical trials, epidemiological surveillance, vaccine development, and public health innovation. In addition, it disburses GSK Scholarships for Future Health Leaders, which provide full tuition and stipends for nationals of sub-Saharan African countries.

Institute of Tropical Medicine

The Institute of Tropical Medicine (ITM), founded in 1931 in Antwerp, Belgium, is a foundation of public utility (stichting van openbaar nut), making it a publicly mandated institution with strong academic and international development credentials. ITM supports African researchers through PhD supervision, postdoctoral fellowships, and regional Centres of Excellence, often in coordination with Africa CDC and WHO networks. As both a recipient and implementer of Official Development Assistance (ODA), ITM is primarily funded by the Belgian Directorate-General for Development Cooperation (DGD) and VLIR-UOS (for academic partnerships). Within these externally funded programmes, it disburses scholarships, research support, and institutional grants to African partners.

Key SGCI country collaborations include:

- Makerere University School of Public Health: Uganda Joint research on reproductive health, infectious diseases, and health policy
- Université Cheikh Anta Diop: Senegal Partner in francophone public health training and research
- Addis Ababa University: Ethiopia, Joint work on nutrition, migration, and disease surveillance
- University of Nairobi: Kenya Collaborations in spatial epidemiology and outbreak response
- National Institutes of Public Health in Burkina Faso, Mozambique, and Cameroon: Partners in capacity-building and surveillance systems

Pasteur Institute

The Institut Pasteur, headquartered in Paris, is a private non-profit foundation established in 1887 and inaugurated in 1888 to honour Louis Pasteur's scientific legacy. Its funding model combines public grants, philanthropic donations, competitive research awards, and revenues from patents and technology transfer. Beyond its Paris base, the Institut Pasteur anchors the Pasteur Network—a global alliance of more than 30 institutions across 25 countries, including several in Africa. These affiliated centres vary in legal status—some are public institutes; others are non-profit foundations or university-linked laboratories—but all share a common mission: advancing biomedical research and strengthening public health.

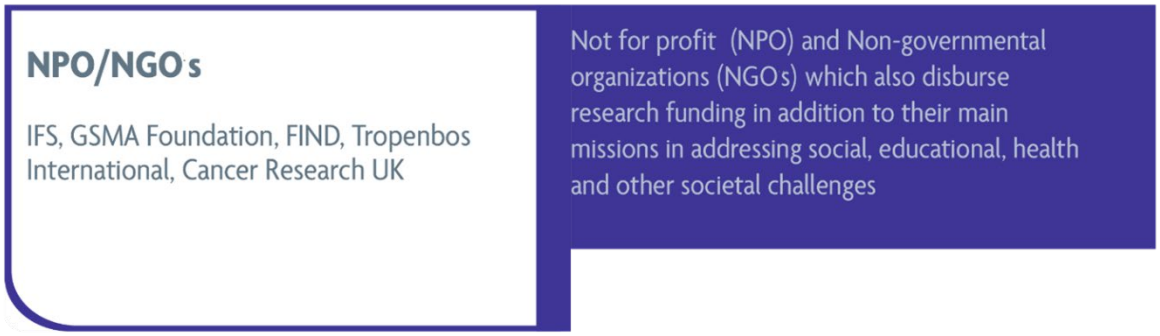
Through the Pasteur Network, research funding and fellowships flow to Africa primarily via collaborative research projects, PhD grants, and capacity-building initiatives. Core investments have supported infectious diseases, antimicrobial resistance (AMR), and One Health programs, as well as infrastructure upgrades, including laboratories, biobanks, and sequencing platforms. Additional priorities include outbreak response and surveillance (e.g., Ebola, COVID-19, arboviruses), PhD fellowships and training (notably through the Calmette & Yersin Programme), and regional workshops, seminars, and technical exchanges.

Several African member institutes receive sustained support, including:

- Institut Pasteur de Dakar (Senegal): A continental leader in vaccine development, genomic surveillance, and epidemic response, home to Africa's first mRNA vaccine production platform and a WHO prequalification lab.
- Centre Pasteur du Cameroun (Yaoundé): Specialises in microbiology, AMR, and laboratory systems strengthening.
- Institut Pasteur de Madagascar (Antananarivo): Active in plague surveillance, vector-borne diseases, and entomology.
- Institut Pasteur de Côte d'Ivoire (Abidjan): Focused on diagnostics, virology, and public health training.

- Institut Pasteur de Tunis (Tunisia): Engaged in biomedical research, vaccine development, and genomics.
- Institut Pasteur du Maroc (Casablanca): Works on parasitology, virology, and diagnostics.
- Institut Pasteur de Bangui (CAR): Supports outbreak response, laboratory capacity, and regional surveillance.
- Institut Pasteur de Guinée (Conakry): Established after the Ebola epidemic to bolster epidemic preparedness and research infrastructure.

3.8 NPOs and NGOs



Although not a major category of funding for research in Africa, we have identified a small number of non-profit organisations that do disburse research grants to organisations in the SGCI countries.

Table 18: List of NPOs/NGOs by grant amount (2000 – 2024)

NPO/NGO	US$	Coverage period
American Association for Cancer Research	$345.458	2011-2022
Biovision	$1.728.142	2021-2024
Cordaid	$1.511.106	2015-2024
Enhancing Learning and Research for Humanitarian Assistance	$4.256.375	2019-2024
Foundation for Innovative New Diagnostics	$20.055.598	2021-2023
Global Antibiotic Research and Development Partnership	$783.607	2019-2023
Heifer International	$342.940	2021-2023
MQ: Transforming Mental Health	$883.960	2016-2018
Tropenbos International	$6.154.449	2016-2024

Foundation for Innovative New Diagnostics (FIND)

The Foundation for Innovative New Diagnostics (FIND) is a Swiss not-for-profit organisation headquartered in Geneva, Switzerland. Established in 2003 during the 56th World Health Assembly, FIND was created in response to the need for affordable and effective diagnostic tools in low- and middle-income countries. It was founded by the Bill & Melinda Gates Foundation and the WHO's Special Programme for Research and Training in Tropical Diseases (TDR), with an initial emphasis on

accelerating access to tuberculosis diagnostics. Today, FIND also maintains regional offices in Cape Town and Nairobi.

FIND supports diagnostic innovation, disease surveillance, and health system strengthening across Africa through a mix of research funding, implementation grants, technical partnerships, and co-implementation agreements with ministries of health, research institutes, and diagnostic networks. Its project-based funding model, backed by major global donors such as the Bill & Melinda Gates Foundation, Unitaid, USAID, and Sida, is targeted, disease-specific, and implementation-driven.

Through these collaborations, FIND contributes to the validation and field testing of diagnostic tools, the advancement of genomic sequencing and outbreak surveillance, and the delivery of training programmes to strengthen laboratory networks across the continent.

Tropenbos International

Tropenbos International is constituted as a non-profit foundation under Dutch law. Its formal legal name is Stichting Tropenbos International, with 'Stichting' denoting its status as a foundation in the Netherlands. Tropenbos International disburses research-related funding and programmatic grants to Africa, primarily through its country affiliates and landscape-based initiatives. While it does not operate as a competitive research council, it channels funding into applied research, policy engagement, and community-based innovation across forested and dryland regions. It does so through mechanisms such as country-based programs and thematic Initiatives (e.g., a programme like Mobilizing More for Climate.

Enhancing Learning and Research for Humanitarian Assistance (EHLRA)

Enhancing Learning and Research for Humanitarian Assistance is a UK-based global charity established in 2009 to strengthen humanitarian response through research and innovation. Originally hosted by Save the Children UK, EHLRA became an independent organisation in 2017 and is registered both as a charity and as a company limited by guarantee. EHLRA delivers its mission through two flagship programmes: the Humanitarian Innovation Fund (HIF) and Research for Health in Humanitarian Crises (R2HC). A substantial proportion of EHLRA's work focuses on Africa, with projects implemented in countries including Somalia, South Sudan, the Democratic Republic of the Congo (DRC), Uganda, Nigeria, and Ethiopia. These efforts have concentrated on mental health and psychosocial support (MHPSS), epidemic response, water, sanitation and hygiene, and community-driven innovation.

Biovision

The Biovision Foundation for Ecological Development is legally constituted as a Swiss non-profit foundation (*Stiftung*) under Swiss civil law and is headquartered in Zurich, Switzerland. It was founded in 1998 by World Food Prize laureate, Dr Hans Rudolf Herren. It disburses research-related funding and capacity-building grants to Africa, primarily through its regional implementing arm, the Biovision Africa Trust (BvAT), based in Nairobi, Kenya. Its funding is channelled through the Ecological

Organic Agriculture (EOA) Initiative (funded by the Swiss Agency for Development and Cooperation (SDC) and coordinated by BvAT) and the Agroecology Accelerator & Fund (Neycha). Biovision's funding is not competitive research grants in the academic sense, but rather strategic disbursements to strengthen ecological innovation, farmer-led research, and policy transformation.

3.9 Other funders

3.9.1 Academies

There are very few national academies of sciences listed as 'funding organisations' for the SGCI countries. We have grant amounts for two academies, viz. the Academy of Medical Sciences ($1.126.919) and the British Academy ($239.272). We also have the Royal Society in the UK listed as a funder, but we could not find any grant amount.

The **Academy of Medical Sciences (**UK) is legally constituted as a charity incorporated by Royal Charter, officially recognised under English law. This legal status places the Academy alongside other UK national academies (e.g., the Royal Society and the British Academy) with a formal public-interest mandate and operational autonomy. The Academy of Medical Sciences (UK) disburses research funding that includes African institutions, primarily through its international collaboration schemes. While the Academy does not operate large-scale bilateral funding programmes like IDRC or NIH, it plays a strategic role in network-building, capacity-strengthening, and seed funding for global health research partnerships. The **British Academy** disburses research funding, particularly through its international grant programmes that support humanities and social sciences research in Official Development Assistance (ODA)-eligible countries, which include most African nations. It uses two key funding mechanisms: (a) Evidence-Informed Policymaking Grants and (b) Small Research Grants.

The **UK Royal Society** has funded research in Africa through several targeted initiatives to strengthen scientific capacity and foster international collaboration. Key Funding Initiatives for Africa are (a) FLAIR Fellowships (Future Leaders – African Independent Research), (b) the Africa Capacity Building Initiative (ACBI) and (c) International Collaboration Awards. However, we could not obtain accurate information about the size of these awards.

3.9.2 Financial institutions

Although we have not included any financial institutions (such as the World Bank and the African Development Bank) or corporate sector funders that provide direct or indirect investment for science, innovation and research-related activities, it is important to acknowledge them as 'funders of research' in Africa.

African Development Bank

The African Development Bank (AfDB) is a regional multilateral development finance institution with international legal status, established by treaty. The AfDB does fund research in Africa—though not in the same way a university or research council might. Its support for research is typically strategic and development-focused, aimed at informing policy, guiding investments, and strengthening institutional capacity across the continent. It uses different mechanisms for supporting research in Africa, most notably through (a) the African Development Institute (ADI) and (b) Specialised funds and initiatives.

The ADI is the Bank's knowledge and capacity-building arm. It conducts and funds policy-relevant research, economic analysis, and training programmes with a focus on macroeconomic policy, governance, regional integration, and development finance. The second category (Specialised Funds & Initiatives) includes funding for the Sustainable Energy Fund for Africa (SEFA), the Climate Investment Fund (CIF), and the African Development Fund (ADF). It offers grants for capacity building that often include research components.

World Bank

The World Bank is a treaty-based international financial institution with full juridical personality, meaning it has the legal capacity to contract, own property, and initiate legal proceedings independently of any country. It was established in 1944 at the Bretton Woods Conference and operates under its Articles of Agreement, which govern its operations and privileges. The World Bank disburses research funding to African countries, typically supporting policy-relevant, development-focused research rather than basic scientific research. Two mechanisms are worth noting: (a) the Africa Regional Studies Programme; and (b) the Africa Fellowship Programme.

3.9.3 Pharmaceutical companies

Several pharmaceutical companies and foundations actively disburse research funding to African countries, particularly in areas like infectious diseases, maternal health, oncology, and vaccine development. Six of the major companies worth mentioning are:

- Pfizer (through its Pfizer Grants Program)
- The Merck Group (through the Merck Foundation)
- Johnson and Johnson (with support for clinical trials)

- Novartis (through the Novartis Africa Health Alliance)
- Sanofi (supporting health innovation in Africa)
- GlaxoSmithKline (GSK)- most notably through the GSK Africa Open Lab programme

3.9.4 IT companies

Several major IT companies are actively supporting research across Africa, especially in areas like artificial intelligence, data science, health tech, and climate resilience.

- Google (AI, food security, language tech) – for example, $37M committed to African AI research, including the AI Community Center in Accra and support for Masakhane African Languages Hub
- IBM Research Africa – Labs in Kenya and South Africa developing technology for African challenges
- Microsoft - Supports African startups and researchers through Microsoft for Startups and AI for Earth programmes
- Amazon Web Services - Offers free cloud credits and training to African researchers and institutions through AWS Educate and Activate Africa programmes

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CHAPTER FOUR: GRANTS DISBURSED BY MAIN SCIENTIFIC FIELD (SGCI COUNTRIES)

4.1 Introduction

We have classified all grants – where data allow – into nine main scientific fields. In some cases, the same grant was inevitably assigned to more than one field. This explains why the number of grants grouped by main scientific field is higher than the number of unique grants for the SGCI countries. It is important to emphasise that the tables in this section refer only to grants and grant values flowing to the 17 SGCI countries.

The overall funding to the main scientific fields in all SGCI countries for the period 2000-2024 is presented in Figure 24. Four scientific fields dominate the funding landscape: health sciences ($5.6 billion), social sciences ($3.8 billion), agricultural sciences ($3.3 billion), and biomedical and clinical sciences ($2.5 billion). The large funding amounts in health sciences, agricultural sciences, and biomedical sciences are expected. The large amount for social sciences is due to multiple factors: social sciences encompass a wide range of subfields that receive funding, such as education, economics, and sociology. In addition, a significant number of grants tagged as health sciences, agricultural sciences, and environmental sciences are also tagged as social sciences when there are social-science components in the grant description.

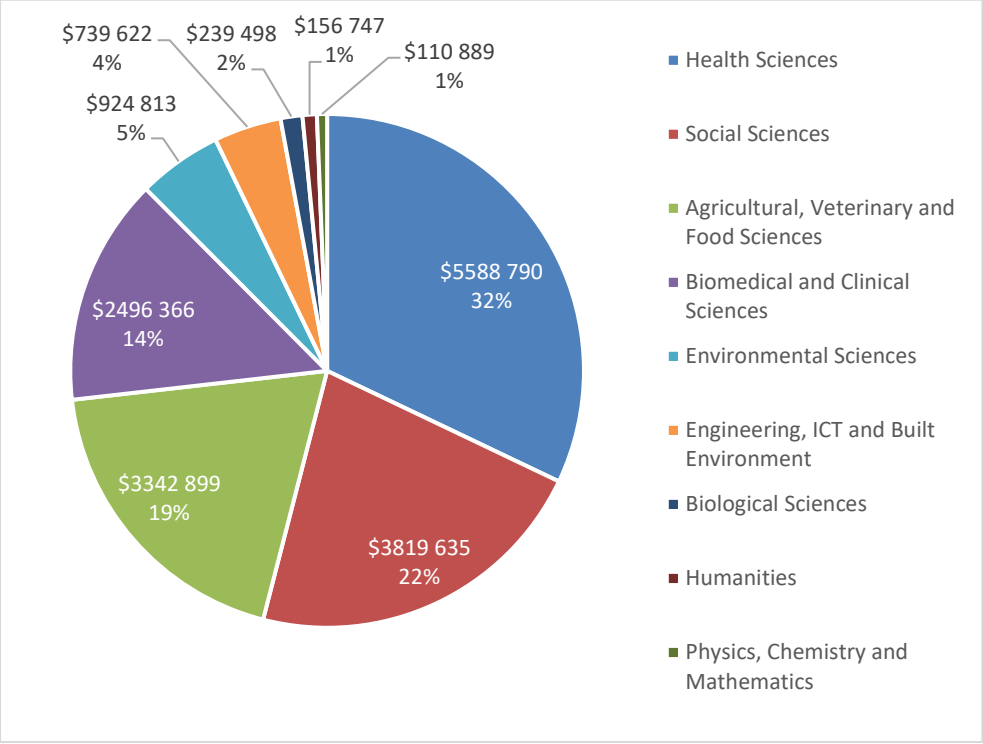

Figure 24: Breakdown of grant amounts to SGCI countries by main science field (Grant values in US$ '000s) (2000-2024)

It is to be noted that the total amount presented here **(US$17.4 billion)** is lower than the total amount disbursed to the SGCI countries **($US22.8 billion)** since not all grants are tagged with a field of research due to several reasons, such as the grant description is missing or not clear enough to enable labelling the grant definitively. Figure 24 presents the relative shares of each of the main fields for the entire reporting period. In Table 19, we present the grant amounts by 5-year windows for the main scientific fields to examine temporal shifts.

Table 19: Trends in grants by scientific field disaggregated by 5-year windows (2000 – 2024)

SCIENCE FIELD	2000-2004	2005-2009	2010-2014	2015-2019	2020-2024
Agricultural, Veterinary and Food Sciences	$16.267.168	$433.318.858	$918.661.070	$985.515.684	$989.136.277
Biological Sciences	$5.407.332	$11.003.199	$32.128.484	$81.001.598	$109.957.563
Biomedical and Clinical Sciences	$28.609.955	$283.020.572	$345.590.830	$1.016.905.626	$822.238.543
Engineering, ICT and Built Environment	$20.520.698	$50.713.421	$58.001.396	$297.895.626	$312.490.698
Environmental Sciences	$9.194.857	$49.250.739	$189.923.693	$322.165.013	$354.278.968
Health Sciences	$57.415.977	$591.649.418	$1.351.365.712	$1.594.166.414	$1.994.192.601
Humanities	$5.293.625	$14.794.283	$20.209.177	$75.967.841	$40.481.703
Physics, Chemistry and Mathematics	$2.798.751	$2.700.002	$54.762.062	$36.593.954	$14.034.466
Social Sciences	$48.504.997	$370.296.344	$961.814.683	$1.135.538.583	$1.303.480.216
TOTAL	**$194.013.360**	**$1.806.746.836**	**$3.932.457.107**	**$5.545.750.339**	**$5.940.291.035**

Some salient points:

- The three largest fields receiving foreign funding (health sciences, social sciences, and agricultural sciences) show a consistent increase in funding over time.
- Biomedical and clinical sciences show steep growth, increasing from $16.3 million in the first period (2000–2004) to roughly $1.0 billion in the two most recent five-year windows. Funding for environmental and biological sciences also shows a consistent increase over the entire period, though with smaller grant values.
- Engineering, ICT and the built environment received approximately $740 million over this period, with a steep increase after 2014.
- We have grouped the physical, chemical and mathematical sciences (these also include a field like Astronomy), where funding has been relatively scarce (only $111 million) over the entire period. Whether this is because these are the more basic sciences fields, or simply because strong funding proposals are being submitted to foreign funders in these areas, needs to be investigated further.

The breakdown by field remains at a relatively high level of aggregation, and further disaggregation by research field and even research topic is required. However, the overall trend is clear: foreign funding still flows mainly to fields that can be labelled as ‘development research’ or ‘applied

research', and less to fundamental or discovery science. The funding is aimed at finding solutions to key challenges in public health (infectious diseases), agriculture and food science (hunger, crop diseases) and the environment (climate change).

In the remainder of the chapter, we present the disbursement of grants from **funding organisations across the main fields by listing the grant amounts**. We list only the top funders for each field.

4.2 Health sciences

Table 20: Major funders of grants in health sciences (2000 – 2024)

FUNDER	US$	Coverage period
United States Agency for International Development	$2.049.840.212	2006-2024
Foreign, Commonwealth and Development Office	$980.113.756	2001-2024
Bill & Melinda Gates Foundation	$580.667.824	2003-2024
Centers for Disease Control and Prevention	$189.180.552	2001-2022
The Wellcome Trust	$178.501.461	2003-2024
Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung	$174.552.939	2000-2024
Swedish International Development Cooperation Agency	$162.619.275	2000-2024
National Institutes of Health	$153.872.855	2000-2022
The European and Developing Countries Clinical Trials Partnership	$141.515.487	2016-2023
European Commission	$119.038.452	2000-2024
International Development Research Centre	$100.097.941	2007-2024

4.3 Social sciences

Table 21: Major funders of grants in social sciences (2000 – 2024)

FUNDER	US$	Coverage period
United States Agency for International Development	$970.981.899	2006-2024
Foreign, Commonwealth and Development Office	$657.027.072	2001-2024
Swedish International Development Cooperation Agency	$316.233.697	2000-2024
International Development Research Centre	$253.240.646	2007-2024
Bill & Melinda Gates Foundation	$142.517.362	2003-2024
European Commission	$113.714.064	2000-2024
Norwegian Agency for Development Cooperation	$106.198.325	2000-2024

4.4 Agricultural, veterinary and food sciences

Table 22: Major funders of grants in agricultural, veterinary and food sciences (2000 – 2024)

FUNDERS	US$	Coverage period
Bill & Melinda Gates Foundation	$1.469.461.548	2003-2024
United States Agency for International Development	$363.140.712	2006-2024
European Commission	$212.825.720	2000-2024
Foreign. Commonwealth and Development Office	$128.680.361	2001-2024

FUNDERS	US$	Coverage period
Department for Business. Energy and Industrial Strategy	$95.321.937	2010-2024
International Development Research Centre	$89.458.826	2007-2024
Swedish International Development Cooperation Agency	$79.022.004	2000-2024
Ministry of Foreign Affairs (Netherlands)	$59.857.115	2001-2024
Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung	$57.571.115	2000-2024

4.5 Biomedical and clinical sciences

Table 23: Major funders of grants in biomedical and clinical sciences (2000 – 2024)

FUNDER	US$	Coverage period
The European and Developing Countries Clinical Trials Partnership	$1.091.824.027	2016-2023
The Wellcome Trust	$415.630.411	2003-2024
Centers for Disease Control and Prevention	$261.038.998	2001-2022
National Institutes of Health	$177.737.626	2000-2022
Bill & Melinda Gates Foundation	$175.976.736	2003-2024
United States Agency for International Development	$112.102.046	2006-2024
European Commission	$64.579.599	2000-2024
Department for Business, Energy and Industrial Strategy	$35.717.658	2010-2024
Medical Research Council	$28.261.359	2000-2022
Swedish International Development Cooperation Agency	$26.569.297	2000-2024

4.6 Environmental sciences

Table 24: Major funders of grants in environmental sciences (2000 – 2024)

FUNDER	US$	Coverage period
Swedish International Development Cooperation Agency	$192.581.754	2000-2024
Foreign, Commonwealth and Development Office	$154.294.630	2001-2024
European Commission	$117.724.304	2000-2024
Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung	$100.920.599	2000-2024
Norwegian Agency for Development Cooperation	$46.719.512	2000-2024
Department for Business, Energy and Industrial Strategy	$44.713.369	2010-2024
Ministry of Foreign Affairs (Netherlands)	$40.611.535	2001-2024
United States Agency for International Development	$39.185.327	2006-2024
International Development Research Centre	$31.523.086	2007-2024
Bill & Melinda Gates Foundation	$26.927.032	2003-2024

4.7 Engineering, ICT and built environment

Table 25: Major funders of grants in engineering, ICT and built environment sciences (2000 – 2024)

FUNDER	US$	Coverage period
Swedish International Development Cooperation Agency	$151.640.274	2000-2024
Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung	$97.450.436	2000-2024
European Commission	$88.632.686	2000-2024
Foreign, Commonwealth and Development Office	$86.141.863	2001-2024
The European and Developing Countries Clinical Trials Partnership	$75.152.086	2016-2023
United States Agency for International Development	$68.754.246	2006-2024
Department for Business, Energy and Industrial Strategy	$38.661.935	2010-2024
Norwegian Agency for Development Cooperation	$20.017.624	2000-2024
International Development Research Centre	$18.293.320	2007-2024
Centers for Disease Control and Prevention	$16.766.393	2001-2022

4.8 Biological sciences

Table 26: Major funders of grants in biological sciences (2000 – 2024)

FUNDER	US$	Coverage period
Bill & Melinda Gates Foundation	$104.720.631	2003-2024
Swiss National Science Foundation	$28.907.771	2000-2024
European Commission	$26.908.802	2000-2024
National Institutes of Health	$21.710.978	2000-2022
Swedish International Development Cooperation Agency	$18.896.830	2000-2024
Consultative Group on International Agricultural Research	$6.482.901	2021-2024

4.9 Humanities

Table 27: Major funders of grants in humanities (2000 – 2024)

FUNDER	US$	Coverage period
Swedish International Development Cooperation Agency	$56.810.733	2000-2024
Danish International Development Agency	$18.133.504	2000-2024
Norwegian Agency for Development Cooperation	$11.615.160	2000-2024
Department for Business, Energy and Industrial Strategy	$11.558.620	2010-2024
Andrew W. Mellon Foundation	$10.055.000	2000-2024
National Institutes of Health	$9.936.002	2000-2022
Natural Environment Research Council	$6.928.149	2010-2019
European Commission	$5.561.753	2000-2024
Swiss National Science Foundation	$4.670.758	2000-2024
Ford Foundation	$3.668.281	2006-2024

4.10 Physics, chemistry and mathematics

Table 28: Major funders of grants in physics, chemistry and mathematics (2000 – 2024)

FUNDER	US$	Coverage period
International Development Research Centre	$66.256.843	2007-2024
Department for Business, Energy and Industrial Strategy	$17.277.347	2010-2024
Swedish International Development Cooperation Agency	$6.853.908	2000-2024
Norwegian Agency for Development Cooperation	$6.478.696	2000-2024
European Commission	$4.053.959	2000-2024
Swiss National Science Foundation	$1.709.295	2000-2024
World Health Organization	$1.305.183	2000-2021

CHAPTER FIVE: FUNDS RECEIVED BY RECIPIENT ORGANISATIONS

5.1 Overview

In this chapter, we shift our focus to the recipient organisations in the SGCI countries. As already indicated, the recipient organisations do not constitute a monolithic entity but are of very different types. The following types of recipient organisations in our database for the SGCI countries illustrate their diversity.

Table 29: Number of recipient organisations by type (2000 – 2024)

RECIPIENT ORGANISATION TYPE	NR OF ORGANISATIONS
Non-profit	928
Business/Industry/Firm/Company	792
University	687
Research Institute/Centre	668
Other	443
Government	437
Development agency/consultancy	278
Forum/Network/Coalition/Alliance/Partnership	235
Education and training provider	213
Foundation/Trust	189
Academy/Association/Society	184
Hospital/Healthcare centre	75
Technology institute/Hub/Centre	49
Financial institution	37
Funding agency/council/bureau	31
Archive/Library/Museum/Science Centre	17
Total	**5,263**

In our database, we record 5,263[6] recipient or funded organisations in the SGCI countries. We classified these organisations into 16 institutional types. It is important to note, however, that these

[6] Previously, organisations were counted by combining the exact org name and funded location (e.g., counting the Ministry of Finance in South Africa and Kenya as two distinct entities), which correctly separated distinct organisations with the same name but led to overcounting a single entity like a university (UCT) if it has grants across multiple countries. The current method attempts standardisation by counting only the standardised name, ignoring location, which correctly counts UCT only once across all flows; however, it now leads to **undercounting** truly separate organisations that happen to share the same name (e.g., counting the distinct Ministry of Finance entities in South Africa and Kenya as only one organisation). Given the current data limitations, this conflict between accurately separating distinct entities and accurately aggregating a single entity cannot be fully resolved at this time. It is also important for readers of this report to note that the Dashboard shows 7,726 distinct recipient organisations. This figure conforms to the **higher estimate**. Once we have resolved the challenge of uniquely disambiguating the recipients' organisations, the final figure is likely to be somewhere between these two.

institutional types are neither mutually exclusive nor definitive. Notwithstanding this, this typology provides a starting point for thinking about the diversity of recipient organisations within the SGCI.

Table 30: Classification of recipient organisations by type and grant amounts (2000 – 2024)

RECIPIENT TYPE	US$
University	$4.801.396.849
Research Institute/Centre	$4.400.232.002
Non-profit	$3.701.918.327
Government	$2.222.870.686
Business/Industry/Firm/Company	$1.672.855.873
Development agency/consultancy	$1.177.344.482
Foundation/Trust	$710.979.039
Forum/Network/Coalition/Alliance/Partnership	$533.055.501
Academy/Association/Society	$410.618.329
Funding agency/council/bureau	$218.396.521
Hospital/Healthcare centre	$209.847.633
Education and training provider	$137.529.257
Financial institution	$135.377.413
Technology institute/Hub/Centre	$50.359.126
Archive/Library/Museum/Science Centre	$7.890.956
Total	**$20.390.671.994**

In the following tables, we report the number of grants and their amounts over two periods for the top recipient organisations by type of funded organisation. In each case, we have selected only the top 20–30 organisations that received the largest share of the funding. The complete list of all recipient organisations can be downloaded from the Dashboard.

5.2 Universities

The table below lists universities in SGCI countries that received funding (either directly or through a foreign university or other institution) between 2000 and 2024, ranked by total funding received. Of the 687 universities in the dataset, only the top 20 recipients of funding are presented here. Important note: if the recipient university is not based in an SGCI country (such as Johns Hopkins University in the USA), funding earmarked for an African recipient is channelled through Johns Hopkins University. All the funding shown here is disbursed to African recipient universities.

Table 31: Funding to universities by number of grants and amount of funding received (2000-2024)

UNIVERSITIES	Nr of grant	US$
Makerere University	749	$630.953.777
University of Ghana	316	$368.791.184
Johns Hopkins University	52	$361.186.023
University of Nairobi	258	$240.015.343
University College Research Other	39	$148.525.774

UNIVERSITIES	Nr of grant	US$
University of Malawi	207	$145.227.140
Addis Ababa University	267	$123.250.231
University of Zimbabwe	201	$117.284.818
Baylor College of Medicine	5	$112.625.780
Uppsala Universitet	67	$98.383.262
Kwame Nkrumah University of Science and Technology	137	$86.044.160
Muhimbili University of Health and Allied Sciences	88	$78.707.605
University of Rwanda	70	$77.093.753
University of Dar es Salaam	157	$76.350.800
University of Zambia	127	$76.140.375
University of North Carolina, Chapel Hill	7	$67.061.640
Michigan State University	31	$63.565.423
UEM/University Eduardo Mondlane/Universidade Eduardo Mondlane	80	$58.484.156
University of Ibadan	168	$57.461.714
London School of Hygiene and Tropical Medicine	56	$48.446.635

5.3 Research institutes and centres

The table below shows the funding flows to research institutes and centres in SGCI countries. Funding was awarded to 668 research institutes and centres located in SGCI countries. As before, the table lists the top 20 research institutes, institutions, and centres ranked by total funding received. It is important to distinguish between cases where a research institute received funding directly from a foreign funder and cases where the local 'recipient' is an intermediary organisation (such as CGIAR and its institutes) that disburses the funding it received through subsequent calls for proposals or other funding distribution modalities.

Table 32: Funding to research institutes by country, number of grants and amount of funding received (2000 – 2024)

RESEARCH INSTITUTES/INSTITUTIONS//CENTRES	NR OF GRANTS	US$
Consultative Group on International Agricultural Research	110	$396.836.363
Institute of Human Virology, Nigeria	28	$283.914.829
Kenya Medical Research Institute (KEMRI)	(248).	$238.016.883
International Institute of Tropical Agriculture	84	$230.582.563
Centre for Infectious Disease Research in Zambia	33	$230.570.248
National Institute for Medical Research (Tanzania)	117	$154.799.844
International Livestock Research Institute	87	$135.049.513
Ifakara Health Institute	132	$118.304.290
African Population & Health Research Center	129	$115.081.795
Uganda Virus Research Institute	56	$79.324.735
Center for Clinical Care and Research in Nigeria	6	$76.338.638
Solina Center for International Development and Research	18	$76.174.765
Uganda National Health Research Organisation (UNHRO)	34	$75.164.752
Joint Clinical Research Centre	15	$75.162.244
Groupe de Recherche Action en Santé	20	$74.162.111

RESEARCH INSTITUTES/INSTITUTIONS//CENTRES	NR OF GRANTS	US$
Instituto Nacional de Saúde	27	$72.822.473
Impact Research and Development Organization	5	$68.970.724
Pasteur Institute (Dakar)	79	$67.504.100
KEMRI-Wellcome Trust Research Programme	130	$66.606.048
International Centre of Insect Physiology and Ecology (ICIPE)	107	$62.970.787

5.4 Non-profit organisations

The third category of organisations comprises non-profit organisations that receive funding (n = 928). We list those with at least $20m in total funding received between 2000 and 2024 in the table below. As is the case elsewhere in this Chapter, some of the NGOs listed here receive their foreign funding directly from a funder. Still others – most notably the Alliance for a Green Revolution in Africa (AGRA) – act as intermediaries that disburse funding to countries across Africa, primarily in agriculture, forestry, and food science. AGRA is included as it is a non-profit international organisation founded in 2006 by the Rockefeller Foundation and the Bill & Melinda Gates Foundation. It is headquartered in Nairobi, Kenya, and registered to operate across multiple African countries, most notably Ghana, Nigeria, Kenya, Rwanda, Uganda, Ethiopia, and others across Sub-Saharan Africa. Its funding is typically awarded through competitive selection or direct partnerships with vetted institutions.

Table 33: Funding non-profit organisations by country, number of grants (2000-2024)

NGOS AND NPOS	NR OF GRANTS	US$
AGRA	30	$875.139.673
Management Sciences for Health	42	$572.458.116
The AIDS Support Organization (TASO)	8	$153.351.890
Centre for Integrated Health Programs	4	$151.601.082
Education Development Center	7	$144.460.810
Population Service International	5	$124.391.145
Mildmay Uganda	3	$114.464.995
Malaria Consortium	4	$103.141.209
TechnoServe	29	$74.288.921
Amref Health Africa	20	$67.755.845
Fundação Ariel Glaser Contra o SIDA Pediátrico	1	$58.635.827
International Centre for Research in Agroforestry (World Agroforestry Centre)	45	$55.562.842
LVCT Health	6	$43.007.096
Protecting Families against HIV AIDS	2	$39.677.038
Mennonite Economic Development Associates of Canada	1	$29.386.027
Pathfinder International	1	$27.436.459
Association PAC-CI	9	$27.203.900
Centre for Health Solutions	1	$25.192.475

5.5 Government ministries and departments

The following table highlights government ministries and departments in SGCI countries (n = 437) that obtained funding between 2000 and 2024, ordered by total funding received. Only recipients of $20 million or more are shown. Because funds were distributed by the same funding organisations to government departments or ministries in multiple countries, we also include the country of the relevant recipient ministry. A caveat is in order regarding this category of disbursements: it is not always clear from the data we received or downloaded exactly what the funding is for, beyond an indication that it is for STI, HE, and research support. How the funding flows from a specific ministry in the African country is usually not indicated. Again, our aim would be, in follow-up analyses, to gain better insight into the exact flow of these funds to their ultimate recipients and beneficiaries.

Table 34: Funding to government departments by country, number of grants and amount of funding received (2000- 2024)

MINISTRIES AND GOVERNMENTS	Nr of grants	US$
Ministry of Health	**79**	**$423.412.989**
Ethiopia	5	$28.421.984
Kenya	12	$83.254.938
Malawi	15	$27.436.039
Mozambique	2	$54.368.776
Namibia	5	$125.050.388
Nigeria	6	$28.254.900
Rwanda	10	$191.413.918
Uganda	31	$40.545.266
Zambia	9	$26.394.052
Ministry of Finance and Economic Planning	**7**	**$254.985.402**
Botswana	2	$136.969.621
Burkina Faso	3	$25.843.596
Ghana	1	$22.935.200
Mozambique	1	$68.944.273
Rwanda	1	**$56.676.884**
Tanzania	6	$186.041.129
Uganda	3	$39.775.989
Ministry of Education	**2**	**$144.488.457**
Ethiopia	2	$42.253.659
Mozambique	3	$183.718.310
Ministry of Agriculture and Rural Development	**3**	**$39.229.853**
Mozambique	3	$39.229.853

5.6 Businesses/companies/consultancy firms

Listed below are businesses, companies, and consultancy firms in SGCI countries that secured funding between 2000 and 2024 (n = 792), arranged from the highest to the lowest total amount received. The table includes only those that received at least $10 million over this period.

Table 35: Funding to businesses, companies and consultancies by country, number of grants and amount of funding (2000-2024)

BUSINESS/COMPANY/FIRM/INDUSTRY	NR OF GRANTS	US$
University Research Co., LLC	20	$470.809.410
Medical Access Uganda Limited	7	$299.200.967
Abt Associates, Inc.	1	$178.803.450
Remote Medical International	1	$98.260.414
Enhancing Financial Innovation & Access Ltd/GTE	7	$55.837.016
Technical Advice Connect LTD/GTE	4	$46.957.178
Rwanda Medical Supply LTD	8	$46.836.399
AECOM Technology Corporation	3	$30.141.765
PwC	6	$29.984.236
Tetra Tech, Inc.	9	$28.724.802
Health Research Operations Kenya Limited	17	$27.204.906
International Business and Technical Consultants Inc.	30	$16.598.063
MUJHU Care, Ltd	3	$15.370.540
AECOM	3	$15.176.848
Mott MacDonald Limited	1	$11.964.978
Nathan Associates Inc.	1	$11.234.443
International Procurement Agency	2	$11.093.911
EDM/Electricidade de Mocambique, E.P.	7	$10.238.709

5.7 Foundations/trusts

The table below lists foundations and trusts in SGCI countries that received funding between 2000 and 2024 (n = 189), ranked by total funding in descending order. Only institutions awarded at least $10 million during the reporting period are included.

Table 36: Funding to foundations and trusts by country, number of grants and amount of funding received (2000-2024)

FOUNDATIONS/TRUSTS	Nr of grants	US$
Baylor College of Medicine Children's Foundation - Uganda	9	$142.514.370
Science for Africa Foundation (SFA)	25	$123.148.730
Manhiça Foundation	23	$76.504.407
The African Institute for Mathematical Sciences - Next Einstein Initiative Foundation (UK)	5	$66.143.097
Elizabeth Glaser Pediatric AIDS Foundation	3	$60.018.637
Baobab Health Trust	4	$18.877.104
Lighthouse Trust	5	$15.473.232
Pan-Atlantic University Foundation	14	$15.348.557
Northern Rangelands Trust	6	$10.929.465

5.8 Networks, alliances, fora and consortia

Funding for multilateral research alliances, networks, fora, coalitions, consortia and partnerships has increased notably over the past few years. Below, we present those who received at least $3 million (n = 235).

Table 37: Funding to research alliances/networks/fora, partnerships and consortia by country, number of grants and amount of funding received (2000 – 2024)

FORA/ALLIANCES/NETWORKS	NR OF GRANTS	US$
African Field Epidemiology Network	23	$197.419.964
Consortium WUSC - World University Service of Canada / CECI - Center for International Studies and Cooperation	2	$53.115.797
Regional Universities Forum for Capacity Building in Agriculture	28	$43.558.865
Réseau Africain de Recherche sur le SIDA	10	$16.510.143
Alliance for a Green Revolution in Africa	9	$15.271.934
Forum for Agricultural Research in Africa	18	$10.776.686
Network of Networks of HIV Positives in Ethiopia	1	$10.250.001
Consortium for National Health Research	2	$9.950.375
Partnership For Economic Policy, Inc.	14	$9.158.083
Tanzania Youth Alliance	3	$9.146.154
Conference des Responsables de recherche Agronomique an Afrique de l'ouest et du Centre*West and Central African Council for Agricultural Res	26	$8.968.655
Alliance of Health	1	$7.937.000
International Planned Parenthood Federation Africa Regional Office (IPPFAR)	2	$6.829.800
Regional Agricultural and Environmental Initiatives Network	1	$6.320.178
African Technology Policy Studies Network	1	$6.076.332
Kenya Pediatric Research Consortium	3	$5.403.040
TENMET-Sida/Tanzania Education Network Mtandao Wa Elimu Tanzania	4	$5.046.954

5.9 Shifts in funding flows

In the final figures below, we compare the share of funding received by funding organisation type across the two periods, 2000 to 2011 and 2012 to 2023. We compare the share of total funding received by each institutional type for the two time periods. The most significant shifts are:

- Overall, the amount disbursed to recipient organisations that we could identify in the database increased from $5,4 billion in the period between 2000 and 2011 to $13,9 billion in the more recent period from 2012 to 2023. Although not adjusted for inflation, it still represents a significant increase in foreign funding flowing to African organisations.
- University funding grew over the period, rising from 21% to 24%.
- Research institutes and centres also expanded their share, increasing from 16% in the early period to 24% from 2012.
- In terms of total funding, the non- profit and non-governmental organisations received significantly less funding from the first to the second period: from 22% to 17%.

- Governments witnessed the steepest decline in funding, from receiving 20% of foreign funding between 2000 and 2011, dropping to 8% in the most recent period.

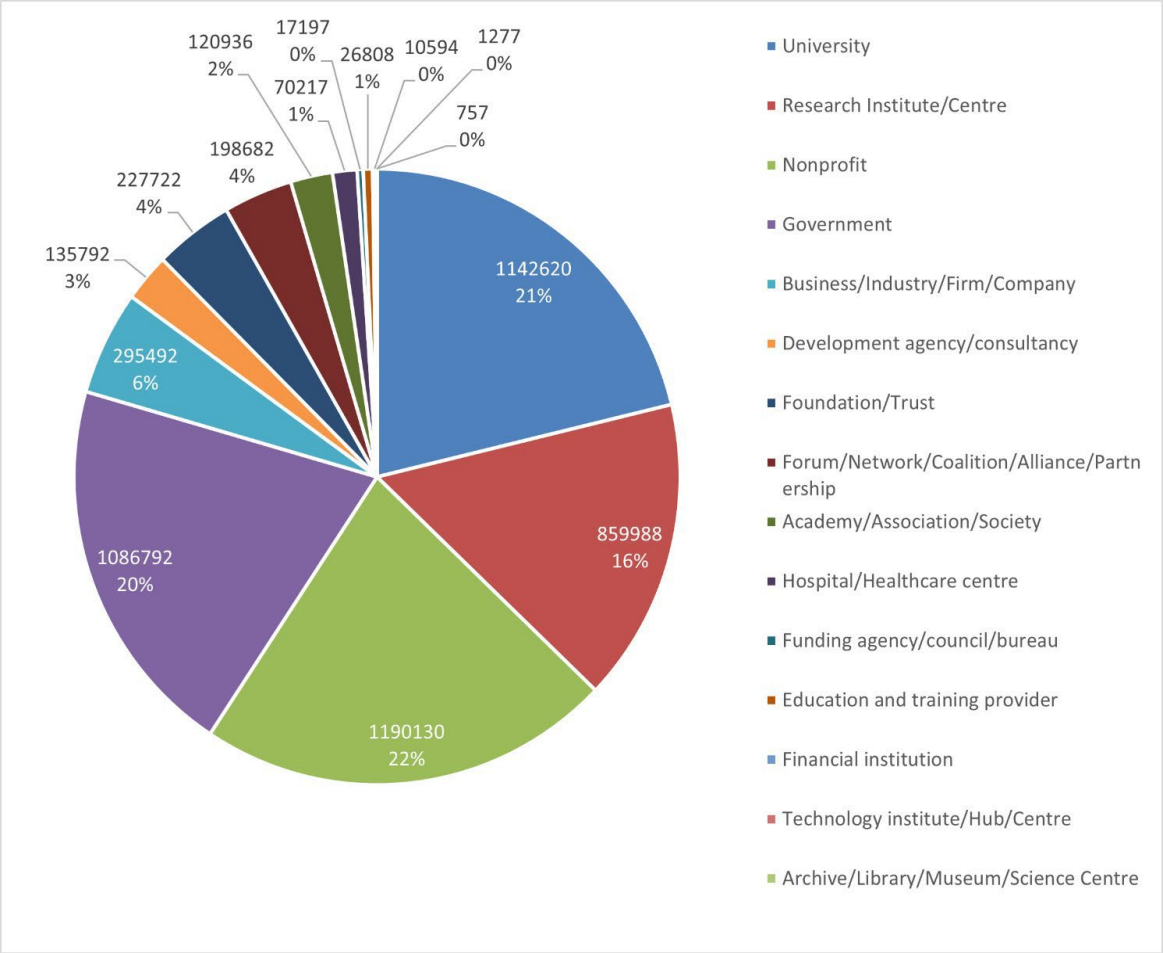

Figure 25: Share of funding received by type of funded organisation ($' 000): 2000 – 2011

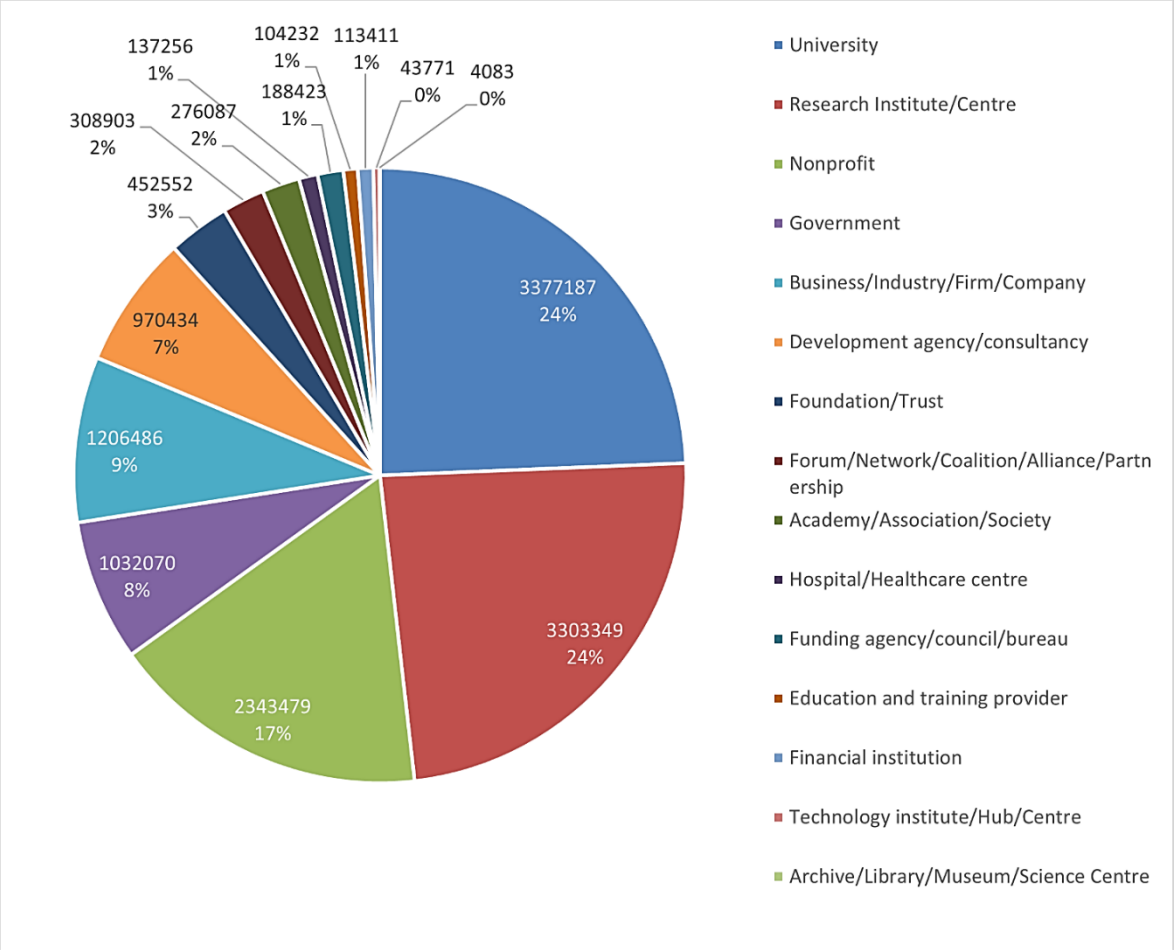

Figure 26: Share of funding received by type of funded organisation ($' 000): 2012 – 2023

Salient points

- Recipient organisations in SGCI countries are diverse and differ in terms of structure, institutional type and mandate.
- Our dataset identifies nearly 700 universities that received funding over the period between 2000 and 2024. As explained, most of these universities receive their funding directly from a foreign funder. Still, in many cases, the African university also receives funding from a university in the country where the funder is based. Generally, universities in East Africa remain well funded, whereas Universities in Francophone Africa receive fewer grants, with the understanding that South African organisations are not included in this study.
- More than 650 research institutes and centres in the SGCI countries received foreign funding for research and research-related activities. The top-funded institutes and centres—those receiving over $100 million—are in Kenya, Nigeria, and Tanzania. Again, it is necessary to emphasise that some of the institutes listed here receive their foreign funding directly, whilst others are indirect beneficiaries, receiving funding through intermediary research organisations or networks in Africa, such as the CGIAR institutes and the Pasteur Institute.
- The third largest group of funders are NGOs that receive funding (over and above development aid) to conduct research. The kinds of research they conduct often include

implementation science, policy research, and monitoring and evaluation studies. The amount disbursed to this category of recipients is skewed by the large amount channelled through the Alliance for a Green Revolution in Africa (AGRA). As indicated in the main text, AGRA is a good example of an intermediary organisation that channels funding that it receives from multiple foreign funders to multiple research beneficiaries in Africa. Recipients in this group mostly focus on medical and health research—particularly HIV/AIDS—as well as agriculture and social development.

- Between 2000–2011 and 2012–2023, universities and research centres increased their share of total funding (from 21% to 24% and 16% to 24%, respectively), while non-profits and government saw significant declines in their funding share (22% to 17% and 20% to 8%, respectively).

CHAPTER SIX: THE SGCs IN A CHANGING RESEARCH FUNDING LANDSCAPE

6.1 Introduction

This chapter focuses on the SGCs in a changing research funding landscape. It first presents an overview of the SGCI's member SGCs, providing information on their diverse organisational models and, by implication, the positions they assume in their national STI systems; their various roles and responsibilities, how they deal with research information management; the kinds of partnerships they are currently engaged in; and their views on the SGCI itself. This information draws on desktop research and individual in-depth interviews conducted in 2024 with senior representatives of the SGCs. Several rounds of feedback from respondents were incorporated to verify that the findings from the desktop research and interviews are accurately presented and reflect respondents' experiences and knowledge of their SGCs.

The second part of the chapter provides an overview, based on desktop research, of significant changes that have occurred over the last two decades in the nature, scope, and modalities of international research funding. In taking stock of the main changes in this landscape, it focuses on those that bear on African STI. Noteworthy examples of each type of change are highlighted, including those in which SGCs themselves are involved.

6.2 The SGCI member SGCs

6.2.1 The diversity of SGC organisational models

While we tend to refer to the 17 SGCs as a homogeneous group, interviews and desktop research made it clear that they differ in organisational models and, more specifically, in their relationships with associated governmental structures.

Several SGCs are either hosted by a Ministry (Botswana, Ethiopia, Ghana) or hosted within a Ministry but operating through a Directorate (Senegal). In other cases, the SGCs are Councils. These either report directly to a Ministry (Rwanda, Sierra Leone, Zambia), directly to the Office of the President (Zimbabwe) or to a Secretariat in the Office of the President (Uganda).

Some respondents noted that their SGCs have a close association with the government; for example, in one case, the SGC is a State Corporation (Kenya), and in another, it is a government agency that disburses tax revenue (Nigeria). Other SGCs indicate greater autonomy from the government; for example, one SGC has management autonomy but is supervised by a Ministry (Burkina Faso), while another SGC reports to a Ministry but has the autonomy to sign agreements (Mozambique). However, another SGC operates independently from Ministries but aims to align its activities with national policies and strategies (Côte d'Ivoire).

Some SGCs are configured as Commissions. They either operate under a Board of Commissioners with a direct Line Ministry (Namibia, Tanzania) or under a Board of Commissioners advising the government (Malawi).

Several of the Councils and Commissions also manage separate funds. For example, Rwanda's NCST (a Council) oversees the National Research and Innovation Fund (NRIF); Malawi's NCST (a Commission) administers the S&T Fund; and Tanzania's COSTECH (a Commission) manages the National Funds for the Advancement of Science and Technology (NFAST). In the case of the NRF of Kenya (NRF_KE), which is the country's SGC, the country also has the National Council on Science, Technology and Innovation (NACOSTI), which is an independent agency established by the same Act as the National Research Fund (Science, Technology and Innovation Act of 2013), but with a research regulatory and advisory role for the government and not a funding role.

The table below summarises the SGCs, their legal status, and their organisational configurations as discussed above.

Table 38: Configurations of the different Science Granting Councils

Country	Legal status	Ministry	Commission	Council	Fund
Botswana	Ministry	MCKT			
Burkina Faso	Decree 2011-828/PRES/PM/MRSI/MEF				FONRID
Côte d'Ivoire	Ordinance n° 2018-593 of 27 June 2018				FONSTI
Ethiopia	Ministry	MinT			
Ghana	Ministry	MESTI			
Kenya	STI Act of 2013				NRF_KE
Malawi	S&T Act, n° 16 of 2003		NCST_MW		
Mozambique	Decree n° 50/2015				FNI
Namibia	RS&T Act of 2004		NCRST		
Nigeria	Tertiary Education Trust Fund Act of 2011				TETfund
Rwanda	law n° 40/2017 of 16/08/2017			NCST_RW	
Senegal	Ministry	MESRI			
Sierra Leone	Cabinet Paper Ref n° CP (2023) 65			NSTIC	
Tanzania	COSTECH Act of 1986		COSTECH		
Uganda	UNCST Act of 1990			UNCST	
Zambia	S&T Act, n° 26 of 1997			NSTC	
Zimbabwe	Research Act [Chapter 10:22]			RCZ	

6.2.2 The diversity of SGC roles and responsibilities

SGCs play various roles within their countries with a range of responsibilities mentioned during interviews. Whilst all SGCs are expected to assume responsibility for disbursing research funds, this is

not necessarily their primary role. Other roles mentioned include building STI awareness and STI advocacy, monitoring and evaluation of research projects, and STI capacity building within their own country. In addition, the SGCs collaborate and via the SGCI to build institutional capacities in a range of areas including research ethics and grant management, STI policy development, the provision of policy advice to governments, maintaining registers of research institutions in their countries, providing STI infrastructure, promoting entrepreneurship, valorisation of research, providing seed funding for technology start-ups, as well as the review of science and technology education curricula. Some respondents mentioned that SGCs have a particularly wide range of functions; for example, UNCST in Uganda runs R&D and innovation surveys, provides science advice to the government, assists in establishing scientific professional bodies, houses a unit responsible for Intellectual Property Management, and acts as a Science Regulator in terms of biosafety and research ethics.

6.2.3 SGC research information and grant management systems

Grant management systems

According to information gathered during interviews, the majority (9) of SGCs have migrated to an online grant management system, while others (2) are either in the process of migrating to an online system or (2) are still in a formative stage in establishing their systems. Limited information is available online or was provided by respondents on the systems used for grant management for the remaining four SGCs.

Zambia's NCST used to record all grant information from emails and reports in Excel sheets but is now migrating to an online system that enables management of the entire project cycle. This migration includes populating the new system with historical data. FNI in Mozambique also reported being in the process of migrating to an online grant management system, which would allow them, amongst other details, to capture data on funding amounts, project timelines, and the names of funders. Kenya's NRF uses an internal grant management system. The SGC also hosts a National Research Repository (NRR), which is in its formative stages but aims to archive all research information in the country, including some funding information and information on research outputs. NSTIC in Sierra Leone only joined the SGCI recently and is still in a formative stage, also in terms of using a grant management system. For research and grant management, this SGC currently relies on the Association of African Universities (AAU) in Uganda's grant management system. This is an online portal which is accessible to NSTIC staff. NSTIC has awarded five grants since its first calls were launched in March 2024.

The development and implementation of effective grant management systems by all SGCs are critical to providing comprehensive, reliable, and comparable STI funding data from this group of actors in Africa's STI ecosystem. The efficacy of existing data management efforts is a concern in some cases, and the absence of robust systems to systematically track and report STI funding is a concern in others. For the further development of a comprehensive database of STI funding flows in and for Africa – one that includes domestic funding flows, which fall beyond the scope of this specific study and report – concerted efforts will be required to engage with SGCs to obtain data that is both complete and accurate.

Research registries/registers

During several interviews with senior SGC representatives, the topic of research registries (i.e., more structured databases) or registers (i.e., more static listings or records), either in the context of the registration of research institutions or of researchers being required to register their research, was discussed. These registries/registers have the potential to inform SGCs about the types of research conducted in their country, as well as about sources of funds not necessarily disbursed by them.

UNCST in Uganda operates a National Research Registration System. All researchers aiming to conduct research in the country are required to register with UNCST, whether they are Ugandan nationals or not, and regardless of whether their research receives foreign support funding. This includes research conducted for degree purposes and forms part of the ethics review process, which is also a function of UNCST. The National Research Registration System provides UNCST with an overview of research and research funding in the country, even if the SGC itself was not involved with the disbursement of specific research funding. Admittedly, it still leaves some gaps in the Council's overview of STI funding in the country, especially for research activities that do not require ethics review or have no biosafety or intellectual property concerns.

In Tanzania, while not explicitly discussed during the interview, COSTECH also operates a research register, through which all researchers seeking to conduct research in Tanzania must apply for a research clearance permit via the COSTECH website. It is further noted on the COSTECH website that foreign researchers who wish to conduct research and collect data in the country must apply for a resident permit, regardless of the duration of their stay. These applications are reviewed by the National Research Registration Committee every two months. It is unclear from the website whether this also forms part of an ethics review process, like in the case of the National Research Registration System in Uganda, and whether research for degree purposes is included.

In Zambia, it was noted during the interview that all research-performing institutions are required to register with NSTC. This registration process, which is renewed annually, captures information on the research being conducted, the institution at which it is conducted, and the funding for it. The Council acknowledges that the information on research and funding is not necessarily comprehensive, since registration, while compulsory, is not a process through which the research itself is authorised; rather, it merely reports on the research.

In Kenya, it was noted during the interview that NACOSTI. At the same time, the SGC in Kenya is not responsible for the registration and accreditation of research institutions in the country, covering public, private and international institutions. Under the national STI Act, all research institutions must be registered and evaluated at least once every three years. This verification process considers various aspects of the research facilities, including information resources, business plans, operational documentation, staffing levels, research reports, and publications. This could provide NACOSTI with a treasure trove of information on research conducted in the country, especially if it collaborates with Kenya's NRF, which hosts the NRR.

6.2.4 SGC partnerships

Regarding partnerships, many SGCs named one or more other SGCs as important partners, particularly for capacity building and joint funding calls. In addition, a partnership with NRF South Africa was frequently mentioned. The figure below shows partnerships between SGCs and NRF South Africa. A partnership is indicated if one or more SGCs mentioned it in the SGC factsheets compiled for this project or during the interviews.

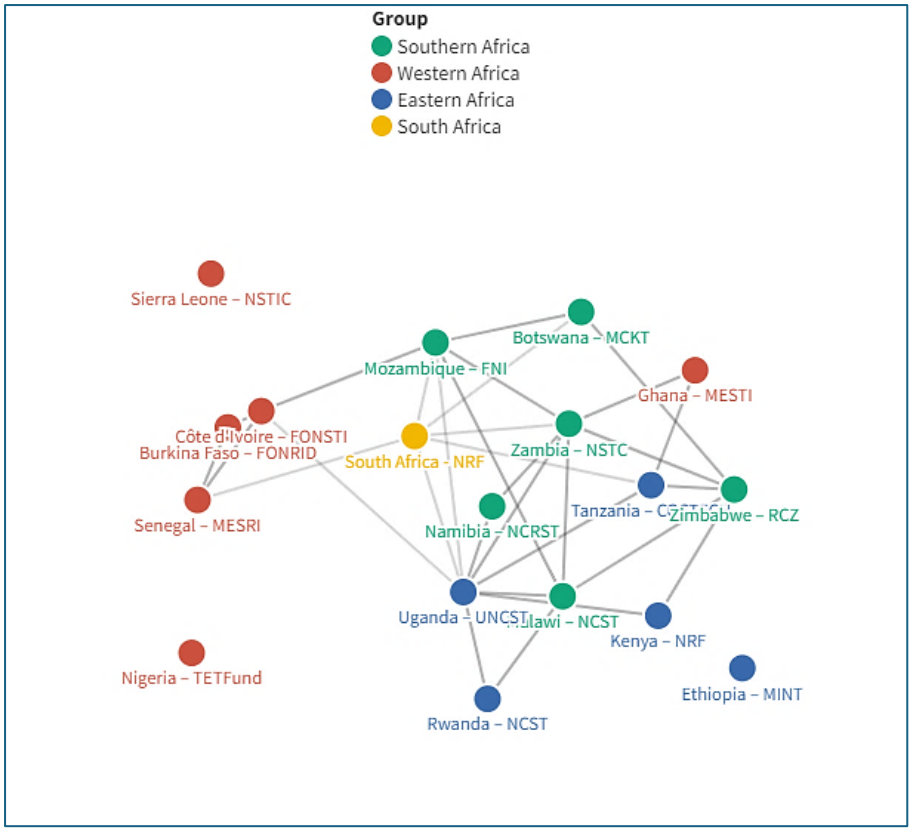

Figure 27: Partnerships between SGCs and the South African NRF

* Partnership mentioned by UNCST is with Programme d'Appui Stratégique à la Recherche Scientifique (PASRES), not FONSTI

SGCs referred to a range of activities in relation to their partners, including sharing resources, assisting with core functions, exchanging staff, holding joint meetings, assisting with grant management, providing networking opportunities, providing capacity-building opportunities, or providing funds for disbursement. All these examples were mentioned by SGCs in relation to their partnerships, with some partnerships explicitly associated with more than one type of interaction. Examples of broader international partnerships related to SGCs participating in bilateral or multilateral funding initiatives were also mentioned. In this regard, SGCs acknowledged the extent to which the SGCI has facilitated their networking and partnership-development activities at the pan-African and global levels.

6.3 The changing international research funding landscape

In a study of African science at the turn of the century (Gaillard & Furó Tullberg, 2001), 214 sources of foreign funding for research activities in sub-Saharan Africa were identified. The main sources, measured in occurrences of projects, were USAID, the European Union, the French Cooperation Agency, and WHO, followed by IDRC, FAO, AUPELF/UREF, IAEA, the World Bank and UNESCO; in other words, mainly organisations (national and multilateral) specialised in 'research for development'. Twenty years later, the analysis of foreign funders presents a different, much more complex landscape, one that the SGCI and some, if not all, of its participating SGCs are increasingly involved in.

As indicated in Chapter 3, section 3.1, the international research funding landscape is becoming increasingly complex, involving shifts in the prominence of some funders compared to others, the emergence of organisations that are not traditional funders but are assuming a role in disbursing funds, new patterns of collaboration between different types of funders – including many of those included in the typology of funders developed for purposes of this report – and new modes of governing funding partnerships. These changes are presented, with key examples, in the rest of this section.

6.3.1 New players, new partnerships

6.3.1.1 The growing prominence of philanthropic foundations

Private foundations are increasingly prominent among foreign funders of R&D in Africa, often richer than public funders and focusing on specific domains of preference, including health, tropical diseases, and epidemics (Nwaka et al., 2012; Head *et al.*, 2017). The clearest example of this is the funding provided by the Bill & Melinda Gates Foundation. As discussed in Section 3.3 of this report, the BMGF provided $2.5 billion for STI funding to the SGCI countries between 2000 and 2024. In addition to direct programming and competitive resource allocation, large private foundations also provide funds through international bodies such as the WHO. In these cases, they typically designate how their contributions are to be spent.

As reported by the OECD in 2018, Africa was the largest beneficiary region, receiving about a third of the global philanthropic aid, most of which is implemented through intermediary institutions. They report that

> *'while philanthropic giving remains relatively modest compared to ODA [Official Development Assistance] (5% of the three-year total) and financing for development more broadly, foundations have already become major partners in some specific areas. For example, in the health and reproductive health sectors in 2013-2015, support from foundations was the third-largest source of financing for developing countries, after the United States and the Global Fund to Fight AIDS, Tuberculosis and Malaria [...] The Bill & Melinda Gates Foundation (BMGF) was by far the most significant philanthropic donor, having provided almost half of total giving (49%). In addition, 81% of the total philanthropic giving during 2013-15 was provided by only 20 foundations' (p.16).*

Considering this development, the OECD suggests that 'official' donors from OECD member countries that are part of its Development Assistance Committee (DAC) could engage more systematically with private foundations. Indeed, a blend of private and public funding is an important trend in the current international funding landscape.

6.3.1.2 The development of multilateral funding consortia

National science funding agencies have a long tradition of engaging with one another to exchange information and best practices, and to debate STI priorities and development needs. They have also worked together, albeit not in a direct partnership, to fund international research, essentially by contributing resources to bodies such as the International Foundation for Science (IFS). The IFS was established in 1972 and received its funding from governments, development aid agencies, private foundations and multilateral organisations within the UN system. This diversity of sources enabled the IFS to fulfil its mission of supporting scientific capacity in so-called developing countries.

What has been unusual in the international funding landscape is funders collaborating directly with each other by agreeing to pool their resources in a 'common pot' funding for transnational research. As the examples below show, this type of joint funding action has become more prominent at regional and global levels, bringing new international funding partnerships into the landscape.

The European Union's ERA-NET Cofund Mechanism

The European Union (EU) was a forerunner in getting national funding agencies to pool resources and collaborate on funding research on major societal challenges. It did so by launching the ERA-NET scheme under the Sixth Framework Programme (2002-2006). The scheme continued under the Seventh Framework Programme (2007-2013) and, in the Horizon 2020 programme (2014-2020), evolved into what is now called the ERA-NET Cofund mechanism, which is also part of the current Horizon Europe programme (2021-2027). In brief, the mechanism involves national funding agencies from European countries pooling their resources to launch joint calls for research proposals from multi-country teams of researchers. In addition, the EU provides so-called top-up funding to increase the financial impact and broaden the scope of research supported.

The EU's ERA-NET Cofund mechanism functions as a regional funding consortium. It does not convene funders from around the world. Rather, it focuses on European countries; indeed, it was launched as part of the European Research Area strategy, which aimed, amongst other things, to create a unified research space across Europe.

The Belmont Forum

The International Group of Funding Agencies for Global Change Research (IGFA) was established in 1990. It met annually to discuss emerging trends, share best funding practices and mobilise support from national agencies for the major international environmental programmes in existence at the time (including the World Climate Research Programme and three programmes, namely the International Geosphere Biosphere Programme, Diversitas programme on biodiversity science, and

the International Human Dimensions of Global Environmental Change Programme, that merged in 2012 to form what is today known as Future Earth, a global sustainability science network and research programme) (Hackmann & van Jaarsveld, 2024).

What IGFA members regularly considered but were unable to implement was a move towards collective or joint funding of international research. In 2009, a smaller group of IGFA members, led by the National Science Foundation in the USA and the Natural Environmental Research Council in the UK, met at the Belmont Conference Centre in Maryland, USA. The group agreed to jointly initiate, fund, and manage international environmental change research and established a mechanism, known as a Collaborative Research Action (CRA), to do so. The Belmont Forum's (BF) first CRA, on coastal vulnerability and freshwater security, was launched in 2013.

The establishment of the BF, which merged with IGFA in 2014 and today includes 30 national science funders of global environmental change research from all parts of the world, including Africa, represented a milestone in the evolution of collaboration between national funding agencies on a global scale.

Further information on the Forum, its CRAs, and the involvement of African funders and researchers at the time of writing (in 2024) is provided in Box 1 below.

Box 1: The Belmont Forum and its Collaborative Research Actions

Currently, there are only 3 African funders that participate as members of the BF:

- South Africa's NRF (Signed BF MoU 2012)
- Fonds pour la science, la technologie et l'innovation (FONSTI), Côte d'Ivoire (Signed BF MoU 2017)
- The National Research Foundation of Kenya expressed interest in joining in 2023 (to be confirmed at BF Plenary in Nov 2023)

The South African NRF has participated as co-chair of the Forum (2013-14) and a member of its Steering Committee (2016-24).

To date, the BF has set up and run 23 CRAs. Of these 7 have involved funding from funders in Africa and a further 3 have included earmarked financial resources for the participation of African researchers provided by Sida, a US-based organisation known as START (Global Change SysTem for Analysis, *Research* & Training) and the International Social Science Council, which merged with the International Council for Science in 2018 to form what is today known as the International Science Council (ISC). The relevant CRAs include:

- Food Security and Land Use Change (2013)
- Biodiversity I (2014)
- Transformations to Sustainability (2016)
- Food-Water-Energy Nexus / Sustainable Urbanization (2016)
- Biodiversity II (2017)
- Oceans (2018)
- Climate, Environment, and Health I (2019)
- Pathways to Sustainability (2020)
- Human Migration / Mobility in an Era of Rapid Global Change (2022)

- Climate, Environment, and Health II (2023)

Details on these and other BF CRAs can be found at https://www.belmontforum.org/cras

Since 2013, funding available for African researchers from the Belmont Forum has amounted to approximately USD 6,3 million, of which USD 1.6 million came from African funding agencies and 4.7 million from external partners, including Sida, Future Earth, the International Social Science Council (a predecessor of the ISC), and the Research Council of Norway. Across all CRAs, 57 African institutions from 22 countries on the continent have been involved in Belmont Forum-funded research.

In interviews conducted in October 2023, Belmont Forum representatives expressed a need for more effective engagement with African countries and a greater representation from the African continent in the Forum's membership. Many organisations in Africa have limited funding. To overcome this, the Forum is working to build linkages with development funders and other non-traditional funders who can support researchers within African contexts. There is also a need to re-examine membership fees (currently €20.000 per annum) to attract more LMIC members. Alternative flexible funding options for membership may provide a solution.

The Global Research Council

Another global partnership of national science funders is the Global Research Council (GRC), established in 2012. Since the establishment of the SGCI in 2015, all participating SGC member councils have been invited to join GRC meetings, and there is now a cohort that the GRC terms the 'GRC participating council in sub-Saharan Africa'. Other African countries that are not part of the SGCI and that are invited to participate in GRC regional and annual meetings include Angola, Guinea and the Seychelles. South Africa's NRF has been a GRC member since the organisation's inception.

Until recently, the GRC functioned strictly as a forum for sharing data and best practices on a range of topical issues in science policy and practice. In 2022, GRC members agreed to pursue joint research funding and launched a pilot call on the Sustainable Development Goals (SDGs) at local and regional scales. The call was supported by 11 funding agencies spanning four continents. Further information on this initiative is provided in Box 2 below.[7]

Box 2: The Global Research Council's pilot call on the Sustainable Development Goals[8]

The call aimed to accelerate the achievement of the SDGs at the local to regional scales by implementing findings from ongoing or recently completed research and innovation projects. Within this broad framing, participating agencies emphasised one or more priority challenges, including:

- Human wellbeing and capabilities
- Sustainable and just economies
- Food systems and nutrition patterns
- Energy decarbonisation with universal access
- Urban and peri-urban development

[7] For more information on the GRCs pilot call on the SDGS, refer to the websites of the Global Research Council https://globalresearchcouncil.org and the NRF's call for proposals https://www.nrf.ac.za/sustainable-development-goals-sdgs-pilot-call-for-full-proposals/ (last accessed on 1 October 2024)

[8] For more information on the GRCs pilot call on the SDGS refer to the websites of the Global Research Council https://globalresearchcouncil.org and the NRF's call for proposals https://www.nrf.ac.za/sustainable-development-goals-sdgs-pilot-call-for-full-proposals/ (last accessed on 1 October 2024)

- Global environmental commons

The total funding allocated by the 11 participating agencies, which includes agencies from Chile (ANID), China (NSFC), Côte d'Ivoire (FONSTI), Kenya (NRF Kenya), the Netherlands (NWO), Norway (RCN), South Africa (NRF), Switzerland (SNSF), Sweden (Formas), Tanzania (COSTECH) and Turkey (TUBITAK). Each participating agency agreed to provide funds directly to its applicants within selected project consortia, in accordance with its national rules and regulations. Partners from countries not represented on the call by a national agency could be included in project consortia if they could secure their own funds. Projects will be funded for 2 to 4 years. The NRF in South Africa administered the first GRC pilot call.

The GRC's move into joint funding action raises interesting questions about the Council's future relationship with the BF. The two bodies have overlapping membership bases, and both are now prioritising financial support for collaborative research across the broad domain of sustainability sciences, with an explicit emphasis on achieving impact through transdisciplinary research approaches.

The Science Granting Councils Initiative

In many ways, the SGCI itself can be regarded as an African funding consortium with global partners. Apart from its member SGCs, it brings together a partnership that includes the IDRC, Sida, NORAD, FCDO, NRF South Africa and DFG.

To date, the SGCs themselves have not issued a joint SGC-wide call for research collaboration. However, some of them are participating in global calls by the BF and GRC, as indicated above. In addition, the SGCI has been involved in several actions initiated and/or supported by South Africa's NRF, which has leveraged its international partnerships to develop collaborative research actions in and for Africa. Recent key examples of these actions are provided in Box 3 below.

Box 3: SGCI-related collaborative research actions

- **The O.R. Tambo Africa Research Chairs Initiative (ORTARChI)**

The ORTARChI was launched in December 2018 and is implemented by the NRF and DSI in South Africa, together with the Oliver and Adelaide Tambo Foundation (OATF) and Canada's IDRC. The initiative builds on and leverages existing continental frameworks and interventions geared towards institutional capacity strengthening; the development of high-end skills; the recruitment and retention of excellent researchers; and incentives to support research that contributes to socio-economic and transformative development. The initiative is anchored by the Science Granting Councils Initiative (SGCI) and targets its participating countries. To date, ten (10) O.R. Tambo Africa Research Chairs have been awarded across seven countries, namely Botswana, Burkina Faso, Ghana, Mozambique, Tanzania, Uganda, and Zambia. The Chairs focus on research priorities identified by each host institution, in conjunction with the SGCI, and aligned with the AU's Agenda 2063 and STISA 2024.

- **African-Japan Collaborative Research on Environmental Science (AJ-CORE)**

AJ-CORE was initiated by the NRF in South Africa and Japan's Joint Science and Technology Agency (JST). It aims to support joint research and innovation projects in environmental science that respond to local demands, enhance impact, and involve researchers from Japan, South Africa, and SGCI participating

countries. To date, eight collaborative projects have been supported. They involve researchers from South Africa, Japan, Botswana, Burkina Faso, Ghana, Senegal and Zambia, and have been funded as follows:

- The first call led to four (4) consortia projects funded over three years (2021-2023) by the NRF, the JST, the Ministère de l'Enseignement supérieur et de la Recherche et de l'Innovation (MESRI) in Senegal and the Fonds National de la Recherche et de l'Innovation pour le Développement (FONRID) in Burkina Faso.
- The second call also supported four (4) consortia projects (2022-24) funded by the NRF, JST, and the Ministry of Tertiary Education, Research, Science and Technology of Botswana.
- A third call was launched in March 2023 and will support consortia projects from 2024 to 2026. The funders for this call include the NRF and JST, the Ministry of Communication, Knowledge and Technology (MCKT) of Botswana, the Fundo Nacional de Investigação (FNI) of Mozambique, the Ministry of Technical and Higher Education (MTHE) of Sierra Leone, and the National Research Fund of Kenya.

- **The Covid-19 Africa Rapid Grant Fund (CARGF)**

Established in May 2020 and conceptualised under the auspices of the SGCI, the CARGF was supported by the NRF, South Africa's DSI, the IDRC, the Fonds de Recherche du Québec, Sida, the United Kingdom's Foreign, Commonwealth and Development Office (FCDO) and UK Research and Innovation (UKRI) through the Newton Fund. An amount of approximately 4,75 million USD was made available to support knowledge generation and translation to inform diagnostics, prevention and treatment of COVID-19, strengthen African regional and continental science engagement efforts in response to the pandemic, and leverage existing multilateral collaborations and attract new collaborations from international partners.

- **The Long-Term Europe-Africa Water-Energy-Food Nexus Research Programme (LEAWEF)**

This new initiative aims to advance the implementation of the UN's Agenda 2030 on Sustainable Development, with a particular focus on the water-energy-food nexus. The collaboration is between the NRF in South Africa, the Dutch Research Council (NWO), the German Research Council (DFG) and 11 granting councils that are participating members of the SGCI, including those from Angola, Botswana, Burkina Faso, Côte d'Ivoire, Ethiopia, Ghana, Mozambique, Namibia, Senegal, Tanzania and Zimbabwe. Successful project consortia under LEAWEF will be supported for up to 4 years and should align with national research agendas and the SDGs. The LEAWEF secretariat brings together the NWO, NRF and the Ethiopian Ministry of Innovation and Technology.

6.3.1.3 The emergence of global multi-sectoral funding partnerships

The UN's 2030 Agenda and 17 SDGs, adopted by all UN member states in September 2015, provided the global STI community, including funders, with a framing narrative and foundation for exploring new collaborations based on the idea of common purpose (global challenges) and shared value (leave no one behind). The ISC responded to the challenges of SDG 17, which focuses on partnerships for the goals, by exploring the potentially powerful opportunities to be gained if funders from across the world and from different funding sectors – including national funding agencies, international donor aid agencies and private or philanthropic foundations – were to pursue joint funding actions.

In 2019, the ISC initiated dialogue on this possibility by convening a first Global Forum of Funders. A second convening followed this in 2021. The leadership of both the GRC and the BF participated in both events. As a result of these discussions, the ISC was mandated to establish a Global Commission on Science Missions for Sustainability. The Commission comprises over twenty individual experts, ranging from former ministers and ambassadors to international science and science-policy leaders, research funders, philanthropists, and filmmakers. It was established in 2022 and tasked with identifying the most appropriate institutional arrangements and global funding mechanisms to

accelerate and amplify the impact of sustainability science worldwide (International Science Council n.d.).

In 2021, the **Commission** published a report on 'Unleashing science: Delivering missions for sustainability' (International Science Council 2021). It makes a compelling case for stepping out of business-as-usual approaches to structuring, organising and funding science for sustainability. Based on the report's conclusions, the Commission appointed a Technical Advisory Group (TAG) to propose a concrete model of what this would entail and how it could be accomplished.

The TAG published its proposal in 2023 (International Science Council 2023). It entails establishing regional sustainability hubs that will serve as boundary-spanning platforms for the mobilisation, coordination, and alignment of relevant actors at the science-policy-practice interface. Their purpose will be to address, through transdisciplinary research approaches, regionally contextualised, demand-driven sustainability challenges at the nexus of multiple sectors.

Under the Commission's leadership, the ISC launched a global call for a pilot phase of this initiative in 2024. The intention is to support several regionally collaborative consortia that will receive between 250k and 500k USD over 18 months to undertake a full co-design process with relevant stakeholders. Over time, the ambition is to support at least 20 hubs, linked through a global knowledge-sharing platform.

In terms of funding, the Commission is advocating and will be pursuing a 'big science approach', with the following rough targets in mind:

- 5-10 million USD per year for core support of each Hub
- 10-40 million USD per year for research support and implementation activities of each Hub

This is an ambitious undertaking, the outcomes of which will depend on the ISC convening and mobilising support from funders around the world and across public and private sectors.

6.3.1.4 The growing importance of funding intermediaries

An important development in an increasingly complex international funding landscape is the emergence of so-called funding intermediaries, i.e., organisations that serve as conduits between funding bodies, including governments, and research communities, mobilising or attracting funding from multiple sources and assuming responsibility for disbursing and managing those funds.

There are two types of funding intermediaries. In the first place, we see funding organisations that receive resources from multiple national and/or international funding sources, which they, in turn, use to launch competitive funding calls and to support successful individual researchers or groups of researchers. In Africa, the ***Science for Africa Foundation*** (SFA) is a good example. The establishment

of the Foundation in 2022 was linked to the perceived need for a pan-African, non-profit, charitable organisation to support and promote STI in Africa independently. It received initial core funding support from the Wellcome Trust and managed Wellcome-funded initiatives. Today, the foundation is funded by several organisations and functions as a funding intermediary, operating at the regional level, like the IFS at the global level, albeit with different objectives and funding instruments.

The second type of funding intermediary that is increasingly involved in international funding arrangements comprises organisations that are **not** traditional funders. They are a new type of funding intermediary, distinct from other funding agencies in that they lack a formal research-funding mandate and do not necessarily make the management of competitive funding schemes a core mission. Several examples of this type of funding intermediary are described below.

The International Science Council and Network of African Science Academies

At the global level, the ISC and its predecessor organisations (including the International Social Science Council (ISSC) and the International Council for Science (ICSU), which merged in 2018) are noteworthy examples of funding intermediaries. It assumes this role within the Global Commission on Science Missions for Sustainability, as described in point 6.2.1(c) above. It also played this role in an earlier initiative focused specifically on Africa, namely, the Leading Integrated Research for Agenda 2030 in Africa (LIRA 2030 Africa) programme.

LIRA 2030 Africa was designed to support, on a competitive basis, teams of early-career researchers from two or more African countries to undertake transdisciplinary research and contribute to the implementation of the UN's Agenda 2030 in African cities. The programme ran from 2016 to 2021. The ISC raised money for it from Sida and the Robert Bosch Foundation and assumed overall management of the initiative, including the design and implementation of transdisciplinary training for successful participants, as well as programme dissemination and outreach activities. For purposes of managing calls for proposals, the ISC partnered with the Network of African Science Academies (NASAC). In effect, therefore, the initiative involved two intermediaries: the ISC and, at a regional level, NASAC. Further information about the initiative is presented in Box 4 overleaf.

Box 4.: Leading Integrated Research for Agenda 2030 in Africa (LIRA 2030 Africa)

LIRA 2030 Africa was implemented from 2016 to 2021 by the ISC together with NASAC. Sida contributed a total of EUR 5 million, 70% of which was allocated to research and related programme activities. The Robert Bosch Foundation provided additional support of EUR 100k, earmarked for the programme's capacity-building activities.

The programme provided support for:

- Twenty-eight (28) collaborative research projects
- Eight (8) cross-project grants to foster collaboration and learning, including knowledge synthesis across projects.
- Capacity and career development activities, including training on trans-disciplinarity, annual fora focused on peer learning and network building.
- LIRA grantees to publish the outcomes of their research in open-access journals.

Researchers from twenty-two (22) countries were supported by the programme, including Angola, Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Democratic Republic of Congo, Ethiopia, Ghana, Kenya, Malawi, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, South Africa, Tanzania, Togo, Uganda, Zambia, and Zimbabwe.

A report on each of the 28 projects and the overall outcomes and longer-term impacts of the programme was published by the ISC in April 2023; it can be downloaded at https://council.science/wp-content/uploads/2020/06/LIRA-Key-Achievements-and-Learnings-2016-2021-230323-WEB.pdf)

The Alliance for a Green Revolution in Africa

AGRA was established in 2006 through a partnership between the Bill & Melinda Gates Foundation and the Rockefeller Foundation. It was created to address food security and promote agricultural transformation across Africa by focusing on smallholder farmers. AGRA works closely with governments, private sector actors and researchers, and one of its key activities is to provide grants, often on a competitive basis, to universities and research institutes and NGOs for research on areas such as seed systems development, soil health improvement, access to markets, agricultural policy reform and innovative farming technologies.

The African Academy of Sciences

The AAS, a pan-African Academy (unlike NASAC, a network of national academies), has a longer history of serving as a funding intermediary across the continent. In 2015, the AAS, working in collaboration with the AU's economic development agency, NEPAD, and with the support of the Wellcome Trust and the former Department for International Development in the UK and the Bill & Melinda Gates Foundation in the USA, set up the Alliance for Accelerating Excellence in Science (AESA). AESA included several large research and training programmes, including the leadership and training programme DELTAS and the Human Heredity and Health in Africa research project (H3Africa). In 2022, these initiatives were transferred to the SFA mentioned above.

The AAS continues to serve as a funding intermediary, with the African Research Initiative for Scientific Excellence (ARISE) as a noteworthy example of a research and innovation support programme managed under the auspices of the Academy. Further information on ARISE is provided in Box 5.[9]

Box 5.: The African Research Initiative for Science Excellence[10]

ARISE was launched in December 2020 with initial funding support of Euros 25 million from the EU. The initiative was established within the AU-EU High-Level Policy Dialogue on STI and is implemented by the AAS in close partnership with the AU and the EU. It is intended to provide a platform to support research and innovation that contribute to sustainable and inclusive development, economic growth, and job creation.

[9] For more information on the African Research Initiative for Science Excellence refer to the website https://arise.aasciences.app (last accessed on 1 October 2024)

[10] For more information on the African Research Initiative for Science Excellence refer to the website https://arise.aasciences.app (last accessed on 1 October 2024)

ARISE is also supported by the Carnegie Corporation of New York, which supports postdoctoral fellowships as part of the broader ARISE initiative.

The first phase of ARISE supports nearly 600 early to mid-career researchers across Africa, led by 47 principal investigators, hosted in 38 African countries, with research grants of up to Euros 500,000 each. In addition, it supports at least 180 PhD and 360 Masters students.

The forthcoming second phase of ARISE seeks to revolutionise Africa's research and innovation ecosystem, in line with the following strategic objectives:

- Enhance the capabilities of emerging African research leaders committed to a research and teaching career in Africa;
- Strengthen institutional research management and support systems to enable pan-African research to thrive; and
- Support the generation of cutting-edge research in contribution to the transformation of Africa into a knowledge-based and innovation-led continent and towards the transformation of lives in Africa through science.

6.3.2 New modes of governance

The emergence of new players, including new types of funding intermediaries, and the associated development of new funding partnerships described above, has increased the complexity of the international research funding landscape. It has also led to an increase in larger funding initiatives that concentrate resources from private and public sources at national, regional, and global levels and aim to provide multi-annual support for pan-African research collaboration and scientific capacity development. Examples of this include initiatives such as ARISE and the various Centres of Excellence referred to above.

A further change in the international funding landscape relates to the nature of relationships and the division of responsibilities between funders in the global North and South, including new funding intermediaries in Africa. In a recent report on North-South research partnerships, J. Dodson selected eleven programmes funded mainly by institutions from the United Kingdom, the United States, Sweden, Switzerland, Japan, and the Netherlands (Dodson, 2017). Her analysis of the nature of funding arrangements classifies funders' roles and relations in accordance with initiatives' overall governance arrangements, including management models (encompassing selection and evaluation processes and financial decision-making), the distribution of funders, and the location of management structures. The report proposes five main governance models (Figure 28), distinguished, on the one hand, according to whether they are supported by single or multiple funding agencies and, on the other hand, by the extent to which agencies from the global South are involved in their management.

Figure 28: Model of management of funding (Dodson, 2017, p. 9)

Based on the information presented in section 6.2.1 above, it would be fair to argue that, about foreign funding in and for Africa, recent developments reflect a shift towards greater multi-agency action and greater Southern ownership. The BF and GRC joint funding actions and the ARUA CoREs, for example, would fit the 'Multi-agency, joint North-South managed' model. Examples that would be closer to the 'Multi-agency, Southern-managed model' would include the LIRA 2030 Africa programme, the SGCI-related collaborative research action, the ARISE initiative and the ARUA CoEs.

Further detail on the decision-making arrangements for these and other examples would be needed to review and, if necessary, expand the models proposed by Dobson (2017). Pertinent information would include where the idea for specific funding schemes arose and who initiated them, the presence and role of programme steering or advisory bodies, whom they represent and by whom they are appointed, and even the thematic openness of research funding calls (i.e., the extent to which they adhere to a bottom-up or top-down approach). The ISC's Global Commission on Science Missions for Sustainability, for example, is based on the principles of project co-design to ensure that funded activities are contextually relevant and demand-driven; of the co-generation of knowledge by transdisciplinary (academic and non- academic) teams of knowledge partners; and of decision-making processes and protocols that will be negotiated between the ISC and those funders who choose to participate in supporting selected regional sustainability hubs. This suggests a governance model that is not adequately captured by Dobson's (2017) framework.

The ISC's Commission example is instructive in other ways; more specifically, in pointing to important changes in the policy and practice imperatives of many, if not most, funders. Key shifts that impact the international funding of research in and for Africa are briefly outlined in the next section.

6.4 Shifting policy and practice imperatives

6.4.1 Global challenge-focused agendas

Since 2015, scientific communities and the institutions that fund and support them have been subject to increasing pressure to respond more effectively to the complexity and urgency of global challenges, as exemplified by the UN's Agenda 2030 and its 17 SDGs framework, as well as the Paris Climate Agreement. Unlike the Millennium Development Goals, which were launched in 2000, the SDGs have been strongly advocated as an indivisible and universal development agenda, and the important role of science in their achievement has been widely emphasised.

The thematic agendas of most examples of multilateral and multi-sectoral funding initiatives in section 6.2.1 above are closely aligned with these global goals. Given the emphasis on the interactive nature of these goals, so-called nexus challenges and synergistic approaches are increasingly prominent in funding agendas. Whilst these agendas often reference the AU's Agenda 2063 on 'the Africa we want', the SDG narrative tends to dominate and is assumed to embrace the AU's priorities.

6.4.2 Transdisciplinary research approaches

An emphasis on transdisciplinary research approaches that engage so-called societal stakeholders from the worlds of policy, business, and civil society as partners in the co-design and co-creation of actionable knowledge has become increasingly common amongst those who design and support international funding schemes. Since its emergence in the 1970s and 1980s, the concept of transdisciplinarity has steadily gained traction in the fields of global change and public health research. It is most prominently promoted today in the broader sustainability science community (Hackmann & van Jaarsveld, 2024). It is not surprising, therefore, that calls for transdisciplinarity go hand in hand with funding agendas focused on global challenges and, more specifically, the SDGs. At the same time, transdisciplinarity is gaining broader traction due to growing awareness and adoption within national science systems of the imperatives of the global open science movement, which includes 'openness to society' as a key dimension of the open science paradigm (UNESCO, 2023).

Today, societally engaged science and, more specifically, the use of transdisciplinarity as a research approach are widely regarded as a way to accelerate and amplify the transformative impact of research on policy and public action. In this regard, it is interesting to note that widespread acknowledgement of the vastly inadequate progress countries worldwide are making in achieving the SDGs has, if anything, further promoted the value of transdisciplinarity (Miranda *et al.*, 2023).

Transdisciplinarity is an explicit funding criterion across all BF CRAs, the ISC's earlier LIRA 2030 Africa programme, and its current Science Missions for Sustainability initiative. It is also an implicit ambition

in the other examples of funding initiatives referred to in the previous section, including the new ARUA CoREs.

6.4.3 Pan-Africanism

Despite recent global trends toward resurgent nationalism, including in the global science arena, scientists, science policymakers, and funders continue to advocate the importance of international scientific collaboration for both science and society. In the current global context – one of increasingly complex and cascading systemic risks and imminent existential threats to humanity – the imperative to collaborate has been significantly intensified. The COVID-19 pandemic demonstrated what can be achieved when scientists collaborate. This and the new global open science movement are giving new impetus to efforts to understand and overcome the economic, socio-cultural and political barriers to effective international scientific collaboration (Kassen & Morgan, 2023).

In Africa, the issue of scientific collaboration within and across the continent is embedded in a long and evolving history of Pan-African thought and action aimed at the unification and upliftment of Africa and its diaspora. A milestone in the Pan-African movement was the formation of the Organisation of African Unity in 1963 and its transition into the African Union (AU) in 2001. It also reflected, for science in Africa, a political commitment to continental integration and collaboration. Under the leadership of the Commission for Human Resources, Science and Technology, the AU has developed important Pan-African policy frameworks in the domains of education (e.g., the Continental Education Strategy for Africa: 2016-2025) and STI (e.g., the Science, Technology and Innovation Strategy for Africa (STISA) 2024 and STISA 2034, which was launched in July 2025).

Pan-African scientific research, specifically, is expected to yield the benefits typically associated with international scientific collaboration. In addition, the argument in favour of Pan-African collaboration is based on the idea that the size, diversity and interactivity of a scientific community are keys to its vitality, dynamism and creativity. In line with this, the diversity of African science systems must be regarded as a latent strength rather than a weakness. Through collaboration, including with low and middle-income countries where science systems remain relatively small and poorly funded, Africa should mobilise this strength to exploit its collective potential (African Academy of Sciences *et al.*, 2018). There is growing interest in and action to support Pan-African research collaboration, both within Africa and among foreign funders. This is either an explicit goal or a positive additionality of the multilateral funding initiatives provided as examples in Section 6.2.1 above. Either way, the shared imperative is to develop and harness Africa's collective scientific potential to address African and broader global challenges. Notwithstanding this ambition, it must be noted that the ability of African funders to participate in multilateral funding mechanisms, such as those used by the BF and, more recently, the GRC, remains limited by national resource constraints. This, in turn, restricts the opportunities for researchers from Africa to participate in what are intended to be globally collaborative initiatives but, in practice, reflect skewed patterns of collaboration with limited reach on the continent.

6.5 Equitable partnerships

Equity and inclusion in global scientific partnerships are increasingly regarded not just as a moral imperative but also as a practical necessity for solving global problems, enhancing research quality by harnessing diverse expertise, perspectives, and methods, and ensuring that science serves all of humanity. Many scientific institutions, including international funding bodies such as the Wellcome Trust, the Global Research Council, and the European Union, are increasingly and explicitly prioritising equity and inclusion to enable researchers from diverse backgrounds and underrepresented groups to collaborate on an equal footing.

In 2023, the University of South Africa (UNISA), the University of Cape Town (UCT and the Perivoli Africa Research Centre (PARC) at the University of Bristol launched a new *Global Charter for Transformative Research Collaborations with Africa.* It aims to foster a new, more equitable approach to research partnerships between Africa and the Global North by addressing long- standing imbalances and uneven power dynamics in global knowledge production The charter is seen as a movement to empower Africa in the global research ecosystem, promoting fairness and ensuring more impactful global scientific efforts by ensuring that African researchers contribute more substantially – and visibly – to them. To date, the Charter has found wide resonance, with endorsements from more than 100 major university networks, learned societies, and Higher Education institutions across the globe and active consideration by several funders, publishers and governments (https://www.news.uct.ac.za/article/-2023-07-13-africa-charter-for-equitable-partnerships-receives-major-endorsement). The issue of equitable partnerships pertains not only to actual or perceived power imbalances between researchers from the global South and global North. Particularly in Africa, equity is also relevant to power dynamics between funders and, specifically, to differences in decision-making power related to determining programmatic parameters, including funding agendas and criteria.

With the growth of multilateral and multi-sectoral funding arrangements and a growing emphasis on the principles and practices of co-design and co-ownership, foreign funders are increasingly aware of the need for meaningful engagement with partners from the global South. Apart from mutual recognition and respect, this underscores the importance of equitable governance arrangements, in which authority and influence are decoupled from financial considerations.

The decision-making protocols and practices, and, by implication, the power dynamics inherent in the funding initiatives described in section 6.2.2 above, have not been researched. Nevertheless, there are several indications that funders are aware of the importance of more open and consultative approaches to designing and implementing funding schemes in and for Africa.

Initiatives implemented under the AU-EU umbrella agreement, such as ARISE, originate from dialogue with African experts and political engagement with African governments. It is also interesting to note several cases in which the idea and impetus for collaborative funding action originate from within Africa – by organisations like the NRF in South Africa, the SGCI and ARUA, for

example – and where these organisations are leveraging their international partnerships, also with funders, to co-design and fund collaborative initiatives.

6.6 Conclusions

The information provided in this chapter, as well as data and results presented in preceding chapters, leads to the following conclusions:

- The SGCI councils are evidently not a homogeneous grouping of 'entities. The SGCI has brought these 17 'councils' together. However, they differ in many respects, including their legal status, organisational design, locations within their respective government departments, missions, goals, and functions. It goes without saying that this reflects both the path dependence of historical decisions and events in each of the relevant countries. The fact that they are now being grouped as 'granting' councils (not national funding agencies) does not even mean that the disbursement of grants is their only, or even their main, function.

- However, despite this first conclusion, it is clear that the grant-making function of each of these councils has become a more prominent and even permanent feature of their work. This is not only because of their inclusion under the SGCI, but also because the SGCI has not only promoted this role but also actively enabled its execution. All the evidence we have gathered attests that being part of the SGCI has benefited all the SGCs in various ways: directly by receiving more funding to disburse in their respective countries, and in other key functions that such councils now often include in their portfolios of activities. These would include capacity building, networking, partnership building, and, in some cases, improving grant information systems to monitor grants in their countries.

- As a collective and working under the SGCI umbrella, SGCs are visible actors in the changing landscape of research funding in and for Africa. Those changes include the development of new global multilateral and multi-sectoral funding partnerships like the BF and the GRC, as well as the ISC's new Commission on missions for sustainability; new modes of governance that see a growth in the management of international funding initiatives by African bodies, including new funding intermediaries like AGRA, the AAS and ARUA; and new policy imperatives that emphasise a focus on global challenges, transdisciplinary research approaches, equitable international partnerships and pan- African collaboration. Through participation in bodies such as the BF and GRC, and with the support of South Africa's NRF, the SGCI is beginning to act more as a funding collective, with SGCs increasingly collaborating among themselves and with international funding partners to support pan-African research collaboration.

- Despite these positive indications of the emerging and potential future role of SGCs and the SGCI, some changes in the funding landscape also raise interesting questions about their exact role in the flow of funding to different recipients on the continents. Further investigation into the role and impact of funding intermediary bodies such as AGRA, the AAS, and the SFA Foundation is indeed desirable. As indicated, these bodies function as conduits between funders, including philanthropic foundations, bodies such as the EU and national governments on the continent, and African research communities, often attracting support that enables them to disburse funding for long-term, multi-phased research and capacity development activities. SGCI member councils are not involved in these initiatives, effectively positioning the new intermediaries as potential competitors for funding. This is confirmed by data on African

funding recipient organisations presented in Chapter 5. It poses a significant challenge for the SGCs and the SGCI.

- Indeed, despite all the positive developments, the SGCs continue to face multiple challenges, of which the lack of funding remains the biggest. We elaborate on these challenges and the opportunities for future development and improvement in the next chapter.

CHAPTER SEVEN: CHALLENGES, OPPORTUNITIES AND PROPOSALS FOR THE FUTURE

7.1 Introduction

Funding research in and for Africa clearly presents both significant challenges and opportunities. These are shaped, on the one hand, by global trends in STI funding and, on the other hand, by the continent's unique context, which includes specific development needs, socio-political and economic diversity, and language divides which together add up to a complex, heterogeneous regional STI landscape. This diversity notwithstanding, several commonly perceived challenges and opportunities can be identified.

Understanding these challenges and opportunities, and what they may imply for the positioning of SGCs in the broader African research funding landscape, was the purpose of a consultative webinar with key regional and international SGCI stakeholders. The questions that guided the webinar-based dialogue included the following: What are the perceived challenges and opportunities related to funding research in Africa, and what are the related opportunities and challenges facing the SGCs at national, regional and/or international levels? Targeted webinar participants included senior representatives from African and international organisations that are regarded as key stakeholders in the African research funding landscape. Invitees who were unable to join the webinar were invited to submit written responses to the questions indicated above. Organisations represented in the webinar included the African Academy of Sciences, the Network of African Science Academies, the Science for Africa Foundation, the European Commission, and the Wellcome Trust. Written submissions were received from two additional organisations, namely the International Science Council and the Norwegian Agency for Development Cooperation.

This chapter draws primarily on the outcomes of the consultative webinar. In addition, it includes insights gained from discussions with SGCs held during the November 2023 annual SGCI meeting and masterclass on STI Dynamics in Africa, as well as interviews with senior representatives of each SGC. The overview that follows should therefore be understood as an initial, dialogue-informed step toward exploring the implications of STI funding in and for Africa. It does not constitute a systematic or definitive analysis but, rather, offers a provisional mapping of key issues intended to inform and stimulate further research, scholarship, and strategic engagement among research funders and STI system leaders at national, regional, and global levels.

The chapter concludes by proposing some activities aimed at supporting African STI leaders – including the SGCs – to address challenges and harness opportunities in ways that would, amongst other things, maximise the benefits of foreign funding for the advancement of African STI.

7.2 Perceived challenges

As evidenced by the data presented in Chapter 1 of this report, the most obvious and, indeed, fundamental research funding challenge across the continent is limited domestic investment in research and development. Most allocations by African governments fall well below the 1% target set by the AU. At the same time, private sector investment is minimal and, in some cases, declining.

This issue is often lamented in discussions of funding challenges in Africa. It is typically perceived as one that depends on political intervention, with bodies such as the SGCs and other actors in national science ecosystems at times regarded as lacking sufficient political clout to drive effective corrective action.

Beyond this, the reality of limited domestic investment clearly highlights Africa's reliance on external and, specifically, foreign funding sources. This offers an opportunity to better understand the implications of such reliance and how to navigate and address them. The most salient considerations in this regard are described below.

Alignment of funding agendas

A commonly perceived challenge associated with Africa's reliance on foreign funding sources relates to funding agendas, including the themes and research fields, as well as the type of activities and related criteria that shape the allocation of resources. This is often discussed in terms of potential asymmetries, with decisions in the hands of foreign funders and priorities skewed towards their interests rather than those of African research communities. As a result, potential areas of misalignment can arise, for example, between the priorities of funders and those of African governments, between global and regional development agendas as exemplified by the UN's Agenda 2030 and the AU's Agenda 2063, respectively, and between externally perceived problems on the continent and the reality of problems as experienced by African societies.

The perception of misalignment is widespread, and hence so are calls for equitable partnerships. In practice, this means a request for meaningful engagement between foreign funders and their African counterparts or relevant African scientific communities when negotiating and agreeing on the contours and conditions of external funding programmes. In short, the call is for opportunities for Africans not only to influence but to co-design agendas associated with foreign sources of support.

Equity in research partnerships

Apart from inequitable power dynamics in determining funding agendas, foreign funding arrangements also highlight the nature of research partnerships. In this regard, common concerns include the fact that researchers from the continent often receive a smaller share of project or programme funding and hold subordinate or secondary positions, marginalised from decisions about research design, methods, and execution, as well as financial expenditure. The issue is perceived as undermining true benefit-sharing in collaborative research initiatives.

Variable impact

Foreign funding plays a vital and often catalytic role in supporting research in Africa. At the same time, questions have been raised about its longer-term impact on both African science systems and the societies of which they are a part. In this regard, the focus of discussion often turns to the type of funding mechanisms and associated conditions, including timeframes and levels of support, employed by foreign funders. More particularly, once-off, short-term projects rather than longer-term, multi-phase programmatic funding are regarded as undermining the impact potential of the research they support. It takes the form of so-called 'parachute funding' – where support is provided for specific, short-term projects and where the research and related partnerships shut down when funding ends. This is not always or necessarily seen as advancing African interests and needs. On the one hand, it does not enable the sustainability of research endeavours and, hence, of broader science systems development, including scientific capacity development and research collaborations. On the other hand, it does not support the conditions under which concrete societal impact can be realistically pursued. Such conditions include the time required to develop the necessary inter- and transdisciplinary engagements to co-design research initiatives and co-generate so-called actionable knowledge.

Support for capacity development

Regarding positive impacts on the development of STI in Africa, a perceived shortfall in support from foreign funders for capacity development has been identified as a topic for further investigation and discussion. The issue primarily concerns individual capacity development and the perceived need for intentional investments by foreign funders in scientific career advancement, particularly among early-career researchers. This, in turn, raises concerns about brain drain and effective ways to avoid it whilst not restricting the benefits of international scientific mobility and exchange.

Concerns about inadequate capacity development also relate more broadly to the development of African scientific institutions and to the support available – particularly through short-term project funding schemes – for them to secure infrastructure, training, and resources for research administration and management.

Funding data and knowledge gaps

A lack of awareness of the nature and extent of foreign funding for research in Africa is consistently regarded as obstructing strategic decision-making and action amongst funders on the continent. In this regard, access to regularly updated data on funding flows, such as those presented in this report, is deemed essential. Given this, foreign funders are urged to be more transparent about who, where, and how they support research. As part of their support for the contemporary open science movement, funders should be encouraged to adopt open funding data policies.

As already indicated in Chapter 6 (section 6.2.3), our knowledge and understanding of STI flows in and for Africa remain hampered by the lack of reliable data on domestic funding flows. The lack of regular R&D surveys in most African countries is part of the problem. It is compounded by existing inefficiencies in data management processes amongst national and regional funders operating across

the continent. Even when data management systems are in place, funding data remains incomplete and often difficult to disambiguate. Addressing this issue is a key challenge for African funders at national and regional levels, including new types of intermediary funders identified in Chapter 6.

Intra-African collaboration and coordination

Another issue raised for consideration is that of intra-African competition and the extent to which it may be affected by Africa's domestic funding constraints and heavy reliance on foreign funding opportunities. Such competition – between research communities and the institutions of which they are a part – impedes pan-African research collaboration and strategic coordination between African research funders and STI policymakers. This raises concerns about science system actors working at cross-purposes, fragmenting their efforts and limiting the realisation of potential efficiencies. In addition, there are concerns that these dynamics may reinforce existing disparities between countries, with more established and better-resourced systems often more competitive in meeting the criteria of international funding schemes.

In conclusion, and as indicated earlier, further research will be required to ascertain the exact nature and extent to which the types of challenges described above are grounded in reality, both across the continent and amongst foreign funders. Such research will also need to identify good-practice examples of foreign funding policies and practices designed to address some of the concerns expressed. Several of the multilateral and multi-sectoral funding initiatives described in the previous chapter appear to be examples of good practice. Indeed, those examples suggest that many of the perceived challenges presented above are starting to be addressed. These examples can provide a basis for determining what does and does not work in promoting truly equitable partnerships between foreign funders and their African counterparts, ensuring African-led agendas, and driving impactful research on and for the continent.

7.3 Opportunities

Opportunities for accelerating the advancement of STI in Africa are today linked to growing global awareness of the importance of working with Africa on research into global challenges and, more specifically, recognition that solutions to those challenges require local, context-relevant expertise, knowledge and innovation. Africa also provides a unique context for research in areas of global priority, including biodiversity, public health, rapid urbanisation, and even digital innovation. Recent shifts towards the imperatives of diversity, inclusivity, and equity in the global politics of science have further propelled the growing interest in cooperation and collaboration with Africa.

Today it is not uncommon to hear that the time has come for African STI to take its rightful place on the global stage. Realising this opportunity will depend on Africa's ability to both increase its own research resource base and maximise the benefits for Africa of foreign funding support. It is interesting that the recent STISA 2024 review report called for 'the urgent establishment of an African Science, Technology and Innovation Fund to ensure sustainable funding of the sectors' initiatives on the continent' (Waruru, 2024). Perhaps more interesting was the report's recommendation for wider multi-stakeholder engagement in the development of STISA 2034,

including with regional and international funders. Such engagement enabled SGCs and other African-based funders, including funding intermediaries, to be more directly and actively involved in shaping future African STI policy, including funding investments, amongst African governments and by foreign funders.

In terms of successfully addressing the perceived challenges associated with foreign funding of African research, discussions suggest that the most obvious pathway to success involves greater pan-African cooperation and collaboration. This would enable strategic information exchange, coordination of policymaking and programming, and collective action to plan and implement activities that advance African STI and amplify its visibility and voice in global STI policy and funding arenas.

The potential benefits of effective regional cooperation and collaboration are numerous: It could strengthen collective advocacy for greater domestic investment in R&D across the continent. It could enable the development of common visions for African STI needs and interests, and the application of greater influence in negotiating how best these are to be met. It could support a rebalancing of power dynamics in research and funding partnerships, secure greater recognition of and respect for African research leadership, and safeguard equal benefit sharing across African science systems and between them and their global counterparts.

Impactful cooperation and collaboration require effective leadership, commitment, appropriate institutional arrangements and the necessary resources – human and financial – to manage and sustain them. The SGCI itself is a good example in this regard, one with the potential to plan and undertake impactful collective action. There are other examples: in the higher education sector, bodies such as ARUA and RUFORUM; in the arena of scientific academies, the AAS and NASAC; and in specific STI policy domains, initiatives such as the African Open Science Platforms.

Based on the evidence collected and presented in this report, several interrelated proposals for future action are presented below.

There is an important role for the SGCI and its members beyond 2025

The SGCI has not only developed the individual and collective capacity of African SGCs (as indicated in Chapter 6) but has also increased their visibility in new and potentially powerful global multilateral and multi-sectoral funding partnerships, including the BF and GRC. The SGCI and its member councils are known entities within those partnerships, and in broader global STI policy arenas, the SGCI is recognised as an important example of the positive impact of continental collaboration. Combined with a growing interest amongst foreign funders in collaborating with Africa, this places the SGCI – and, perhaps more importantly, its SGC members – in a position to scale up on their achievements to date and to play a central role in addressing the challenges and opportunities of research funding in and for Africa. That role could include a focus on raising the profile and, by implication, the political influence of SGCs on the continent. As a collective, the SGCs should be recognised as a voice in shaping future STI policy and related funding developments in Africa, including, for example, in

determining the pros and cons and possible priorities of a future Science Fund for Africa, proposed in the final review of STISA 2024.

The SGCs would benefit from regular exchange and coordination with other STI leadership groupings across the broader African STI ecosystem.

Discussions among SGCs and some of their key stakeholders suggest that more strategic coordination and collaboration across Africa's broader STI ecosystem could accelerate and amplify advances in African science and the systems that support it. Such coordination and collaboration would, amongst other things, require appropriate facilitation and the human and financial resources needed to secure sustainable planning and implementation. In December 2023, Future Africa at the University of Pretoria proposed a mechanism to accomplish this. The idea was to establish an African STI Leaders' Forum (ASTIL) that could serve as a network of networks, regularly convening decision-makers leading important continental STI bodies, networks, and alliances across all STI sectors, including the Higher Education sector, academies, and funders. The Forum's purpose would be to develop and deploy a unified African voice for science, one that is both effective at advancing STI across the continent and influential in global STI policy dialogue and action.

In March 2025, ASTIL was launched for an initial three-year start-up phase (2025-2027) under the leadership of CREST and Future Africa, in collaboration with six founding Forum members. The latter include: the NRF South Africa; the SFA Foundation; ARUA; the AAU; AAS; and NASAC. Direct representation by the group of African SGCs is being sought. Their participation in ASTIL will be particularly important, given that the first critical priority for collective debate and action amongst Forum members will be to address the multiple challenges and opportunities of funding research in and for Africa.

A comprehensive, open-access database of STI funding in and for Africa would provide an invaluable resource for the continent.

The database that CREST has been building provides the most comprehensive, evidence-based picture to date of how African STI is funded. As presented in this report, it enables the identification of trends, gaps, overlaps, and opportunities across countries, sectors, and scientific fields. To ensure this resource is effectively used in strategic decision-making on investments in African STI and the development of robust African STI systems, the database work needs to focus on collecting and curating information on domestic STI funding across the continent. By integrating data on both domestic and foreign investments, the database would help STI policymakers, funders, and other STI system leaders on the continent make informed decisions on resource allocation, partnership development, and priority-setting. For African governments, it would offer a tool to benchmark their commitments against peers, track progress toward policy goals, and strengthen accountability. For international funders, it could foster alignment with African needs and interests, indicate new funding partnership opportunities and counteract fragmentation of investments.

The challenges of collecting comprehensive and reliable data on domestic funding of STI in Africa have been noted. Overcoming those challenges calls for systematic and sustained efforts to engage

with governments, as well as national and regional funders, including the SGCs, to identify the nature and format of the data they have, work with them on improving and/or implementing open data management systems that can be seamlessly accessed and integrated into a comprehensive African STI funding database and, more generally, to raise awareness of the strategic value of such work and help build capacity to support it.

APPENDIX A: LIST OF FUNDERS BY DATA SOURCES

FUNDER	DATA SOURCE	MECHANISM	URL	Coverage period
Académie de recherche et d'enseignement supérieur	IATI	Aggregator Platform		2017-2021
Academy of Finland	Dimensions			2001-2011
Academy of Medical Sciences	Dimensions			2011-2020
Agence Française de Développement	IATI	Aggregator Platform		2018-2024
Agricultural Research Service	Dimensions			2000-2022
American Association for Cancer Research	Dimensions			2011-2022
Andrew W. Mellon Foundation	Website	Copied data from the website	https://www.mellon.org/grant-database	2000-2024
Arts and Humanities Research Council	Dimensions			2016-2021
Australian Centre for International Agricultural Research	Dimensions			2012-2022
Belgian Science Policy Office	Dimensions			2001-2019
Bill & Melinda Gates Foundation	Website	Data dump	https://www.gatesfoundation.org/about/committed-grants	2003-2024
Biotechnology and Biological Sciences Research Council	Dimensions			2008-2020
Biovision	Website	Data dump	https://www.cgiar.org/dashboards/grants/funder-view/	2021-2024
British Academy	Dimensions			2011-2015
British Council	IATI	Aggregator Platform		2016-2024
Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung	IATI	Aggregator Platform		2000-2024
Canadian Institutes of Health Research	Website	Data dump	https://open.canada.ca/data/en/dataset/49edb1d7-5cb4-4fa7-897c-515d1aad5da3	2011-2024
Carlsberg Foundation	Website	Data dump	https://grants.forskningsportal.dk/search/1	2018-2024
Carnegie Corporation of New York	Website	Copied data from website	https://www.carnegie.org/grants/grants-database/	2004-2024

FUNDER	DATA SOURCE	MECHANISM	URL	Coverage period
Centers for Disease Control and Prevention	Dimensions			2001-2022
Congressionally Directed Medical Research Programs	Dimensions			2019-2020
Consultative Group on International Agricultural Research	Website	Data dump	https://www.cgiar.org/dashboards/grants/funder-view/	2021-2024
Cordaid	IATI	Aggregator Platform		2015-2024
Council for International Exchange of Scholars	Dimensions			2000-2022
Danish Agency for Science and Higher Education	Dimensions			2014-2015
Danish International Development Agency	IATI	Aggregator Platform		2000-2024
Defense Threat Reduction Agency	Dimensions			2015-2020
Department for Business, Energy and Industrial Strategy	IATI	Aggregator Platform		2010-2024
Department for Environment, Food, and Rural Affairs (UK)	Website	Data dump	https://ukcdr.org.uk/data-tool/mapping-oda-research-and-innovation-modari-2/	2017-2023
Department for Science, Innovation and Technology	IATI	Aggregator Platform		2006-2024
Department of Biotechnology, India	Dimensions			2008-2020
Department of Foreign Affairs and Trade	IATI	Aggregator Platform		2023-2024
Department of Foreign Affairs (Ireland)	IATI	Aggregator Platform		2016-2023
Department of Health and Social Care	IATI	Aggregator Platform		2018-2024
Department of Science and Technology, India	Dimensions			2006-2020
Deutsche Forschungsgemeinschaft	Dimensions			2000-2022
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH	Website	Data dump	https://d-portal.org/ctrack.html?publisher=DE-1#view=main	2020-2024

FUNDER	DATA SOURCE	MECHANISM	URL	Coverage period
Directorate of Agriculture and Food Production, Odisha	Website	Data dump	https://www.cgiar.org/dashboards/grants/funder-view/	2021-2024
Economic and Social Research Council	Dimensions			2006-2021
Engineering and Physical Sciences Research Council	Dimensions			2017-2020
Enhancing Learning and Research for Humanitarian Assistance	IATI	Aggregator Platform		2019-2024
European Commission	Website	Data dump	https://cordis.europa.eu/projects/en	2000-2024
Federal Foreign Office (Germany)	IATI	Aggregator Platform		2015-2024
Federal Ministry of Education and Research, Germany	Website	Data dump	https://worldreport.nih.gov/wrapp/#/search?searchId=67ea802c89d07e74ced2d826	2016-2016
Fonds de recherche du Québec (Quebec Research Fund)	Dimensions			2008-2022
Food and Agriculture Organization	Website	Data dump	https://www.cgiar.org/dashboards/grants/funder-view/	2020-2024
Ford Foundation	Website	Copied data from website	https://www.fordfoundation.org/work/our-grants/awarded-grants/grants-database/	2006-2024
Foreign, Commonwealth and Development Office	IATI	Aggregator Platform		2001-2024
Foundation for Innovative New Diagnostics	IATI	Aggregator Platform		2021-2023
Global Affairs Canada[11]	IATI	Aggregator Platform		2000-2024
Global Alliance for Chronic Diseases	Website	Data dump	https://worldreport.nih.gov/wrapp/#/search?searchId=67ea85a889d07e74ced2d830	2012-2023
Global Antibiotic Research and Development Partnership	IATI	Aggregator Platform		2019-2023
Global Crop Diversity Trust	Website	Data dump	https://www.cgiar.org/dashboards/grants/funder-view/	2008-2023
Grand Challenges Canada	IATI	Aggregator Platform		2019-2024
GSMA Foundation	IATI	Aggregator Platform		2014-2024

[11] GAC has been included in this report. However, we have in subsequent analyses discovered that some of the grants do not specifically meet our requirements for STI funding. We will, in the next version of the database and dashboard, provide updated and correct information about GAC.

FUNDER	DATA SOURCE	MECHANISM	URL	Coverage period
Heifer International	Website	Data dump	https://www.cgiar.org/dashboards/grants/funder-view/	2021-2023
Innovate UK	Dimensions			2012-2022
Institute of Tropical Medicine Antwerp	IATI	Aggregator Platform		2017-2024
International Centre of Insect Physiology and Ecology	IATI	Aggregator Platform		2016-2020
International Development Research Centre	Funder Shared			2007-2024
International Foundation for Science	Dimensions			2000-2022
International Fund for Agricultural Development	Website	Data dump	https://www.cgiar.org/dashboards/grants/funder-view/	2020-2023
International Human Frontier Science Program Organization	Dimensions			2004-2021
International Union for Conservation of Nature and Natural Resources	Website	Data dump	https://www.cgiar.org/dashboards/grants/funder-view/	2020-2023
Japan Agency for Medical Research and Development	Website	Data dump	https://worldreport.nih.gov/wrapp/#/search?searchId=699819eb933a85aa55fda8b8	2011-2019
Japan International Cooperation Agency	IATI	Aggregator Platform		2023-2024
Japan International Research Center for Agricultural Sciences	Website	Data dump	https://www.cgiar.org/dashboards/grants/funder-view/	2021-2021
Japan Science and Technology Agency	Dimensions			2005-2022
Japan Society for the Promotion of Science	Dimensions			2000-2016
John Templeton Foundation	Dimensions			2012-2021
London School of Economics and Political Science	IATI	Aggregator Platform		2016-2024
London School of Hygiene & Tropical Medicine	Website	IATI		2018-2024
Medical Research Council	Dimensions			2000-2022
Medical Research Foundation	Dimensions			2010-2014

FUNDER	DATA SOURCE	MECHANISM	URL	Coverage period
Ministry for Europe and Foreign Affairs (France)	IATI	Aggregator Platform		2016-2019
Ministry for Foreign Affairs (Finland)	IATI	Aggregator Platform		2012-2024
Ministry of Foreign Affairs, Japan	Website	Data dump	https://www.cgiar.org/dashboards/grants/funder-view/	2019-2024
Ministry of Foreign Affairs (Netherlands)	IATI	Aggregator Platform		2001-2024
MQ: Transforming Mental Health	Dimensions			2016-2018
National Health and Medical Research Council (Australia)	Website	Data dump	https://worldreport.nih.gov/wrapp/#/search?searchId=67ea85a889d07e74ced2d830	2012-2021
National Institutes of Health	Dimensions			2000-2022
National University of Ireland	Website	Data dump	https://www.cgiar.org/dashboards/grants/funder-view/	2021-2022
Natural Environment Research Council	Dimensions			2010-2019
Natural Resources Canada	Website	Data dump	https://open.canada.ca/data/en/dataset/49edb1d7-5cb4-4fa7-897c-515d1aad5da3	2013-2024
Natural Sciences and Engineering Research Council	Dimensions			2000-2021
Norwegian Agency for Development Cooperation	Funder Shared			2000-2024
Novo Nordisk Foundation	Website	Data dump	https://grants.forskningsportal.dk/search/1	2023-2024
Nuffic	IATI	Aggregator Platform		2018-2023
Pasteur Institute	Website	Data dump	https://worldreport.nih.gov/wrapp/#/search?searchId=67ea85a889d07e74ced2d830	2014-2020
Royal Society of New Zealand	Dimensions			2009-2021
Rural Development Administration	Website	Data dump	https://www.cgiar.org/dashboards/grants/funder-view/	2020-2023
Science and Engineering Research Board	Dimensions			2016-2017
Science and Technology Facilities Council	Dimensions			2017-2019
Scotland's Rural College	Website	Data dump	https://www.cgiar.org/dashboards/grants/funder-view/	2022-2023
Social Sciences and Humanities Research Council of Canada	Website	Data dump	https://open.canada.ca/data/en/dataset/49edb1d7-5cb4-4fa7-897c-515d1aad5da3	2019-2022
Spanish Agency for International Development Cooperation	IATI	Aggregator Platform		2018-2022

FUNDER	DATA SOURCE	MECHANISM	URL	Coverage period
Spencer Foundation	Dimensions			2000-2016
Swedish International Development Cooperation Agency	IATI	Aggregator Platform		2000-2024
Swedish Research Council	Website	Data dump	https://worldreport.nih.gov/wrapp/#/search?searchId=67ea85a889d07e74ced2d830	2016-2016
Swedish University of Agricultural Sciences	Website	Data dump	https://www.cgiar.org/dashboards/grants/funder-view/	2021-2024
Swiss Agency for Development and Cooperation	IATI	Aggregator Platform		2017-2024
Swiss National Science Foundation	Website	Data dump	https://data.snf.ch/datasets	2000-2024
Templeton World Charity Foundation	Dimensions			2014-2019
The European and Developing Countries Clinical Trials Partnership	Website	Data dump	https://worldreport.nih.gov/wrapp/#/search?searchId=67ea85a889d07e74ced2d830	2016-2023
The Wellcome Trust	Website	Data dump	https://wellcome.org/grant-funding	2003-2024
Tropenbos International	IATI	Aggregator Platform		2016-2024
United States Agency for International Development	IATI	Aggregator Platform		2006-2024
United States Air Force	Dimensions			2015-2022
United States Department of Agriculture	IATI	Aggregator Platform		2012-2024
United States Department of Defense	Dimensions			2015-2024
United States Department of Defense	IATI	Aggregator Platform		2015-2024
United States Department of Health and Human Services	Website	Data dump	https://www.usaspending.gov/download_center/custom_award_data	2007-2024
United States Department of State	IATI	Aggregator Platform		2012-2024
World Health Organization	Dimensions			2000-2021
Worldwide Cancer Research	Dimensions			2013-2014

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