REVIEW OF SGCI COMMUNICATION STRATEGY_FINAL REPORT

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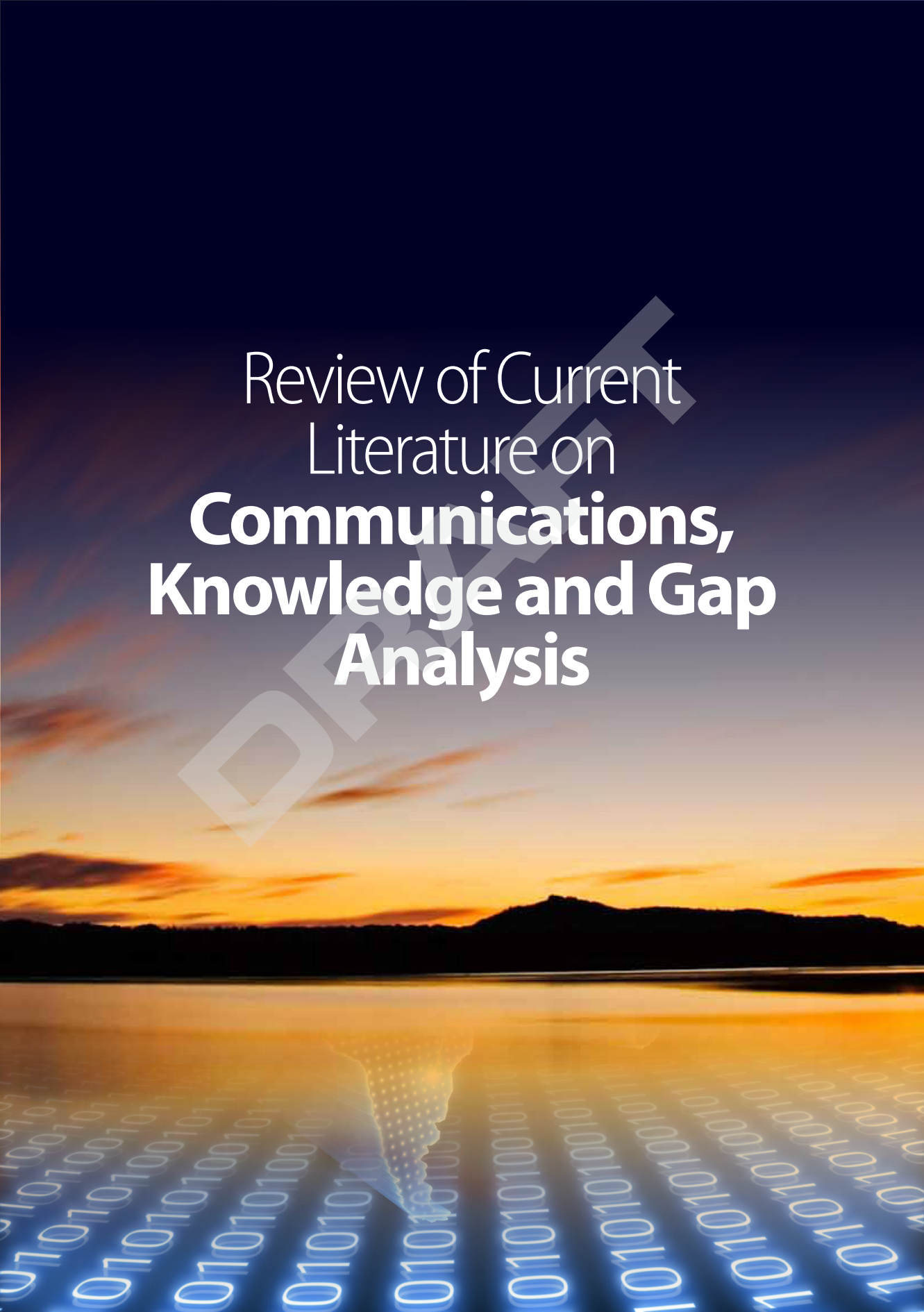
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Review of Current Literature on
Communications, Knowledge and Gap Analysis

CHAPTER ONE

Introduction

1.1 Background Information

The purpose of this literature review and gap analysis is to understand the current situation on communication and knowledge management as documented by the Science Granting Councils (SGCs) in Sub Saharan Africa. The review starts with background information on the need for Science Technology and Innovation in Africa and the state of SGCs. The second section talks about the methods used in the review of the literature; section three captures the milestones that have been achieved, the weaknesses that remain in working towards set targets and opportunities that have been identified that will strengthen the capabilities of the Councils to achieve their organizational objectives. Section four highlights the gaps identified in communication and knowledge management.

The rise of Science Technology and Innovation (STI) can be traced to a growing interest by African governments to mainstream science, engineering and mathematics (STEM) education as well as a recognition that STI plays a critical role in social and economic growth. At the regional level, these nations, through the umbrella African Union, have made strides over the last decade to develop guiding frameworks that enable each member to form the necessary environments and infrastructures as well as allocate necessary financial resources for empowering STI.

In 2014, the African Union adopted a ten-year strategy known as the Science, Technology and Innovation Strategy for Africa 2024 (STISA–2024) to improve the continent's science, technology and innovation capacity. STISA is the first of five decade long incremental phasing strategies for science and technology under the auspices of the Africa Union's (AU) Agenda 2063. Agenda 2063 is the AU's broad and long-term strategy for Africa's development. It has significantly shaped STISA through deciding the priority areas of research that STISA is designed to take forward. The strategy is firmly anchored on six distinct priority areas that contribute to the achievement of the AU Vision. These priority areas are: Eradication of Hunger and Achieving Food Security; Prevention and Control of Diseases; Communication (Physical and Intellectual Mobility); Protection of our Space; Live Together- Build the Society; and Wealth Creation.

The strategy further defines four mutually reinforcing pillars which are prerequisite conditions for its success. These pillars are: (i) building and/or upgrading research infrastructures; (ii) enhancing professional and technical competencies; (iii) promoting entrepreneurship and innovation; and iv) providing an enabling environment for STI development in the African continent. The implementation of

STISA-2024 is designed to take place at three levels. At national level, Member States should incorporate this strategy into their National Development Plans. At regional level, Regional Economic Communities (RECs), regional research institutions, networks and partners should leverage the strategy in designing and coordinating initiatives. At continental level, the African Union Commission (AUC), NEPAD Agency and their partners should advocate and create awareness, mobilize necessary institutional, human and financial resources, track progress and monitor implementation.

The situational analysis of STI in Africa as reported in the STISA-2024 highlighted the following capacity needs and priorities:

- Increased recognition by African leadership and the public of the critical role STI plays in economic growth and human development: There is need for increased investment in STI to achieve sustainable socio-economic growth, reduce poverty e.g. in Research and Development (R&D) flagship programmes in the areas of biosciences, biotechnology, biosafety, laser technology, mathematical sciences, water and energy as well as programmes related to measuring STI support to evidence based policy making.

- Insufficient funding for STI: Current level of investment in R&D by Africa as a continent remains low in achieving the 1% of GDP target agreed by AU Member States as desired minimum expenditure on R&D. Most countries R&D activities are not sustainable as they are over reliant on short-term project funding that is often linked to workshops and consultancies.

- Organizational capacity by entities responsible for STI policy making: Most of the entities responsible for STI policy making have operated in isolation from other policy agencies, with weak links to the private, education and research sectors as well as to African and international Policy Research Think Tanks.

- Infrastructure to support innovation: Need for readiness to support innovation and facilitate competitive business activities requires infrastructure such as broadband Internet access, basic telecommunication services, reliable electricity supply, water, good transportation networks, laboratory facilities, and tax systems that support private sector innovation.

- Inadequate Expertise on STI policy development: Many of the officials involved in or responsible for drafting policy documents do not have the necessary skills or training and have no experience in evidence- based policy making. Moreover, in most countries, institutions responsible for STI policy do not have appropriate libraries or easy access to sources of relevant information for policy-making purposes. Very limited evidence-based policy development takes place in Africa.

- Emergence of African civil society organizations and Think Tanks dedicated to raise awareness of STI: While Civil society organizations and Think-Tanks are championing the use of African indigenous knowledge to support sustained economic growth, and inform public attitudes and understanding of the relevance and importance of STI, most of their contributions are not supported by evidence.

- Scientific Output: Africa is registering an increased number of scientific publications as well as acquisition of capital goods. About 18 African countries have achieved a fourfold increase in imports of capital goods between 2000 and 2011. Steady investment in STI, expansion of R&D institutions and political support may account for this surge in both technology acquisition and number of scientific papers published.

Science Granting Councils (SGCs) are key players in the development of strong national STI systems which are the precursors for transformation to knowledge-based African economies proposed by STISA-2024. SGCs are embedded in the science and innovation systems of their respective countries. In SSA the STI systems vary significantly with regards to socio-political histories, geography, political and economic (in)stability, colonial legacies and most importantly and the degree of institutionalization of R&D. The configuration of the science funding agencies is wide and diversified. A study done by CREST (2013), identified six typical configurations ("models") of science granting agencies in SSA, namely:

i.   Paradigm principal-agent model
ii. Sector-differentiated principal-agent model
iii. Multiple principal-agent model
iv. Embedded principal-agent model
v.   Sector-differentiated embedded principal agent model
vi. Hybrid embedded principal agent model (the embedded-case together with the green part of the multiple-principal agent model)

The differentiated landscape of research funding models reflects the different histories in science policy development and different trajectories in the institutionalization of a science ministry in the various SSA countries and it also reveals the diversity in the science governance models.

SGCs are key actors promoting Public Private Partnerships (PPPs) around R&I within a country's national system of innovation. The role of SGCs and their proxies in different settings is largely to provide support that funds science through a diversity of platforms. The councils act as agents of the government while representing the interests of the country's scientific community. They are important "intermediaries in the flow of international funding and technical support to R&D performing institutions in a country".

The SGCs perform six crucial functions that contribute to the evolution and effective functioning of national STI systems including:

i)   Disbursement of research grants (different categories)
ii) Valorisation' of results/ dissemination /uptake of research reports and findings
iii) Collect data / statistics – Research and Development (R&D) surveys
iv) Capacity Building/ Training (individual/ researchers)
v)   Disbursement of scholarships / loans (different categories from Honours to PhD)
vi) Advocacy for STI

In 2015, the Science Granting Councils Initiative (SGCI) was established with the support of multiple donors that included Swedish International Development Cooperation Agency (Sida), United Kingdom's Department for International Development (DFID), Canada's International Development Research Centre (IDRC) and South Africa's National Research Foundation (NRF). The SGCI was set up following a realization that science, technology and innovation landscapes across developing regions suffered from a number of challenges including: limited capacity for data collection, low uptake of research findings and appreciation of the benefits of STI, weak capacity to promote research and development mainstreaming by organisations, and limited capacity to promote knowledge exchange with the private sector.

The Initiative's intended long-term impact is to create effective SGCs that will strengthen national science systems and result in nationally led research that contributes to economic and social development in sub-Saharan Africa. Phase 1 of the SGCI (SGCI-1) is a 5-year (2015-2020) part of the Initiative that was designed to strengthen the capacities of 15 Councils in sub-Saharan Africa to support research and evidence-based policies that will contribute to economic and social development. These countries are Burkina Faso, Côte d'Ivoire, Ghana and Senegal, Ethiopia, Kenya, Rwanda, Tanzania and Uganda, Botswana, Namibia, Malawi, Mozambique, Zambia and Zimbabwe.

SGCI aims to produce more effective research management practices among the Councils, a stronger ability to design and monitor research programs and formulate and implement policies based on STI indicators, an increased ability of the Councils to promote knowledge transfer to the private sector, and increased coordination and networking among the Councils.

This is based on the realization that the SGCs perform important functions that contribute to the evolution and effectiveness of national STI systems including: Coordinating innovation system actors; promoting/ facilitating knowledge exchange and technology transfer and enhance institutional capacities of their stakeholders and/or innovation systems actors. In executing this mandate, the Initiative works with Collaborating Technical Agencies (CTAs) namely: Southern African Research and Innovation Management Association (SARIMA), New Partnership for Africa's Development-Planning and Coordination Agency

(NEPAD-NPCA), African Centre for Technology Studies (ACTS), Scinnovent Centre and The African Technology Policy Studies Network (ATPS). The role of the CTAs is to lead the implementation of certain thematic areas as far as capacity strengthening of the Councils is concerned . The purpose of literature review was to assess communication strategies, approaches and tools applied as well as knowledge management system among the SGCs and CTAs in order to showcase best practices and highlight any gaps after the first phase of the project (2015-2020).

1.2 Objectives of the Literature Review

The specific objectives were:

i. To document the SGCs & CTAs best practices in communication strategies and knowledge management

ii. To identify gaps in the implementation of communication strategies and knowledge management among SGCs & CTAs.

iii. To review emerging gender issues during the Phase I project implementation.

1.3 Methods

Design: This is an integrative literature review which critiques and synthesizes secondary data from the SGCs & CTAs on communication and knowledge management best practices and to identify any gaps.

The review criteria: The following were the broad themes that guided the literature review.

• Description of communication/ advocacy strategies developed

• SGCI capacity

• Capacity building activities on communication and advocacy and knowledge management.

• Achievements in the implementation of communication and advocacy and knowledge management initiatives.

• Identification of gaps.

Documents reviewed: The literature review and gap analysis was carried out through an assessment of reports and studies SGCI, SGCs and CTA which comprised: SGCs baselines reports, annual reports, regional meeting reports, minutes, training manuals and reports. In addition, the consultants reviewed the AU, SGCs and CTAs websites for relevant reports on communication and knowledge management. Only reports and documents in English were included in this review. See Appendix 1 for full list of materials accessed.

Key Informant Interview: One key informant interview was done with the Director from one of the CTAs in Nairobi. The aim of this interview was to provide a historical background of the SGCI as well

as to understand the objectives, the strategies and achievement of the SGCs in the implementation of communication and knowledge management strategies.

Data analysis: The information collected was analyzed using themes and presented as description. The information collected was not desegregated by various SGCs because the intention was not to compare the individual SGCs performance with regard to communication and knowledge management strategies.

The analysis adopted the "Gender Transformation Approach" to determine to what extent there is a gender sensitive view of the activities of the SGCs to promote gender inclusion. Gender Transformative Approach means promoting gender equality - the shared control of resources and decision-making and women's empowerment. This was to determine to what extent there is gender sensitive view of the activities of the SGCs to promote gender inclusion. We sought evidence of instances of challenging gender norms, promotion of positions of social and political influence for women in communities and institutions, and of challenging power inequalities. Gender transformation approach focused systematically on how gender is integrated into institutions' legislation, public policies, and program activities.

CHAPTER TWO

Results

2.1 Introduction

This chapter presents the key outcomes from the SGCI project Phase 1 on issues of communication, advocacy and knowledge management. At the end of this chapter the gaps identified are presented.

- How SGCs functions (formation, weaknesses providing reason to form the SGCIs to respond to challenges)
- Advocacy for Support for Ethical and Quality Research and Development
- Building Partnerships and Networks among SGCs and Other Science System Actors in SSA
- Gender Inclusivity
- Communication Strategy
- Knowledge Management
- Summary of Gaps

2.2 SGC Functions

A study done by Centre for Research on Evaluation, Science and Technology (CREST), Institut de Recherche pour le Développement (IRD), and Stellenbosch University (supported by the IDRC) in 17 SSA countries in 2014 , reported that SGCs typically operate in 12 areas. The first three can be regarded as different forms of science funding support and hence address the core mission of a funding agency. Other functions such as the dissemination of research findings, support for scientific publishing, collecting of R&D data and statistics are new functions that are performed by many of the science granting councils. The functions are:

1. Disbursement of research grants (various categories)
2. Disbursements of scholarships and loans (mostly Masters and doctoral students)
3. Funding support for infrastructure development
4. Valorisation of results (Dissemination and uptake of research reports and findings)
5. Supporting scientific publishing/scientific journals
6. Advocacy to the STI
7. Collect data and statistics on S&T and R&D
8. Capacity-building/training of researchers
9. Policy advice
10. Setting research agenda/research priorities
11. Management of scientific collaborations and agreements
12. Coordination of the NIS system

Gap: The SGCs have a wide range of functions but they do not have the necessary capacity to perform all the functions adequately. Human capacity is among the most prominent gaps.

2.3 Advocacy for Support for Ethical and Quality Research and Development

One of the functions of SGCs is advocacy for STI, so that the voice of the STI communities can be represented in the country's programmes and policies at all levels. Convening of dialogue with policy makers creates an avenue for the Councils to advocate for the governments to honour their commitments for research. It was however noted that the mandates of SGCs to convene dialogue vary across Councils. Kenya and Namibia reported to have previously held meetings with relevant parliamentary groups. The NCST in Kenya conducted various activities aimed at creating awareness relating to STI. In Ghana, the proposed National Research Funding Council will be responsible to provide STI advocacy. These activities bring together innovators, research institutions, technology providers and the general public. Of the 17 countries included in the CREST study (2013) p.43, only three countries (Ghana, Kenya, and Nigeria) were reported to be doing advocacy for STI as their core function.

In accordance with the NEPAD objectives many African governments have committed themselves to increasing their gross domestic expenditure on R&D (GERD), and to put in place the necessary policies to enact such decisions by 2015. However, most SSA countries spend less than 0.5% of their Gross Domestic Product (GDP) on R&D. The CREST report of 2013, suggest that many SSA nations have not accorded science sufficient centrality and that the low level of funding is symptomatic. The report says, 'The relatively poor investment in R&D in many SSA countries, which have a direct impact of the science funding models, point to different "inscriptions" of science in different countries and different values afforded to science. On the one hand some governments clearly recognise the value and importance of science and hence invest in science funding and also the establishment of a national funding agency. On the other hand, many governments have not – at least until very recently – judged science to be of sufficient value and importance to invest in the establishment of a relatively autonomous agency to disburse state funds for research and development (CREST report: pg. 36). This calls for some attitude change.

Some SGCs have strong support by their governments in pushing the research agenda. E.g. in Senegal the President is keen to promote science nationally. The government doubled the research budget allocation to research from 2014 to 2018, provided bonuses to teachers and professors, and have created more labs.

Other achievements by the Councils on advocacy are summarized below:

1. In Uganda, a National Research and Innovation Support Framework was established to augment R&D funding towards the recommended regional level (1% of GDP) and consciously finance scientific innovation. The masterclass paper on 'New Approaches to Funding Research and Innovation in Africa' contributed to this outcome.
2. In Uganda, the Uganda National Council for Science and Technology (UNCST) has revised the national research guidelines to include windows of support for social innovations; platforms for academia-industry research collaboration and for greater alignment with regional and global development strategies. The Council is also revising its strategy and approaches to stakeholder engagement in ways that enable co-investment, co-creation and incentivizing multi-stakeholder platforms on various aspects of STI development. The masterclass paper on 'Towards Effective Public-Private Partnership in Research and Innovation' contributed to these outcomes.
3. In Mozambique, the National Research Fund (FNI) has commenced discussions with relevant agencies in the country on how to address the funding limitation for research and innovation development and the need for the establishment of a national research agenda in the country. This is an outcome from the masterclass paper on 'New Approaches to Funding Research and Innovation in Africa'.
4. Again in Mozambique, the FNI has reinforced the establishment of partnerships and exchange of experience with the SGCs in the region. They have started in-country actions to bring the private sector into the research agenda and have signed a memorandum of understanding (MoU) with in-country National representative of private sector to start a partnership relation for research and innovation. These are outcomes with contributions from the masterclass paper on 'Towards Effective Public-Private Partnership in Research and Innovation'.
5. In Malawi, the National Commission for Science and Technology (NCST) has fostered partnerships with other STI system actors especially with the higher education sub-sector and held for the first time a major national meeting on STI in the country. The masterclass paper on 'Towards Effective Public-Private Partnership in Research and Innovation' contributed to this outcome.
6. In Senegal, the Research and Innovation Directorate has undertaken actions in the country to promote public-private partnership, e.g. the introduction of Board of Directors in universities and opening up of universities and research institutions for enterprise development among others. The masterclass paper on Public-Private Partnership contributed to this outcome.
7. In Botswana, the Department of Research Science and Technology (DRST) is reviewing effective and sustainable approaches for boosting research funds in the country. This came after the lessons learnt from the masterclass paper on 'New Approaches to Funding Research and Innovation in Africa'. The Department is also working with other partners to develop the 'National Private Engagement Strategy' based on lessons learnt from the Public-Private Partnership masterclass paper.

Source: Theme 4 Technical Report 2017-2020

Gaps: Most of the Councils reported that they need support to build capacity to effectively engage with policy makers to advocate for the governments to honour their commitments for research.

2.4 Building Partnerships and Networks among SGCs and Other Science System Actors in SSA

In a study conducted by the CREST, et al, 2014, in 17 SSA countries revealed that there is relatively weak networking and coordination among Councils, and also among other actors in the national and regional science systems. The lack of strong partnerships within the regional blocs and at the continental level is likely to undermine the status, influence and functioning of these Councils in supporting the implementation of STISA-2024 in order to achieve the African Union Agenda 2063.

The SGCI Theme 4 "Networking Africa's SGCs" aims to strengthen the capacities of SGCs in SSA to establish partnerships amongst themselves and with other science stakeholders. The purpose is to improve coordination and networking among Councils in their effort to strengthen national science systems and promote nationally-led research that contributes to socio-economic development. It is implemented by the African Technology Policy Studies Network in partnership with The Scinnovent Centre. During the Project Phase I several innovative methods and approaches were used to towards realizing theme four objectives in order to enhance effective and participatory engagements, experiential learning and knowledge sharing by all delegates during the Annual Forums (AFs) and Annual Regional Meetings (ARM). Methods used included plenary keynote presentations, roundtable discussions, facilitated breakout sessions, group active engagements, brainstorming sessions, pitching sessions, paired speaking and listening, documentation of the stories of change among SCGs and feedback sessions. According to Theme 4 Technical Report 2017-2020, notable achievements are shown in Table 1:

Source: Theme 4 Technical Report 2017-2020

During the SGCI 2019 annual forum/masterclass, in Dar es Salaam, the delegates observed that African SGCs are already working collaboratively in bilateral and multi-lateral cooperation, sharing resources, infrastructures, skills and capacities. The collaborations promote openness and, in some cases, have led to peer-to-peer learning, experience and knowledge sharing and replicability. It was further noted that transition to a "knowledge society" should be hinged on more on knowledge generation and application and less on natural resource endowments. Overall, it was observed that lots of learning, knowledge sharing and exchange took place during the annual events in form of the AFs and ARMs. There were

Table 1: SGCI's Theme 4 Achievements in 2017-2020

Annual Forums	· Maputo, Mozambique; "Research Excellence in SSA" · Livingstone, Zambia, "Towards Effective Public-Private Partnerships in Research and Innovation" · Abidjan, Cote d'Ivoire, "New Approaches for Funding Research and Innovation in Africa" · Dar-es-Salaam, Tanzania, Open science in research and innovation for development in Africa"
Annual Regional Meetings	· Kigali, Rwanda, "The First Annual Regional Meeting of the Science Granting Councils Initiative in sub- Saharan Africa" · Accra, Ghana "Research, "Research and Innovation for Job Creation"
Policy Briefs (communication output)	· Oyelaran-Oyeyinka, B. et al, 2018, Towards Effective Public-Private Partnerships in Research and Innovation: A Perspective for African Science Granting Councils; African Technology Policy Studies Network (ATPS), Technopolicy Brief No 49. · Mugwagwa, J. et al, 2019, New Approaches for Funding Research and Innovation in Africa, African Technology Policy Studies Network (ATPS), Technopolicy Brief No 50. · Boulton, G., Loucoubar, C., Mwelwa, J., Ozor, N., and Bolo, M. (2020) Open science in research and innovation for development in Africa; ATPS Research Paper No. 32.

increased collaborations between and amongst the Councils and other science system actors .

Other Councils initiatives reports include:

- Mozambique: Signed an MoU with the private sector association as part of the dialogue between academia, research bodies and private sector.
- Kenya: NACSOTI plans to work with Linking Academia with Industry to promote PPPs.
- Nambia: NCRST have held research symposia and science month to promote dialogue; they developed a science engagement policy has been developed .
- Senegal: Has a 10-year strategy document which outlines guidelines for outreach to civil society organizations for research uptake.
- Tanzania: COSTECH convenes STI exhibitions for policymakers in Parliament to showcase the impact of research. They meet with Parliamentary Committee on STI twice a year to appraise them about achievements and ongoing work .
- Zambia: The NCST has in the past funded research which is of interest to the private sector but limited resources have hampered optimal engagement .
- Zimbabwe: The Council convenes biennial dialogues between academia, research bodies and private sector groups in order to promote linkages and ensure demand-led research .

Gaps: Private sector engagement in R&D in many countries remains minimal among most Councils. Nearly all SGCs reported that there is still a gap in strategically engaging the private sector for research

uptake. The initiatives are scanty and sometimes individually lead and there are no systematic approaches to engage various stakeholders.

2.5 Gender Inclusivity

The project ensured a gender balance in the implementation of the project. The project team had female members who are in charge of financial management, communications and technical coordination. The selection of speakers during the Forum was also consciously done to accommodate both men and women equally. E.g. women constituted over 50% of the HoRCs that give perspectives to the masterclass papers. The project continued to remain conscious of ensuring a gender balance in selection of representatives for the annual forum, the facilitation roles such as session chairs, rapporteurs. Notably:

In 2019, the SGCI and the Global Research Council jointly organized the Gender Session. During this session, it was observed that the number of female researchers in many SSA countries continues to be low, that SGCs are increasingly enacting policies and strategies to promote the status and equality of women in research but more support is needed for the SGCs, and that diverse approaches were being explored. Storytelling and the human rights discourse observed to be powerful tools to encourage and influence action.

Current status of Gender Mainstreaming in Research among SGCs: According to interviews conducted between October 2018 and March 2019 with 14 out of the 15 SGCI participating countries, all Councils reported that they were making efforts towards gender mainstreaming. Most Councils referred to the national agendas on gender as a basis for building their respective gender approaches. Examples include:

- Malawi: A network for women in science and technology has been established in Malawi to encourage participation by women in research and STI .
- Mozambique: FNI collects gender disaggregated data, and gender elements are considered in impact assessment. Gender integration is considered as part of grant management .
- Nambia: Has a strong gender policy that has even received recognition from Africa Gender Forum. The policy promotes gender mainstreaming including participation by women in Science, Technology, Engineering and Maths .
- Senegal: Have gender policy which defines funds/scholarships for women only at each university . The 10-year strategy document has 11 major decisions of which seven are for teaching including promotion of girls in science and four for research.
- Tanzania: SIDA has supported COSTECH to develop a policy on gender.
- Uganda: Uganda has a national gender policy which is implemented by Uganda's Equal Opportunity Commission (EOC).

Other countries that reported challenges on gender transformative policies include Zambia that reported

that although the STI policy speaks about gender, the issues are not clearly articulated . In Zimbabwe, gender equity and inclusivity in the council remains a challenge .

Gaps: There are still opportunities for capacity strengthening on gender to enhance gender considerations in research design, implementation analysis and reporting. Therefore, gender transformative work should be strengthened.

2.6 Communication Strategy

Communication is identified as a key enabler of achieving development objectives across Sub Saharan Africa. At the regional level, STISA articulates physical and intellectual mobility as a key priority area. Intellectual mobility is premised on the flow of information as a critical part of communication for development.

According to the CREST report, in well-defined innovation systems, the SGCs perform a number of crucial functions that contribute to their effective and efficient functionality including assessing the communication, uptake and impact of publicly funded research among many other roles.

'In this ideal, the Councils act as fair and disinterested agents of government while representing the interests of the scientific community nationally, regionally and globally.'

In general, the areas of capacity gaps identified by all the Councils included strategic communication and effective engagement with the private sector. Although all the Councils were interested in holding dialogues with policy or decision makers, the nature of their relationship with policymakers varied greatly from country to country. At the same time, their modes of engaging policymakers differed from one country to another. For instance, Burkina Faso's FONRID does not have the mandate to hold meetings with parliamentarians. In Cote d'Ivoire, PASRES felt that advocacy for increased funding should be handled discreetly through informal meetings with ministers.

All the Councils are interested in strengthening their communication efforts and consider their current approaches inadequate. In particular, they are interested in exploring other ways that will increase effectiveness in communicating the impact of research to the general public and especially policy makers as well as enhancing skills in media engagement and tools to ensure accurate media output.

Some of the Councils, like Burkina Faso have a communication plan, but it is not clear how strategic it is or how successful it is. It is not clear how participatory the exercise of developing it was, hence the buy-in by stakeholders.

Part of SGCI's capacity strengthening programs for the Councils included developing a social media how-to guide that is available for access from the SGCI website by the respective councils. The use of digital

media and social media in particular presents opportunities yet unrealized. On engaging the private sector, the proposed approach is to provide a platform for engaging with the private sector. The action point here is to target different private sector players, identify their needs and invite them to partner with relevant R&D.

On platforms for engaging the academia, approaches include publishing in the scientific publications and holding scientific fora with the academia. On platforms for engaging the civil society, the approach includes providing platforms including Science weeks, Expos, Science cafes, Road shows, Open days as well as holding In-country support and training and working with the media. The action plan here is to support the organization of Science weeks, provide events management training, set up pilot Science cafe sessions and run some science reporting training for journalists (train the trainer).

The approach to using other communication related activities is to use on-line communication platforms. The action points here were to hold tailored training in the creation of science blogs, websites and social media, subscription to databases and providing access to relevant stakeholders as well as developing communication strategies for the councils.

Even though all these desires were outlined, the Councils omitted implementation timelines, while indicating a desire for actions on STI awareness targeting mostly the politicians, as others emphasized the urgency for science journalism training.

On Platforms for engaging policy makers: Proposed approaches to capacity strengthening include: Develop policy briefs; Parliamentary policy dialogue; and Seminars and symposia
Actions plan: Training in area of science diplomacy and developing policy briefs

On Engaging private sector Approaches: Provide platform for engaging private sector
Actions plan: i) Target different private sector players, identify their needs, invite them to partner with relevant R&D; ii) Supporting actions of creating and/or strengthening linkages between academia and industry; Engage private sector provisional bodies

On Platforms for engaging academia Approaches include: Scientific publications; Scientific fora with the academia
Actions plan: Support publications activities and the organization of Scientific fora.

On Platforms for engaging civil society Approaches: Provide platforms for engaging society (e.g., Science weeks, Expos, Science cafes, Road shows, Open days); In-country support and training; Work with the media.

Actions plan: Support the organization of Science weeks; Events management training; Piloting Science cafe sessions; Science reporting training for the journalists (train the trainer).

On other related activities Approach: On-line communication platforms

Actions plan: Tailored training in the creation of science blogs, websites and social media; Subscription to databases and provide access to relevant stakeholders; Development of communication strategies

In Tanzania Communication is supported under SIDA funding to COSTECH (2016 to 2021).

Several meeting meetings and trainings were held to strengthen communication strategies among the SGCs.

Gaps

In general the capacity gaps identified by all the councils included strategic communications and effective engagement with the private sector.

Engagement with the private sector was seen as a core communication activity that needs to result in buy-in for the private sector to increase or embrace research funding.

Table 2: Summary of Communication Activities Held in Phase I

Country	Activity	Strategic Communication status
Kenya	Training in 2018 by ACTS/ SC NCST carried out public relations and communications officer training on biosafety NACOSTI and NCST participated in Agriculture Society of Kenya (ASK) shows	Communication is an area of great need for NACOSTI/ NRF
Malawi	None identified	Communication of research results is currently done through biennial large dissemination forums and reports deposited on the website
Ghana	None identified	Not discussed
Burkina Faso	Organized three large meetings that brought together the chamber of commerce, research centres, CNRST and research institutes, and those responsible for IP, and individual private sector members	They have a communications unit typically staffed by journalists specialised in science and research but unfamiliar with strategic communications for lobbying and communications
Zambia	Hold quarterly forums to disseminate research results	Quarterly forums deemed insufficient and desire to revamp the science engagement unit
Zimbabwe	None identified	Council able to communicate when needed but lack financial resources to market, disseminate and promote research results

Country	Activity	Strategic Communication status
Mozambique	Meetings held with journalists to sensitise them about science journalism.	No communication strategy and no designated communications focal point
Uganda	Not identified	Communication is an area of great need for UNCST and local media have limited experience in reporting research issues
Tanzania	None identified	Covered under SIDA support
Senegal	None identified	Keen to promote science nationally e.g. through public outreach. No strength in communications especially convincing higher level officials on the value of research
Namibia	None identified	Has a corporate/organisational level communication strategy but no formal approach to communicate research results
		Also has a science engagement policy
Botswana	None identified	Strategic communication skills essential to progress on the NRF act
Ethiopia	None identified	Not clear

Source: SGCs Needs Assessment Reports. nd

All the councils need to develop clear communication strategies. They all need to learn how to do it as well as specific tactics and tools that will enable them package and disseminate research results. The Councils also need a focal point for communication functions.

All the Councils state that they are faced with inadequate funding but very few of them articulate how this impacts their strategic communication.

While all of them express the need for capacity building, some of the Councils were not explicit on strategic communication as a priority.

Since they lack communication strategies, there was no deliberate audience segmentation and specific message definition.

2.7 Knowledge Utilization and Uptake

STI activities do not occur in a vacuum and especially in the era of globalization, are influenced by external actors and events.

In order to achieve the STISA priority areas, some of the general objectives of the continental strategy are to enhance effectiveness of STI in addressing the priority areas, improve technical competency and institutional capacity for STI development and promote competitiveness in the economy as well as protect knowledge production through strengthening IPR and facilitate policy reforms and harmonization of science diplomacy.

While there was a clear need to build their scientific technical capacity, some SGCs said that a key challenge for them was lack of information and communication on the results of the research, statistics and performance indicators of the sector.

There is a definite desire for the SGCs to create more opportunities to share information and learning on a regular basis. In general, the SGCs are keen on gaining new knowledge, experiences and lessons that (i) Improve their efficiency (ii) Are cost-effective (iii) Enhance service delivery.

Open data and sharing of research
The open science movement was enabled by the rise of online journals in the 1990s, reflecting the original intent of science in supporting transparency and collaboration in research and scientific communication. Open data is based on the idea that not only should the results of research be open, but also the underlying data that informs and supports them. But open data requires significant resources to set up databases for public use and combinability. Appropriate technology is necessary including high capacity computers, software programs, reliable internet connectivity and cloud based computing capabilities to store and analyze the data.

Many of the SGCs said they lacked most of the infrastructure, especially reliable internet connectivity needed to set up the open data systems. But simply placing data sets on the web with little explanation is insufficient. There needs to be ways in which the data can be summarized and made into key messages that are succinct and memorable. This was a major area of interest for the SGCs and for which they expressed desire for capacity strengthening.

SGCI developed a strategy for facilitating and monitoring knowledge uptake and outputs. This document, designed for the SGC leadership, staff and management, outlines facilitating access to knowledge products through packaging and dissemination using both online and print media channels. These include the SGCI's virtual hub, partner websites, annual forums, regional meetings as well as face to face meetings with key government officials.

SGCI has supported several opportunities for councils to work and learn together

- The SGCI facilitated collaboration / interactive learning between / among Councils. For example, Malawi is engaged in a partnership with Zimbabwe and hopes to extend this to Zambia. PASRES has learnt a great deal from Mozambique. Zambia and Mozambique have agreed on a common reporting framework for their collaborative projects. SGCI has helped the Councils from Mozambique and Namibia to engage in peer-to-peer learning thus overcoming language barrier;
- - The Councils continue to invest their own resources (financial and non-financial) to deepen relationships with each other, including co-funding for research projects.

Dissemination of outputs was done through the following means:
- Emailed to the SGCI Network: Through the comprehensive list of the SGCI stakeholders, most of the key outputs are shared with them e.g. the masterclass paper and other outputs therefrom.
- Printed and published by the ATPS in English and French in most cases: The Research Papers and Policy Briefs are in most cases printed and published in both English and French languages considering the diversity of the SGCI stakeholders.
- Printed publications disseminated to the SGCI Network during the communication forums i.e. Annual Forums and Annual Regional Meetings: The Research Papers and Policy Briefs emanating from the masterclass papers are usually distributed during SGCI events such as ARMs, AFs, SGC training events and now the close out workshop.
- Radio, TV, Newspaper, Blogs: Events, information and outputs from the SGCI have been various communicated and disseminated using various audio-visual and print media. For instance, the ARM in Ghana was published in the Goldstreet Business Newspaper in Ghana on Friday, 6 July 2018. Similarly, the just concluded 2019 AF in Dar was widely disseminated in the national television as well as in over five newspaper publications.

The SCGI organized a multi-stakeholder forum on public-private partnerships in Burkina Faso in November 2018 . The purpose for the forum was convene multi-stakeholders from both the private and public sector to dialogue on strategies to bridge the gap between the Science Granting Council in Burkina Faso, the private sector, Academia and the Government.

Knowledge Management Achievements
In Burkina Faso: organised PPP meetings & ST forums (April 2017, August 2018, October 2018) bringing together the chamber of commerce, research centres, CNRST and research institutes, and those responsible for IP, and individual private sector members .
Kenya has several linkages between knowledge-based institutions and government agencies.
Knowledge Management Areas of Need by SGC
Botswana reported that they are currently struggling with the uptake of data conclusions by policymakers.

Some recommendations from the multi-stakeholder forum on public-private partnerships in Burkina Faso were to i) establish an effective process or system that will enable people to have access to research findings based on their specific development needs, ii) establish an awareness and support framework for researchers to ensure they own the results and are able to share their innovations with industry, and iii) establish a relevant information system for wider dissemination of research and innovation results and find better channels for engaging the private sector at all stages of the research process

Gaps

Some of the knowledge management gaps identified included:

- Low visibility of the research findings;
- Low trust between the private sector and research firms and institutions
- Insufficient support for private research institutions
- Insufficient collaboration between universities and research centres and between universities, research centres and the private sector.
- Challenges of utilizing, disseminating and commercializing research results.
- Inability of the local private sector to have access to research findings
- Lack of incentives mechanisms to promote research in all forms of collaboration between the public and private sector (public procurement, PPP)

The current use of open data was also noted as a platform for sharing information between researchers, but it could serve as a strategic communication resource. However, using open data for science communication should follow some guidelines. These guidelines need to be developed for the SGCs and include aspects such as stating that the study has open data, mention the researchers who made the data openly available, explain the type of data openly available and direct others where the data can be found. The scientists also need to promote the openly available and accessible data. There was also a lack of formal structures to facilitate public-private sector dialogue as well as dialogue between the Councils and research institutions.

2.8 Challenges Embedded in the respective science systems

A key outcome expected in Phase 1 of the Initiative was to achieve more effective research investments and strengthened research leadership for development in sub-Saharan Africa. Yet, even though they made some progress, capacity gaps persisted among the Councils and they faced challenges.

The following are challenges identified in the country analyses.

- Limited capacity for data collection (Capacity to design and monitor research using robust STI Indicators)
- Low uptake of research findings and appreciation of the benefits of STI
- Weak capacity to promote research and development mainstreaming by organisations
- Limited capacity to promote knowledge exchange with the private sector.
- Inadequate and non-sustainable public funding of science is a challenge in most SSA countries mainly due to the low rate of R&D investment. With the clear exception of South Africa, all other SGC's have not receive sufficient public funds to disburse to the science community in their respective

countries.

- Lack of appropriate legislation as well as the poor implementation of science and research funding policies.
- Weak co-ordination within their national STI systems. There is weak co-ordination between a national agency and sector agencies but also with foreign agencies.
- Lack of strong partnerships between R&D performing institutions and industry.
- Weak partnerships with industry
- Marginal status of research councils

2.8 Summary of Capacity building Needs among the SGCs in Communication & KM

This section provides a summary of areas of need by the SGCs to strengthen their communication, advocacy and knowledge management components.

Table 3: Capacity Building Needs in Communication & KM among the SGCs

Country	Area of Need
Kenya	- Support to develop a communication strategy
Botswana	- Advocacy through support to organize dialogues with policy maker, academia and private sector. - Developing an engagement framework with the private sector - Packaging data for policymakers so that they can demonstrate data impact.
Bukina Faso	- Develop an online system to manage grant applications - Capacity building for staff in the communication unit to enhance communication of science.
Ghana	- Support to strengthen stakeholder engagement with policy makers, academia, private sector and other SGCs for joint collaborations and benchmarking - Develop an online system manage grant applications - Support to improve strategic communication skills
Malawi	- Need for funding and expert technical support to establish on-line grant management system, database of peer reviewers, and open data platforms. - Support to establish effective channel for advocacy with ST actors particularly the private sector - Systematic analysis of research priorities, data review, packaging and disseminating results for targeted impact.

Country	Area of Need
Mozambique	- Support to improve capacity for gender analysis. - Support to upgrade the online grant application system - Training to strengthen capacity to communicate research results.
Nambia	- Support to develop an integrated information management system for online grants management system. - Support to convene dialogue sessions with policy makers. - Support to develop a tool to assess the impact of engagement with all science actors. - Capacity building in Intellectual property and commercialization of research
Senegal	- Capacity building to strength communication of science.
Tanzania	- Support to develop an on-line grants management and databases - Support to develop policy briefs & chance to benchmark with other SGCs.
Uganda	- Support to develop policy briefs & chance to benchmark with other SGCs. - Support to plan and convene dialogues with private sector actors - Capacity building for effective communication of reporting research issues.
Zambia	- Zambia's STI policy speaks about gender although this is not clearly articulated - Support to develop on-line grants management system - Support to develop policy briefs and white papers - Support to package information effectively communicate with the public
Zimbabwe	- Support to develop on-line grants management system. - Support to design M&E for research based on use of robust STI indicators. - Training development of Strategic Communication Plans and strategies to promote research results uptake.
Ethiopia	- Support to migrate to a digital platform for an on-line grant management system.

Source: SGCs Needs Assessment Reports nd.

LIST OF REFERENCES

Center for Research on Evaluation Science and Technology, Institut de recherché pour le developpemente, Stellencbosch University (2014), Final report on Science Granting Councils in Sub-Saharan Africa

Scinnovent, Science Granting Councils in Sub Saharan Africa (2015), Preliminary needs assessment report

Scinnovent, Notes from chats with SGCs

Scinnovent, Report on the consultative meeting with SGCI councils to discuss SGCI-2 implementation plan (2019)

P, Huston, VL Edge and E Bernier, Canada Communicable Disease Report (2019), Reaping the benefits of Open Data in public health, October 2019, 2020 August.