PROCEEDINGS REPORT

AFRICAN ACADEMY DEVELOPMENT: STRENGTHENING SADC SCIENCE ACADEMIES FOR BETTER SERVICE TO SOCIETY

Hybrid webinar
Park Inn by Radisson, Cape Town Foreshore, South Africa
5 December 2022 10:00–17:00
The Academy of Science of South Africa (ASSAf) was inaugurated in May 1996. It was formed in response to the need for an Academy of Science consonant with the dawn of democracy in South Africa: activist in its mission of using science and scholarship for the benefit of society, with a mandate encompassing all scholarly disciplines that use an open-minded and evidence-based approach to build knowledge. ASSAf thus, adopted in its name the term ‘science’ in the singular as reflecting a common way of enquiring rather than an aggregation of different disciplines. Its members are elected based on a combination of two principal criteria, academic excellence and significant contributions to society. The Parliament of South Africa passed the Academy of Science of South Africa Act (No 67 of 2001), which came into force on 15 May 2002. This made ASSAf the only academy of science in South Africa officially recognised by government and representing the country in the international community of science academies and elsewhere.


Views expressed are those of the individuals and not necessarily those of the Academy nor a consensus view of the Academy based on an in-depth evidence-based study.
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OPENING

Prof Soodyall, Executive Officer of the Academy of Science of South Africa (ASSAf), welcomed attendees to the workshop on strengthening Southern African Development Community (SADC) science academies for better service to society. Eleven countries were participating in the workshop. Prof Soodyall called on Prof Evance Kalula to make the welcome remarks.

WELCOME REMARKS (PROF EVANCE KALULA, ACADEMY OF SCIENCE OF SOUTH AFRICA COUNCIL MEMBER)

Prof Kalula greeted attendees and indicated that ASSAf was privileged to host the meeting. He looked forward to a robust discussion that would reinforce the common goals of the stakeholders. He welcomed attendees on behalf of the President and Chairperson of ASSAf, Prof Jonathan Jansen.

OPENING REMARKS (MS THATO MOROKONG, DEPARTMENT OF SCIENCE AND INNOVATION, SOUTH AFRICA)

Ms Thato Morokong, Assistant Director of Africa Multilateral Cooperation, Department of Science and Innovation (DSI) made the opening remarks in place of Ms Mandry Ntshani who was unable to attend the meeting in the morning due to another engagement.

Ms Morokong welcomed members states, academy officials and the SADC secretariat to the meeting on behalf of the DSI, and looked forward to the discussion on the utilisation of science academies in service to societies. The workshop was taking place on the margins of the World Science Forum that was being hosted in Cape Town under the theme ‘Science for Social Justice’ hosted by the DSI in collaboration with the government of Hungary. The DSI, as per the White Paper on Science, Technology and Innovation (STI)¹ that had been adopted in 2019, recognised the role of science academies in providing evidence informed policy advice in order to enable the department to deliver on its mandate.

The cabinet of South Africa had recently adopted the implementation of the 10-year Decadal Plan for 2021–2031², and one of its priorities was the use and application of STI in addressing the Societal Grand Challenges (SGCs). Academies of science play a crucial role in interfacing with government, industry and academia, providing for a triple helix model of innovation. They have immense power through their ability to convene some of the best minds or brains trusts of nations to contribute to addressing societal challenges. There was a need for continuous collaboration between government and science academies in the co-creation and co-ownership of evidence-based policy. The COVID-19 pandemic had provided a clear example of that need, in that there had been a great deal of misinformation and disinformation disseminated about the disease and the vaccines, and the DSI, in collaboration with ASSAf, had worked to debunk some of those myths.

The Decadal Plan also recognised the value of partnerships to support a Pan-African STI agenda in the region and the African continent. The DSI collaborates with strategic partners such as the SADC Secretariat, and various science academies in the region to support the region’s industrialisation efforts through the development of value chains. The DSI remains committed to national and regional efforts to develop and support science academies, which would provide evidence based science advice on matters of national and regional interest. Ms Morokong wished participants successful deliberations and looked forward to hearing some of the interventions and insightful contributions that would arise from the workshop.

PRESENTATIONS

OBJECTIVES AND PURPOSE OF THE MEETING (MS ANNELINE MORGAN, SADC SECRETARIAT)

Ms Anneline Morgan the Senior Programme Officer for Science, Technology and Innovation (STI) at the SADC Secretariat, based in Gaborone, Botswana. Ms Morgan registered pleasure to be partnering with ASSAf, the Lesotho Academy of Science and Technology (LAST) and the DSI in South

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² [https://pmg.org.za/committee-meeting/35124/](https://pmg.org.za/committee-meeting/35124/)
Africa, to jointly host the event. A representative from the United Nations (UN) Technology Bank was present at the workshop. The UN Technology Bank had played a key role in supporting the SADC region in terms of assisting with the establishment of some of the new academies, such as those in Angola, Malawi, Lesotho and DRC, and also in supporting the existing academies.

The presentation outlined the purpose and objectives of the workshop, and gave an overview of the regional programmes and initiatives that were being implemented in that regard. The wider objective was to strengthen science academies in the region and throughout Africa, although the workshop would focus on the academies located within the SADC region and the role that they needed to play at both national and regional level. Academies of science are instrumental in guiding and supporting the implementation of national STI policies through evidence-based scientific advice as a primary academy mandate. There were several academies of science in the SADC region, the oldest being Madagascar’s National Academy of Arts, Letters and Sciences, which had been established in 1902.

The SADC Ministers responsible for Education and Training, and Science, Technology and Innovation (ET-STI) had acknowledged and prioritised the need to strengthen the academies of science in order to advance the regional systems of innovation and to enhance cooperation between member states. It was hoped that the workshop would facilitate partnerships and cooperation amongst academies in the region to work towards a regional mandate. It was against that background that the SADC Secretariat, in partnership with ASSAf, the DSI (South Africa) and LAST had convened the regional workshop to coincide with the World Science Forum, which was taking place in Cape Town from 6–9 December 2022.

During a joint meeting on 14–16 June 2021, the SADC Ministers responsible for ET-STI had directed the SADC Secretariat, in partnership with ASSAf, to develop regional guidelines for the establishment and strengthening of science academies3. Ms Morgan said that the Ministers’ report would be shared with participants. Science academies in the SADC region were encouraged to share policies, experiences and lessons learned, and to reflect on the role of science academies in supporting the implementation of the SADC Regional Indicative Strategic Development Plan (RISDP) 2020–20304. A working group of science academies consisting of regional experts would be set up to work on the draft guidelines. The guidelines would be tabled at the Ministers’ meeting in June 2023 in the Democratic Republic of Congo (DRC).

SADC was a regional economic community made up of 16 member states and had been officially formed as a development community in 1992. The SADC region encompassed a population of over 300 million people. Of the 300 million people, 75% were young people, and that demographic needed to be taken into consideration. Young people needed to be more involved in STI, and to be part of the policies and programmes that were developed. Currently, members of the SADC science academies were primarily older people.

The SADC decision making structure consisted of the SADC Secretariat, based in Gaborone, Botswana, headed by an executive secretary. The current executive secretary, who had been in that role since 2021, was His Excellency Mr Elias Magosi from Botswana. He had replaced the outgoing executive secretary, Dr Stergomena Tax from Tanzania. The SADC ‘troika’ leadership sat at the regional level. The Chair of the region was currently the DRC, who had taken over the chairmanship from Malawi in August 2022 at a meeting of the SADC Heads of State and Government. The Heads of State would be convening in Angola in 2023, where Angola would be the incoming Chair of SADC. Ms Morgan was pleased that representatives from Angola were present at the meeting. The SADC Heads of State convened annually every August when decisions and progress updates were presented to them. The Heads of State meeting was preceded by the Council of Ministers, consisting of those ministers responsible for foreign affairs. Decisions made at that meeting were then taken to the Heads of State. Sector specific ministerial meetings also took place, for

4 https://www.sadc.int/sites/default/files/2021-08/RISDP_2020-2030.pdf
example, science and technology, energy, ICT, health, transport and others. Ministers of the sector convened at regional level, where certain policy decisions were taken, and progress reports were provided on the implementation of policies and programmes. For example, SADC had convened the ministers of education, science and technology in Lilongwe, Malawi in June 2022. Updates were shared on implementation, decisions, programmes and policies. The ministers’ meetings were prepared by the senior officials, consisting of DGs, permanent secretaries and principal secretaries, who clarified any technical subject matter prior to consideration by the ministers.

Every year the incoming Chair chose the theme for the year. The chosen theme of the DRC as the Chair for SADC for the next 12 months was ‘Promoting industrialisation, through agro-processing, mineral beneficiation, and regional value chains for inclusive and resilient economic growth’. The theme had been adopted at the Heads of State meeting that had taken place in Kinshasa on 17–18 August 2022. All work and programmes over the next 12 months needed to align with the theme under the DRC chairmanship. When Angola took over the chairmanship from the DRC in 2023, they would come up with a theme of their choice that was aligned to the policies of SADC.

SADC policy frameworks at the regional level:
- SADC Treaty of 1992
- Regional Indicative Strategic Development Plan (RISDP) (2020–2030)
- SADC Industrialization Strategy and Roadmap (2015–2063)
- Regional Infrastructure Development Master Plan (RIDMP) (2012–2027)
- Strategic Indicative Plan of the Organ (SIPO II)
- Sector Protocols
- SADC Vision 2050 (aligned with the African Union Agenda 2063).

The highest policy framework at the regional level was the SADC Treaty of 1992, which was similar in nature to a constitution. The SADC treaty was available on the SADC website. It articulated key policy issues that the Heads of State came together to agree upon. SADC consisted of 16 governments who collaborated across all the different sectors in relation to the priorities of the SADC treaty. Because the SADC Treaty was a very high level document, the treaty aspirations had been articulated into the RISDP 2020–2030. The RISDP 2015–2020 had been concluded.

The RISDP 2020–2030 was premised on three fundamental pillars:
1. Industrial development and market integration.
2. Infrastructure development in support of regional integration.

The dedicated strategy for the first pillar of the RISDP was The SADC Industrialisation Strategy and Roadmap 2015–2063. The dedicated strategy for the second pillar of the RISDP was the Regional Infrastructure Development Master Plan (RIDMP) 2012–2027. The Heads of State had agreed on six priority infrastructure areas at regional level: metrological services, ICT, transport, energy, water, and tourism. There were sector colleagues in other departments within SADC who were implementing those programmes.

There were a number of directorates that were implementing the policy frameworks. There was a directorate for infrastructure. Ms Morgan belonged to the directorate for industrial development and trade. There was also a directorate for social and human development, which dealt with issues of education, youth, health and labour, and there was a directorate for agriculture. There was also a dedicated directorate that dealt with Peace and Security, called the Strategic Indicative Plan of the Organ (SIPO II). Through SIPO II, soldiers could be deployed to an area of unrest in a region as part of

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5 https://www.sadc.int/sadc-treaty
7 https://www.sadc.int/sites/default/files/2021-08/Regional_Infrastructure_Development_Master_Plan_Executive_Summary.pdf
8 https://www.sadc.int/document/sadc-sipo-ii-english
9 https://www.sadc.int/pages/sadc-protocols
10 https://www.sadc.int/sites/default/files/2021-08/SADC_Vision_2050.pdf
11 https://au.int/en/agenda2063/overview
the SADC standby force, and that deployment was guided by the policy frameworks. Without a stable and peaceful region, it would be difficult to facilitate and realise regional integration. Peace and security was a key priority for the SADC region.

There were a number of sectoral protocols for the different priority areas, for example, the protocol on STI\(^\text{12}\) which had been adopted in 2008 by the Heads of State. Protocols were legal instruments, and were signed by the Heads of State. There were over 32 protocols, for areas such as STI, education, energy, agriculture, trade, statistics and others. The newest protocol on industrial development\(^\text{13}\) had been signed in 2019.

As part of the African continent, SADC needed to align with the continental frameworks as part of the African Union (AU). The SADC Vision 2050 framework aligned with the AU Agenda 2063. By 2050, SADC envisioned a peaceful, inclusive, middle- to high-income industrialised region, where all citizens enjoyed sustainable economic wellbeing, justice and freedom. SADC’s vision was based on a firm foundation of peace, security and democratic governance.

SADC also addressed several cross cutting issues. There was a dedicated gender desk within the SADC secretariat, which reported directly to the executive secretary. There was also a youth desk at the SADC Secretariat, and a unit dealing with the environment and climate change. There was a dedicated unit on disaster and risk management, which was especially topical, given the recent floods in Mozambique that had caused significant damage to the region. All of the units responded to the key priorities in terms of the RISDP and the SADC Vision 2050. The RISDP was available on the SADC website in Portuguese, English and French.

The RISDP 2020–2030 had six strategic objectives under the pillar of industrial development and market integration:
1. An industrialised regional economy that was based on a competitive and facilitative environment, which included infrastructure and skills, and sustainably exploited its natural resources by leveraging science, technology, and innovation.
2. A transformed agricultural sector that practiced sustainable management of the environment and its natural resources.
3. Interconnected, integrated, and competitive blue, green, and circular economies that were sustainably developed for the benefit of all SADC citizens.
4. Deepened regional market integration that was connected to the continental and global markets.
5. Deepened financial market integration, monetary cooperation, and investment. A common currency was envisaged for the region.

The SADC Industrialization Strategy and Roadmap 2015–2063 had been adopted under the Presidency of Zimbabwe, by the late President Mugabe who had been the Chair of SADC, and had championed industrialisation and industrial development. The SADC region possessed vast natural and mineral resources. The Heads of State had placed industrial development at the forefront of the regional agenda. A summit meeting had been held in August 2014, the theme of which was ‘Leveraging the Region’s Diverse Resources for Sustainable Economic and Social Development through beneficiation and Value Addition’. At the meeting, the Heads of State had mandated the Ministerial Task Force on Regional Economic Integration to develop a strategy and roadmap for industrialization for the region. The Industrialisation Strategy and Roadmap had been developed, and had been adopted on 29 April 2015 in Harare, Zimbabwe, Annual meetings took place to update the Heads of State on progress on the implementation of the Industrialisation Strategy.

The Industrialisation Strategy and Roadmap was driven by the necessity for the structural transformation of the SADC region through industrialization, modernisation, upgrading and closer regional integration; and by shifting from reliance on resources and low cost labour to increased

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\(^{13}\) https://www.sadc.int/document/protocol-industry-2019-english
investment and enhanced productivity of both labour and capital. The three core pillars of the
Industrialisation Strategy and Roadmap were industrialization as a champion of economic and
technological transformation; competitiveness as an active process to move from comparative
advantage to competitive advantage; and regional integration and geography as the context for
industrial development and economic prosperity.

There was a need to increase the international trade amongst the 16 SADC member states, but also
within the context of the continental free trade area, in order to converge with the AU Agenda 2063.
To that end, specific enablers needed to be in place, such as inclusiveness; enhanced forms of
industrial development, such as upgraded small and medium-sized enterprises (SMEs), clusters and
value chains, both regional and global; the building of requisite capacities, capabilities and skills;
infrastructure, such as transport, ICT, and knowledge institutions; well-developed financial systems;
conducive macroeconomic environments for optimal resource flows and long term stability; and
strong political will. The SADC Business Council had been launched in 2019 to support SMEs and was
made up of the 16 member states through their chambers of commerce. The Independent Business
Council had been launched in 2016 to assist with the implementation of the industrial development
strategy.

The Industrialisation Strategy focused on skills development as a top priority. Increased spending on
formal academic education was necessary for increased industrialization. Education systems
needed to be restructured and repurposed with a focus on technical and vocational skills, especially
those appropriate for a modern knowledge economy. Education systems needed to be re-shaped
to ensure that young people were trained to meet the demands of modern business and public
administration, with a specific focus on science, technology, engineering, and mathematics (STEM)
disciplines. Exemplary tertiary education was required in order to produce high quality graduates in
STEM disciplines.

There was a regional SADC Qualifications Framework in place, and member states were being
helped to set up national qualifications frameworks. There was a regional technical and vocational
education and training (TVET) and teacher development strategy, which was being implemented
with assistance from UNESCO. In 2022, teachers from all 16 member states had been trained in ICT
skills. Continuous professional development was incorporated into the strategies and guidelines
articulated within the Protocol on Education and Training. Regional centres of excellence and
specialisation would be identified and strengthened, and new centres established where
appropriate. In 2017, the Heads of State had endorsed the setting up of a virtual SADC University of
Transformation, and work was in the advanced stages. The university would focus on those skills that
were relevant to industrial development.

The Industrialisation Strategy focuses on the mainstreaming of gender and youth Issues. The Strategy
contained empowerment dimensions to widen the scope and quality of women’s and youth’s
participation in the industrialization process; economic empowerment and mentoring programmes;
and provisions for the public and private sectors to increase their efforts to support youth innovation
and entrepreneurship.

Six main value chain clusters existed in the SADC region, and would form the focus of the
industrialization Strategy for the next ten years. These were agro processing; mineral beneficiation
and related mining operations; pharmaceuticals; other consumer goods; capital goods and services.
Mapping studies on all of the value chains were underway, and had been completed for agro-
processing, mineral beneficiation and pharmaceuticals.

After the addition of the Comoros in August 2018, SADC had become the largest regional group
within the AU. Since 2015, the population of Southern Africa had grown by 11% to 354 million. Two
thirds of that population was under the age of 35 years. Health and education remained the top
regional priorities. The region contributed about one quarter of the continent’s GDP. Angola, South
Africa and Tanzania together contributed about 73% of the GDP of Southern Africa. Unemployment,
underpinned by weak economic growth, remained a major challenge in most SADC countries. The SADC economy was dominated by the services sector, which contributed over half of the national GDP in 12 countries. Mining and agriculture continued to make large contributions to many SADC economies.

Since 2007, the AU had mandated that African countries had to spend at least 1% of their GDP on Science, Technology and Innovation (STI) and higher education, and to date no SADC countries had met the target. That target had been reaffirmed in the SADC Protocol on STI, the AU Agenda 2063 and the STI Strategy for Africa (STISA) 2024\(^\text{15}\). According to the African Innovation Outlook (2019), the percentage of innovative firms was fairly high in all SADC countries: 52% in Namibia, 59% in Eswatini, 73% in Seychelles, 75% in Lesotho and 85% in Angola. This came with a caveat; most countries were still developing their capacity to gather accurate innovation data, and some had fairly small sample sizes. In terms of scientific production, as measured by number of scientific publications, a growth trend was seen in the SADC member states between 2008 and 2014. However, the output was still polarised around a few countries, with South Africa, Zimbabwe, Tanzania, Botswana and Zambia being in the lead.

Future plans included:

* Scaling up activities at a regional level and supporting regional networks.
* Potential extension of the Innovation Fund to include a Regional Innovation Award.
* Increased support for start-ups at national and regional level.
* Increased focus on Industrialisation and supporting the development of Regional Value Chains.
* Establishment of regional Centres of Excellence and Centres of Specialisation.
* Establishment of the Virtual SADC University of Transformation.
* Creation of a SADC ICT Centre of Excellence.
* Changing the funding landscape to better support digital transformation and STI environments.
* Implementation of the Africa EU Innovation Agenda adopted during the Summit in February 2022.
* Exploring opportunities within the African Continental Free Trade Area (AfCFTA)\(^\text{16}\).
* Increasing the participation of women and youth in the technology and entrepreneurship environment through the SADC Women Economic Empowerment Framework and Regional Framework on Youth.
* Continued work by the SADC Business Council\(^\text{17}\) to involve the private sector in the implementation of the SADC Regional Integration Agenda and the Industrialisation Strategy and Roadmap 2015–2063.
* The Annual SADC Industrialization Week 2023, hosted in Angola.
* The Regional Vice Chancellors’ meeting on the Virtual SADC University of Transformation on 26–27 January 2023 in Johannesburg, South Africa.
* The joint meeting of the Ministers of Education and Science, Technology and Innovation in June 2023 in the DRC.

Discussion

* Prof Soodyall thanked Ms Morgan for the comprehensive summary of the work of the SADC secretariat in support of the SADC region. She was inspired by the breadth and diversity of the activities in which the SADC secretariat was involved. The theme of the World Science Forum 2022 was Science for Social Justice. Most of the SADC plans that had been outlined in Ms Morgan’s presentation aimed to address issues related to social justice and to improve the quality of people’s lives in the region. The presentation had showcased the instruments that would deliver on the key objectives and strengthen partnerships, not only between the science academies, but with other stakeholders, through the regional centres of representativity.
* Prof Kalula thanked Ms Morgan for presenting what he felt was a remarkable vision. He wondered

\(^{15}\) https://au.int/sites/default/files/newsevents/workingdocuments/33178-wd-stisa-english_-final.pdf

\(^{16}\) https://au-africa.org/

\(^{17}\) https://sadcbc.org/mandate/
to what extent the SADC secretariat assisted academies with the implementation of their programmes and initiatives. Implementation was not simply a question of committing sufficient resources to enhance the work of the scientists in academies. Academies needed to be open to new ways of thinking and to create sufficient space to enable locally generated knowledge to guide their programmes. Many academies struggled to be recognised as generators of local knowledge that would enhance their country’s development.

- Prof Kalula said that ASSAf was fortunate in that they were the recipients of resources, but even those were inadequate. ASSAf was in a position to provide input into policy making, but the uptake of that input was not what it should be. There were a few countries in Africa where governments took the contribution of the science community sufficiently seriously, for example Senegal. The Senegalese government did not only provide their science academy with resources, but recognised that the role that scientists played in the generation of knowledge was beneficial to the development of Senegal.

- Prof Kalula felt that the continuity of support required more attention. Many SADC programmes were supported by external donors, but the member countries of SADC needed to put support continuity plans in place for when those partnerships fell away. Prof Kalula had participated in several programmes, many of which had started out with high hopes but had not succeeded once the donors had pulled out. The SADC Secretariat needed to communicate to member states the importance of the contribution of local trials and local knowledge. Donor communities had their own agendas, and the member states needed to consider what was possible using their own resources. Prof Kalula hoped that the current discussion would encourage member states to create more space for local knowledge and to rely on local resources as much as possible.

- Ms Morgan responded that Prof Kalula had raised some key issues that SADC grappled with at a regional level. SADC was frequently commended for having the best policies and strategies compared with the other regional economic communities (RECs), such as the Economic Community of West African States (ECOWAS)\(^{18}\), the Common Market for Eastern and Southern Africa (COMESA)\(^{19}\), and the East African Community (EAC)\(^{20}\). While SADC had shortfalls, it was in the implementation of the policies and strategies. A large percentage of the implementation budget came from external resources, which posed a challenge in terms of sustainability.

- Ms Morgan said that the new executive secretary, His Excellency, Mr Elias Magosi, had been traveling from one country to another, and meeting directly with the Heads of State in order to leverage and lobby funding. The work of SADC was based on the member states’ contributions. From those contributions SADC paid salaries and funded programmes. However those funds were insufficient, and shortfalls needed to be leveraged from the different strategic partners. Project implementation happened at member state level, and member states needed to invest more in order to fast track project implementation.

- Ms Morgan said that the role of science academies was very important, and was high on SADC’s agenda. To her knowledge, the other RECs had not convened meetings that included all of the academies within their region, as SADC was doing at the present workshop. Supporting the academies was a key priority for the SADC Secretariat. SADC had also invited representatives from the member states’ ministries to the workshop, as they were the policy makers, but they had been unable to attend the present workshop. Another meeting of the SADC science academies was planned for 2023, which would also include the policymakers.

- Ms Morgan said that ASSAf was invited to the annual ministerial meetings, and said that she would ensure that invitations were extended to all the heads of the academies. As one of the outcomes of the present meeting, a side policy engagement could be arranged to take place at the next ministerial meeting that brought all of the academies together, as had been done in Eswatini in 2017. Ms Morgan said that the first step would be to put together the SADC academies of science working group.

- Ms Morgan said that the academies were key ‘think tank’ contributors to the region. The SADC Executive Secretary had called for the establishment of think tanks that included academia, higher education, knowledge institutions, research institutions, and science academies to drive the regional agenda. There was nothing to prevent the academies themselves from setting up a

\(^{18}\) https://ecowas.int/
\(^{19}\) https://www.comesa.int/
\(^{20}\) https://www.eac.int/
think tank to address regional procedural issues, and SADC would support them. If particular research needed to be commissioned, SADC could assist with leveraging resources, and with tabling policy papers at ministerial meetings, or even at the Heads of State annual summit. A public lecture took place at each summit at which eminent experts spoke on topics related to the theme of the summit. The next summit would take place in Angola, and the academies could come together at the public lecture and help to ensure that the recommendations from the public lecture found their way into the summit recommendations. SADC would work together with the academies to find innovative ways of engaging with the policymakers. SADC had access to the policy makers and the power to convene them and to table agenda items.

- In terms of countries failing to achieve their expenditure target of 1% of GDP on STI, Dr Thwala asked what the hindrances were, and whether the ministers had provided SADC with any feedback on the challenges that they faced in that regard.

- Ms Morgan replied that one of the common challenges that had come out of the discussions with member states was a lack of resources. Resources remained one of the top challenges in member states in terms of implementing STI policies. Many of the country’s policies contained ambitious targets. Those policies went to cabinet, through parliamentary processes, and were adopted. However, when it came to implementation, the resources did not follow the policies, and that was an area that needed to more investigation at the regional level.

- Ms Morgan said that she would share her presentation with attendees. SADC would extend a formal invitation to the heads of the science academies in the SADC region to join the 2023 meeting of Vice Chancellors, which would take place on 26–27 January 2023 in Johannesburg. At the meeting, deliberations would take place on the establishment of the SADC Virtual University of Transformation. The Ministers responsible for Higher Education, Science, Technology and Innovation (HE-STI) had held a meeting in Malawi in June 2022 and had called for Vice Chancellors in the region to provide input on the establishment of the SADC Virtual University of Transformation.

- Prof Soodyall thanked Ms Morgan for an engaging session, presentation and summary of the policies, frameworks and operations of the SADC Secretariat. She looked forward to the establishment of the SADC academies of science working group, through which members could share their challenges, successes and experiences; pick up some of the activities that would contribute to strengthening the partnerships; collectively achieve the goals arising from the SADC priorities and agendas; and use their collective resources through evidence-based science to bring together the voices of STI in leading sustainable change for the benefit of all. There were many challenges, but through collegial engagement and participation, a ‘hub and spoke’ model was attainable. If all academies (“spokes”) contributed their energy in the right direction, the ‘wheel’ could only move forward.

NEWLY ESTABLISHED ACADEMIES: CASE STUDIES (FACILITATOR: MR JOSHUA TAKALIMANE)

LESOTHO ACADEMY OF SCIENCE AND TECHNOLOGY (MR JOSHUA TAKALIMANE)

The journey to the establishment of the Lesotho Academy of Science and Technology (LAST)21 had begun in 2016. The Department of Science and Technology of Lesotho (DST-Lesotho) had hosted a forum at the National University of Lesotho (NUL) Institute of Southern African Studies (ISAS) Auditorium in Maseru. The forum delegation had been made up of representatives from the DSI, the Centre for High Performance Computing (CHPC) and ASSAf. An ad hoc committee had been established, which represented Lesotho at a number of science forums.

LAST was officially launched on 15 March 2021 by former Prime Minister, the Right Honourable Dr Moeletsatsa Majoro. The launch had taken place via a hybrid event and was financially supported by the UN Technology Bank for the Least Developed Countries (LDCs). The Network of African Science Academies (NASAC)22 had provided technical support and ASSAf had provided supervision. The DST-Lesotho had also provided technical and financial support. Within two months of its launch, LAST had generated an income of $1300 (USD) through the development of a policy brief. There had been a call by the US National Academy of Sciences (NAS), facilitated by ASSAf, to produce the brief. After provision of the policy brief, LAST had hosted a webinar attended by the policy makers to deliberate.

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21 https://www.last.org.ls/
22 https://nasaonline.org/
on the COVID-19 pandemic. LAST had collaborated with local, regional and international stakeholders. LAST had completed its registration process and was therefore eligible to affiliate with NASAC.

LAST had facilitated the official registration of the Lesotho Young Academy of Science (LesYAS)\(^{23} \) and had worked with LesYAS towards the development of STI in the youth population within Lesotho. LesYAS had recently featured in an article\(^ {24} \) on the UNTB-LDC website, which had profiled some of the members, along with their interests and areas of research. A grant of $5000 (USD) had been secured through the Inter-Academy Partnership - NASAC (IAP-NASAC) project, which had facilitated the procurement of office furniture and equipment, development of a website, and domain registration, and email hosting. LAST had recently received a clean audit from the IAP-NASAC project.

Challenges included a delay in attaining official registration, which meant that LAST had been unregistered at the time of its launch. LAST was not currently sufficiently financially capacitated to fulfil their mandate, which was to recognise and award outstanding scientific work; provide research grants to post PhD candidates; and to encourage researchers to publish their work. There had been a delay in inviting potential candidates. There was as yet no policy document that mapped out the LAST mandate. LAST had experienced a lack of participation by some of the founding fellows and members.

LAST held monthly webinars with scientists in the diaspora to facilitate links between local scientists with scientists from further afield, and had held a series of meetings with ASSAf. ASSAf had pledged continued support and collaboration on publishing, science diplomacy and co-supervision. LAST had successfully completed two biosafety and biosecurity consensus studies, which had been rolled out by SADC. LAST was proactive in terms of their technology needs and assessment (TNA) policy, and was committed to fulfilling their mandate of providing evidence-based advice to government. LAST had received an invitation to be a key stakeholder in the use of High Performance Computing (HPC), and user accounts would be created for LAST and LesYAS members. LAST had participated in the Annual Meeting of African Science Academies Conference (AMASA) 2022. The SADC secretariat, the DSI, ASSAf and LAST had jointly organised the current workshop.

In 2023, LAST planned to initiate their affiliation with NASAC and the International Science Council (ISC); invite new members; award honorary fellows; devise a strategy to engage founding fellows; concrete initiatives with ASSAf; and draft a plan of action with the Royal Society of South Africa\(^ {25} \). LAST greatly appreciated the continued support from, and harmonious collaboration with, DST Lesotho; the DSI; SADC Secretariat; ASSAf; NASAC; the UN Technology Bank; Lesotho National Commission for UNESCO; and the higher institutions of learning (National University of Lesotho, Botho University, Lerotli Polytechnic and Lesotho Agricultural College).

**ANGOLAN ACADEMY OF SCIENCES (PROF MARIO FRESTA)**

Angola had a poor scientific profile. Science funding was estimated at 0.07% of GDP, there were two publications per year per million inhabitants, and the country had a low position in the UNESCO innovation ranking. However the situation had been improving, particularly in the last five years. Several mechanisms had been put in place to support and finance STI, such as the Science and Technology Development Project (PDCT)\(^ {24} \), which was funding science during the period 2018–2024; the UNLAMO 2020–2024 Programme\(^ {27} \) which funded higher education; and the Angolan Foundation for Scientific and Technological Development (FUNDECIT)\(^ {28} \) set up in 2021, which had already published three calls for funding research and strengthening scientific capacity.

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\(^ {25} \) [https://www.royalsocietyza.org.za/](https://www.royalsocietyza.org.za/)

\(^ {26} \) [https://projectsportal.afdb.org/dataportal/VProject/show/P-AO-IAO-006](https://projectsportal.afdb.org/dataportal/VProject/show/P-AO-IAO-006)


\(^ {28} \) [https://fundeicit.ao/](https://fundeicit.ao/)
In this context, a team of Angolan scientists had been working since the end of 2018 to create the Angolan Academy of Sciences (AAC), with logistical and legal support from the Angolan government through the Ministry of Higher Education, Science, Technology and Innovation. Both the scientific community and the Government of Angola viewed the establishment of an academy of sciences as a priority for the promotion of sustainable human development. The proposed creation of the AAC had been included in the current National Development Plan (2018–2022). The Angolan Government considered the AAC to be a crucial partner, as stated in the STI Development Plan for the next five years (2022–2027). The Academy had been registered in December 2019, and its statutes had been published in January 2020. The Academy had been proclaimed on 4 December 2020 in the presence of His Excellency, Dr Bornito de Souza, the Vice-President of the Republic of Angola. Under the terms of the Statute, the AAC was a private non-profit scientific association, which had scientific, administrative, patrimonial and financial autonomy. After a prolonged discussion on the matter, the AAC had been consecrated as the Angolan Academy of ‘Sciences’ (plural) in order to reflect the breadth and diversity of scientific knowledge.

The founding members were automatically admitted to the AAC as per the Statute. Those members had accepted the task of evaluating new applications for regular membership (permanent and affiliated), according to well defined criteria. Forty applications had been received from higher education staff and researchers, but only 11 of those applications (27.5%) had been approved: five full members, five affiliated members and one correspondent. The evaluation process had taken about 16 months, as it had been carried out part-time by the founding members. The AAC had received a grant from NASAC in 2022 to support an institutional strengthening project. Members of the Board of the General Assembly of the AAC had been elected, and the President of the AAC would be elected imminently. The immediate priorities were to strengthen the AAC with a permanent executive secretariat, to reinforce international cooperation and to enrol the AAC in NASAC.

Prof Fresta marked Angola’s gratitude to ASSAf for hosting the workshop by presenting them with a souvenir from Angola. Later in the workshop, Mr Bondo presented an additional memento to the SADC Secretariat to show Angola’s appreciation for their work and for convening the workshop.

BOTSWANA ACADEMY OF SCIENCE (DR DIKABO MOGOPODI)

The Botswana Academy of Science (BAS) was an autonomous non-profit organisation that had been established by scientists in 2015, the same year as World Science Day for Peace and Development (WSDPD) 201529. BAS covered the natural sciences, physical sciences, mathematics, medicine, life sciences, and engineering sciences, and the integration of those with the social sciences and the humanities. BAS had an elected governing body, who remained in office for three years.

The vision of BAS was to be a renowned provider of evidence-based science advice and innovative solutions for addressing national challenges. The mission of BAS was to promote excellence in the scientific research performed by Botswana scientists, and to strengthen the global position and role of that research. BAS consisted of a President (Prof Ishmael Masesane), Vice President (Dr Madisa Mine), Secretary General (Dr Pulane Koosalesetse-Mswela), Vice Secretary General (Dr Dikabo Mogopodi), Treasurer (Dr Segomotso Bagwasi) and four board members (Dr Budzanani Tacheba, Prof Ulwang Batlang, Dr Bareki Shima Batlokwa, Prof Motsopise Modisi).

BAS had co-hosted the African Academy of Sciences (AAS) General Meeting in 2016, during which BAS had been officially launched. A ‘soft’ launch had taken place in May 2015. The then president of Botswana, His Excellency Seretse Khama, was inducted as an Honorary Fellow of the AAS. BAS was admitted to the NASAC in 2018 on the second anniversary of its launch, joining many other national academies of science.

BAS had local and international strategic partners. Local partners consisted of the Ministry of Communication, Knowledge and Technology; Department of Research, Science and Technology (DRST); the Botswana Institute for Technology Research and Innovation (BITRI); the Botswana University of Agriculture and Natural Resources (BUAN); the Botswana International University Of Science And Technology (BIUST); the Botswana Innovation Hub; and the University of Botswana.

29 https://en.unesco.org/events/world-science-day-peace-and-development-1

One of the objectives of BAS was to recognise, support and promote excellence in scientific research and service performed by Botswana scientists. In partnership with DRST, BAS had embarked on preparation for the National Research Excellence Awards\(^{30}\) planned for 2023.

BAS partners with sister academies and institutions on various projects. ASSAf and the US National Academy of Science (US NAS)\(^{31}\) had implemented a project to disseminate policy briefs on COVID-19 non-pharmaceutical interventions. The project had focused on countries in the SADC region and had aimed to engage experts and policymakers on key messages and recommendations of select policy briefs relating to COVID-19, through the national academies of science. As part of the project, BAS had carried out surveys in schools and had held a webinar titled ‘Risk communication of 3w’s non pharmaceutical interventions for control of COVID-19 in schools in Botswana’. A webinar had been organised by ASSAf in partnership with the national academies of science in Botswana, eSwatini, Mauritius, Zambia, Zimbabwe and the United States on ‘COVID-19 public health and social measures (PHSM) implementation: a SADC perspective.’. BAS had participated at a African Scientific, Research and Innovation Council (ASRIC)\(^{32}\) meeting in November 2021.

BAS sought to advise the government on the quality of science in Botswana, as well as on scientific aspects of social and economic issues in Botswana. Four new BAS fellows had been admitted in 2021. In terms of science communication and engagement, BAS sought to provide information on science and to build greater support for science from the general public in Botswana. In that regard, BAS was frequently featured on radio and TV on strategic days in order to increase their visibility and engage with the public. These slots included local language stations, such as the Masaasele radio show.

BAS has contributed towards draft papers and statements prepared by institutions such as IAP and NASAC, for example, NASAC’s statement titled ‘Climate change and its disastrous impact in Africa’\(^{33}\), and ‘The value of long-term investment in academies of science: the case of the African science academies’ development initiative (ASADI)’. Two nominations for Virology had been submitted to the Inter-Academy Partnership (IAP) COVID-19 Advisory Committee, and Prof Sununguko Mpoloka and Dr Poloko Kebaabetswe had been admitted.

BAS provides a platform to build and strengthen capacities in different areas for its members. BAS hosted conferences, workshops and symposia on themes and topics that aligned with its objectives. Those events provided platforms for discussion and networking to Botswana scientists on issues of common interest. BAS held regular online events, which were well attended by members and the wider public. The most recent event had been held on the previous Friday afternoon (2 December 2022), which had been attended by 60 participants. BAS was also involved with the Next Einstein Forum (NEF)\(^{34}\), and Dr Mogopodi was an NEF ambassador for the period 2022–2024. BAS had partnered with the DRST to host a three-day national conference, which targeted young scholars and early career scientists. BAS had collaborated with the AAU to host a writing workshop that had been held in 2019.

BAS has benefited from the NASAC-IAP Capacity Building Grants Programme (2020). Through the programme, NASAC member academies were awarded grants for capacity building upon submission of successful funding proposals. The programme aimed to further build capacity and to empower regional networks of academies and their national members. The grant had funded a project titled ‘Advancing women participation in science communication’. BAS had rolled out a national survey to assess the challenges women faced in terms of science communication, which was followed up by a series of webinars. The Conversation Africa\(^{35}\) had participated in the webinars.

\(^{30}\) https://nationalresearchawards.co.bw/
\(^{31}\) https://www.nasonline.org/
\(^{32}\) https://www.asric.africa/
\(^{34}\) https://nef.org/
\(^{35}\) https://theconversation.com/africa
and had provided training for young scientists on pitching ideas and writing articles. Renowned science communicators had also participated in the webinars, which had been extremely well attended.

Not only was BAS leveraging on partnerships, but had also created sub institutions within itself, such as the OWSD Botswana chapter (OWSD-BW). The chapter had been launched on 20 November 2020 and had been a great success. A training workshop had been held on 19 November 2021 titled ‘Strengthening Leadership: Capacities of Women in STEM’. An OWSD-BW event had taken place the previous Sunday (27 November 2022) at which the challenges faced by young women scientists had been discussed. The event had been sponsored by UNESCO, and BAS had provided logistical support. Other online discussions had focused on the funding challenges faced by BAS, and had explored possible funding opportunities.

BAS, as a relatively new academy, faced several challenges, particularly in terms of funding. BAS currently did not have office space or a full time secretariat, and relied on volunteer contributions made by its membership, especially the board. The members’ annual contribution was P300 (BWP) each. The acquisition of office space and a full time secretariat would make the administration of the academy easier, and would result in the enhanced implementation of academy activities, which would be controlled from a centralised point. That would also improve the visibility of BAS, as Fellows and stakeholders would know where to locate BAS.

Discussion

- Dr Thabile Ndlovu (Kingdom of Eswatini Academy of Science [KEAS]) was encouraged to hear of the amount of work being done by the SADC region academies. Some of the presentations had mentioned various SADC initiatives and projects, and she wondered how KEAS could also participate in those projects so that they were not left behind.
- Mr Takalimane referred to a SADC region-wide consensus study on the state of laboratory biosafety and biosecurity in SADC\(^{36}\) in which member states could take part. Dr Thwala would be able to provide Dr Ndlovu with the relevant contact details.
- Ms Morgan said that participation involved a two-way approach. Academies approached SADC for support for their programmes and projects. For example, LAST had approached SADC saying that they wished to hold a regional event. SADC had then suggested partnering with LAST to convene an event on science academies alongside the World Science Forum, which had resulted in the present workshop. If Eswatini wished to plan particular events, they were welcome to reach out to the SADC Secretariat for assistance. The event priorities needed to align with SADC priorities. The SADC Secretariat constantly engaged with partners to leverage technical support and resources to support particular policy priorities.
- Dr Thwala addressed the presenters and said that ASSAf appreciated their commitment. He understood that their academies operated with minimal resources. It was recognised that academy members gave of their time despite their demanding jobs. He understood how busy the exam season was at universities and he appreciated the dedication and hard work of academy members. To counter the issue of poor resourcing of academies, a great deal could be accomplished by working together.
- Mr Takalimane said that improvisation and innovation were required to find ways to deliver on academy objectives with limited resources. He was also greatly inspired by the dedication of academy members, many of whom were full time lecturers and researchers.
- Ms Morgan encouraged academies to constantly monitor the SADC website. There was a section on the website on opportunities. There were frequent requests published on the website for consultants and experts to undertake particular assignments on behalf of the region. She encouraged academy members to apply for those assignments. The assignments would be awarded on merit, but presented another means to leverage resources for an academy. There were many tenders for both short- and long-term consultancies. Two grants had been published, the first in 2021, for research and innovation projects in two value chains. The first value chain was agro processing, focusing on leather, and the second was pharmaceutical, focusing on Antiretrovirals (ARVs). For the first call, only one proposal had been funded, as no one else had

\(^{36}\) https://research.assaf.org.za/handle/20.500.11911/101
applied for the grant. The total budget for the grants had been $3.6 million USD, and the outstanding funds had to be returned to the funders due to lack of uptake. After the second call, more proposals had been received. Those had been reviewed and some had been shortlisted, including projects in Zimbabwe, Malawi and South Africa. Negotiations were in the final stages. It was hoped that any remaining funds could be allocated to a call for short-term projects, as the grant period ended in 2024. The academies were free to respond to the calls. Another tender had been published calling for a consortium to develop the SADC strategy on the 4th industrial revolution (4IR). The total value for that assignment was $65,000 USD. The terms of reference would be published soon for a short assignment to review the status of the implementation of the protocol on science and technology. The academies were also encouraged to collaborate on projects.

- Mr Takalimane looked forward to further engagements between the academies, where they could learn from and benchmark against each other. He thanked all attendees for their participation.

**ROLE OF AFRICAN ACADEMIES IN STI POLICY AND DEVELOPMENT (DR MELUSI THWALA, ACADEMY OF SCIENCE OF SOUTH AFRICA)**

Dr Melusi Thwala, Manager of Science Advisory and Strategic Partnerships at ASSAf, said that the role of the academies of science within the region and continent in terms of STI development and STI-related policy development was largely understood. Dr Thwala’s presentation highlighted possible implementation approaches that academies could adopt to enhance that role. Those approaches drew on some of the key lessons learned at the AMASA conference in Nairobi on 28–30 November 2022, many of which were relevant to the SADC region. The mandates of the various academies of science within the continent shared common goals, which could serve as a foundation for collaboration and cooperation in order to reach the objectives of each academy.

Summarised examples of academy of science mandates:

- **Kenya National Academy of Sciences (KNAS):** To promote STI endeavours and achievements, and to recognise excellence in the STI field.
- **Academy of Science of South Africa (ASSAf):** To provide science advice on national imperatives for the benefit of society; and to promote, inspire and recognise excellence in all scientific fields.
- **Zambia Academy of Sciences (ZaAS):** To provide science advice and promote the utilisation of STI; establish and strengthen national and international cooperation; and support curriculum development in STEM disciplines.
- **Lesotho Academy of Science and Technology (LAST):** To provide science advice on matters pertaining to STI.
- **Academy of Sciences of Mozambique (ASM):** To develop STI in Mozambique; promote research excellence in the country; and strengthen cooperation within academia and society, locally and globally.
- **Benin National Academy of Sciences and Arts (ANSALB):** To provide science advice to the state and private sector, nationally and internationally.

Commonalities between the mandates included the consolidation of science advice; the promotion and use of the STI ecosystem; cooperation on STI locally and internationally; and recognition of excellence in STI. The Zambia Academy of Sciences mandate was noteworthy for articulating the need to support curriculum development in STEM disciplines, which had not been included in the other mandates, but was fundamentally important. Academics represented the best thought leadership in countries in terms of STI, and it was important to recognise and celebrate excellence. It was therefore reassuring that that was a common theme across mandates. Overall the mandates were focused on the provision of science advice, the formulation of partnerships, and the promotion of the STI ecosystem within and beyond countries. In achieving those objectives, countries faced different challenges, had different priorities and possessed varying resources, but there were some challenges that could be better addressed collectively.

Academies had a responsibility to contribute to policy formulation and implementation. Their activities and implementation plans should not only support national imperatives, but should also be aligned with SADC objectives. A common challenge for the African continent was climate change,
irrespective of region. Some areas would receive more frequent rainfall, and others would receive longer dry periods. South Africa had recently dealt with the extremities of drought and flooding, both of which had caused devastation. Irrespective of an academy’s climatic zone, thought leadership would be required individually and collectively to guide policymakers at national and regional level, based on the best science advice possible.

Any science academy mandate had to consider the youth. The majority of the population on the continent was under the age of 35. All activities and policy development needed to involve the young people. Policies with implications for the future could not be developed without the involvement of those who would be implementing the policies and who would be impacted by those policies. Academies needed to strongly drive youth development in STI. Angola, Botswana and Lesotho had formulated youth academies of science involving early career scientists.

Dr Thwala highlighted an example that illustrated the critical role that academies had to play in supporting STI ecosystem and utilization. In October 2022, Kenya had lifted a ban on genetically modified organisms (GMOs) to mitigate the effects of the worst drought that they had faced in 49 years. That decision had been welcomed by scientists, but had been opposed by those who were concerned about the potential risks to health and the environment. A media brief had taken place on the side-lines of the AMASA conference on 28–30 November 2022, at which top African academics had publicised their stance on GMOs and formulated a statement in support of the use of GMOs\(^ {37} \). Food security was a top priority for the African continent, so having scientists at the forefront of the debate, providing solid evidence, was extremely important. Scientists had formulated their collective response through NASAC as the umbrella body. Prof Norbert Hounkonnou, President of NASAC led the debates along with his Kenyan counterparts, and many other countries had been represented. Any threat to food security needed to be addressed by top thinkers, and any actions in that regard had to be based on sound scientific advice.

When innovations arose, academies played a fundamental role in showcasing those innovations and pushing for their adoption. An example in which a science academy had supported local innovation was illustrated by the Kantanka Group\(^ {38} \), the first automobile manufacturer on the African continent. The Kantanka group’s mission was to become the technology hub of Africa. Mara Mobile Phones in Rwanda had manufactured the first fully African made smart phone. Another example of locally inspired technology was SAII Th Technologies from Zimbabwe, now headquartered in California, USA. It was unfortunate that the company had not been sufficiently supported to remain on the continent. The road maps, guidelines and initiatives of academies needed to articulate their support for innovations beyond the universities and institutions of higher learning. Innovations taking place outside of the academic realm were also extremely important within the STI ecosystem. It was the role of the academies to bring such innovations to the fore and to celebrate them, and to facilitate cooperative platforms to support such innovations.

The Sharm el-Sheikh climate change conference (COP27)\(^ {39} \) had been held in Egypt on 6–20 November 2022. The importance of the visibility of science academies had been emphasised, just as it had been at AMASA 2022 in Kenya. Decisions taken by multilateral and bilateral platforms had implications for individual nations, and needed strong backing from a science evidence perspective. Although academies battled with limited resources individually, pooling knowledge and bringing in different perspectives would make for a stronger whole. Examples of multilateral partnerships between science academies included The World Academy of Sciences Sub-Saharan Africa Regional Partner (TWAS SAREP), OWSD and NASAC.

In terms of operationalising their guidelines, it was important for academies to prioritise national imperatives. Each national academy needed to deal with their country’s national challenges, and where possible to also align with the challenges faced by the region and continent. If the science advice from academies was for the benefit of society, it could not be divorced from national strategic priorities. When it came to addressing regional, continental and global challenges,

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38 https://kantankagroup.com/?thegem_pf_item=kantanka-automobile

39 https://unfccc.int/cop27
partnerships between academies were often more effective than working alone. Academies also had a role to play in determining national priorities, based on solid scientific evidence.

At the recent AMASA meeting in Kenya in 2022, scientists had been criticised for their poor communication skills. Science academies needed to work harder to effectively engage and communicate with citizens, governments, business and academia, as those were the stakeholders that the academies served. Academies needed to craft effective communication strategies, and where necessary to employ communication specialists to help to deliver science advice. Because academies drove their science advisory through consensus studies, robust peer review mechanisms were already in place. Another area of importance for science academies was to: garner public trust. The COVID-19 pandemic had provided a good example of how public trust in science could easily be undermined by the dissemination of false information. Scientists and academies needed to play the role of converging the science from different disciplines and perspectives into advice that was credible to the public.

SUPPORT FOR ACADEMIES (MS FEDERICA IRENE FALOMI, ECONOMIC AFFAIRS OFFICER AT THE UNITED NATIONS TECHNOLOGY BANK FOR LEAST DEVELOPED COUNTRIES)

The UN Technology Bank for Least Developed Countries (LDCs) was a global organisation dedicated to enhancing the contribution of STI for sustainable development in the world’s 46 LDCs. The UN Technology Bank helped LDCs to build the STI capacity that they required to promote the structural transformation of their economies, eradicate poverty and foster sustainable development. The UN Technology Bank had worked to develop, support and strengthen the SADC academies of science. The UN Technology Bank had become operational in 2018, and was the latest addition to the UN family. It had been established as a subsidiary organ of the UN General Assembly on 23 December 2016 by the United Nations resolution 71/251 to support LDCs to strengthen their STI capacities.

The UN Technology Bank had been established as an outcome of the Istanbul Programme of Action (IPoA) for the Least Developed Countries for the Decade 2011–2020, adopted in 2011. The UN Technology Bank had been set up in Turkey with a specific mandate, which was to strengthen STI in the 46 LDCs. The UN Technology Bank had been established as one of the targets (Target 17.8) of the 2030 Agenda for Sustainable Development and Sustainable Development Goals that had been agreed upon in 2015. The establishment of the UN Technology Bank marked the only target of the 2030 Agenda that had been fulfilled to date.

LDCs were low income countries that confronted severe structural impediments to sustainable and inclusive development. They were highly vulnerable to economic and environmental shocks and had low levels of human assets. Countries were included in the category when they met the established inclusion thresholds for all of three criteria: gross national income (GNI), which included a number of parameters on mortality, nutrition, education; the human asset index (HAI); and the economic vulnerability index (EVI). Inclusion required the consent of the country concerned. To graduate from the LDC category, a country had to meet the established graduation thresholds of at least two of the criteria for two consecutive triennial reviews. There were currently 46 countries on the list of LDCs, which was reviewed every three years by the Committee for Development (CDP). LDCs had exclusive access to certain international support measures, in particular in the areas of development assistance and trade. Since the LDC category had been established in 1971, only six countries had graduated. Fortunately, seven more would be graduating before 2026, most of which were in Asia.

The progress of some LDCs was insufficient to deliver on some of the development programmes and ambitions that those countries had set for themselves. To support the LDCs, a number of international measures had been put in place, including trade related international support measures, as well as support for participation in international forums, and support for LDCs that were about to graduate in order to ensure a smooth transition out of the LDC category. Financial and technical assistance and programmes had been set up, for example, the UN Capital Development Fund (UNCDF)40; the

40 https://www.uncdf.org/
Enhanced Integrated Framework (EIF)\textsuperscript{41} and the UN Technology Bank itself. However the UN Technology Bank had been specifically set up to address a need and to support the development of LDCs STI, and only worked with LDC countries. The call had been for the establishment of a “Technology Bank and Science, Technology and Information supporting mechanism, dedicated to least developed countries which would help improve least developed countries’ scientific research and innovation base, promote networking among researchers and research institutions, help least developed countries access and utilize critical technologies, and draw together bilateral initiatives and support by multilateral institutions and the private sector, building on the existing international initiatives” (Programme of Action for the Least Developed Countries for the Decade 2011-2020\textsuperscript{42}).

A report on The State of Science, Technology and Innovation in the Least Developed Countries was launched in September 2022, ahead of the conference on LDC countries to be held on 5-9 March 2023 in Doha, Qatar, ‘LDC5: From potential to prosperity’. The Doha Programme of Action for the Least Developed Countries for the Decade 2022-2031 (DPoA) had been adopted on 17 March 2022, and would further strengthen the UN Technology Bank’s role as the focal point around which LDCs could strengthen their STI capacity and promote structural economic transformation. There was a strong recognition by the international community that for LDCs to be able to eradicate poverty and remove structural impediments, they needed support from regional partners and international organisations to build up their national capacity for STI. Building STI capacity was a necessary condition for them to achieve the goals set out in their national development plans. Many of the LDCs had ambitions to become middle income countries in the coming years, to develop programmes of action, and to deliver on their initiatives.

An infusion of technology into a country did not necessarily lead quickly to significant developments, as the absorption of that technology posed a challenge. While infrastructure was a very important prerequisite for the adoption of new technologies to create economic successes, there was a strong need to invest in capacity building to adapt existing technologies and to scale them up for a country’s development. The world was facing its 4th industrial revolution. LDCs risked being further left behind, and the technological gap would widen even further.

In terms of the mandate\textsuperscript{43} of the UN Technology Bank, the objectives were to:

- Strengthen the STI capacity of LDCs, including the capacity to identify, absorb, develop, integrate and scale up the deployment of technologies and innovations, including indigenous ones, as well as the capacity to address and manage intellectual property rights issues;
- Promote the development and implementation of national and regional STI strategies;
- Strengthen partnerships among STI related public entities and with the private sector;
- Promote cooperation among all stakeholders involved in STI, including researchers, research institutions and public and private sector entities, within and between LDCs, as well as with their counterparts in other countries;
- Promote and facilitate the identification and utilization of and access to appropriate technologies by the LDCs, as well as their transfer to the LDCs, while respecting intellectual property rights and fostering the national and regional capacity of the LDCs for the effective utilisation of technology in order to bring about transformative change.

There were three major UN Technology Bank programme lines\textsuperscript{44}:

1. Research, analysis and technology needs assessments to enable LDCs to identify technologies required to meet their development needs, while analysing barriers and challenges hindering the acquisition, deployment and implementation of prioritized technologies.
2. Technology transfer and STI capacity building to support LDCs to bridge the current technology gaps by facilitating the transfer of appropriate and affordable technology, enhance STI policymaking, and develop needs based STI capacities.
3. Strategic partnerships and advocacy to place LDC’s STI opportunities and needs at the forefront of development programme collaboration and advocacy dialogues.

\textsuperscript{41}https://enhancedif.org/
\textsuperscript{43}https://www.un.org/technologybank/mandate
In line with the mandate, and in recognition of the importance and the critical role of STI for the development of LDCs, the UNTB had developed a programme to strengthen the existing academies of sciences in LDCs, and to help LDCs to establish academies of sciences where none existed. In 2020, consultants had embarked on a study to understand the challenges faced by the academies of sciences and what support could be provided. That had led to a substantive partnership between the UNTB and NASAC. Since 2020, the programme had worked with a number of countries and four new academies have been launched. A number of LDCs were at different levels of progressing towards the establishment of their academies.

Convening meetings such as the present one, and including in those meetings new, existing and leading academies, would help to raise awareness of the importance of science for policy, and allow exchanges and collaborations between academies to strengthen their own work and learn from each other. Funding remained a concern, although as had been mentioned earlier, funding opportunities did exist and should be taken up. Sustainable funding was critical to ensure a stable working environment for academies of science. Academies of science were encouraged to increase the diversity of their membership, and to tap into the expertise of their diaspora.

**Discussion**

- Dr Thwala hugely appreciated the role played by the UN Technology Bank in establishing and supporting the SADC academies of sciences. Countries might have the intent, but the support from other partners ensured that those countries achieved their goals.
- Ms Morgan had found Ms Falomi’s presentation insightful and informative, and she appreciated the partnership between the UN Technology Bank and the SADC region. The SADC ministers for education had called for the establishment of science academies in all 16 member states, and four new SADC academies of science had been established within the last two years. She asked Ms Falomi whether support was provided upon a request from members states to the UN Technology Bank. The UN Technology Bank and SADC needed to work together to ensure that resources were not duplicated. SADC was one of the RECs for whom the STI agenda was a priority programme.
- Ms Falomi replied that cooperation between UN Technology Bank and SADC was very important. Countries who needed support were welcome to reach out to the UN Technology Bank for assistance. The UN Technology Bank also monitored the needs and challenges of the LDCs.
- Dr Thwala asked Ms Falomi what key challenge arose when countries set their up academies and how best could they address that challenge.
- Ms Falomi responded that the process of registration was onerous and required parliamentary approval, and therefore the earlier that academies started with the registration process the better.
- Mr Takalimane asked whether the UN Technology Bank had action plans in place to ensure the sustainability of academies beyond their development and launch.
- Ms Falomi replied that in terms of support to ensure financially sustainability, the UN Technology Bank was not in a position to offer funding themselves, but could work together with academies and partners to define a roadmap for attaining sustainable sources of funding.
- Mr Bondo asked for clarity on the nature of the support provided by the UN Technology Bank to the science academies.
- Ms Falomi responded that she had not been directly involved in the support provision programme. Drawing from her overview of the work done previously with NASAC, she said that the UNTB assisted countries to create plans, helped countries to build and identify STI leaders, assisted with the development of academy charters, identified relevant scholars from within the country or abroad, set up planning meetings, assisted with the drafting of constitution statutes, supported academies through the registration and launching process, supported the affiliation process with NASAC, facilitated networking between academies, identified needs, and identified lead academies to assist with mentoring and capacity development.
- Mr Takalimane said that the UN Technology Bank had assisted LAST with their registration and launch. After consultative meetings, the UNTB had engaged a law firm to assist with registration. The UN Technology Bank had also sourced funds, which together with funds raised by LAST, had enabled the registration of the youth science academy.
GUIDELINES OVERVIEW (DR TOZAMA QWEBANI, ACADEMY OF SCIENCE OF SOUTH AFRICA)

Dr Tozama Qwebani, Programme Officer of Africa and Overseas Collaboration, ASSAf, thanked participants for the enriching and engaging workshop. She provided a brief overview of the draft guidelines document for the establishment of an academy. The guidelines were a work-in-progress and had been circulated to the academies prior to the meeting for their input. The guidelines would serve as the point of departure for the discussion on the formulation of the working group. The guidelines document covered the ‘who’, ‘how’ and ‘what’ of establishing an academy. Once the document had been finalised, and a working group had been formulated, the group would investigate the best ways to implement the document guidelines. An academy represented an assembly of intellectuals that were dedicated to the advancement of scientific knowledge. The document described the process of establishing an academy and outlined how an academy could impact on the economic and social development of a nation through the provision of evidence based science advice to policy makers. In terms of establishment, five established members of the scientific community could form an academy. The objectives of the academy needed to align with those of the ministerial department. The purpose of the working group would be to support new academies and to identify new opportunities for cooperation within the region. They would also be responsible for increasing the visibility of the science academies and for strengthening partnerships at the national and regional levels.

ESTABLISHMENT OF A SADC ACADEMIES WORKING GROUP

Ms Morgan thanked Dr Qwebani for the overview and terms of reference for the technical working group. Academies were invited to volunteer to be part of the working group. At a meeting in June 2021, the Ministers responsible for ET-STI had taken the decision that regional guidelines should be developed by ASSAf together with NASAC and the UN Technology Bank. Those guidelines would be presented to the Ministers responsible for ET-STI at their next meeting. The guidelines would cover the establishment of new science academies and the strengthening of existing academies. Regional guidelines would provide unity, regional integration and policy harmonisation.

Ms Morgan recommended that the membership of the working group should align with the SADC policy structures. The working group should involve the troika, in other words the current, incoming and outgoing chairs, which were the DRC, Angola and Malawi. It was important to include the troika members because their ministers chaired the meetings, and the SADC secretariat would offer support. She suggested that there should be three additional members in the working group. Strategic partners would be co-opted to provide technical support and advice to the working group, such as the UNTB, NASAC, AAS and UNESCO.

Four academies put themselves forward to join the technical working group along with the troika academies. The technical working group was therefore constituted as follows:

1. The Congolese Academy of Sciences (ACCOS)
2. The Angolan Academy of Sciences
3. The Academy of Sciences in Malawi
4. The Academy of Science of South Africa (ASSAf)
5. The Zimbabwe Academy of Sciences (ZAS)
6. The Lesotho Academy of Science and Technology (LAST)
7. The Kingdom of Eswatini Academy of Science (KEAS)

Discussion

- Prof Kalula commented that no island states were represented and wondered whether the Seychelles should be included in the working group.
- Ms Morgan responded that Seychelles did not have an academy of science, but either Mauritius or Madagascar could be approached.

WAY FORWARD AND ROADMAP

The guidelines needed to have been finalised and validated by May 2023. A virtual meeting of the technical working group would be convened early in 2023 to finalise the guidelines. Once finalised, the technical working group would prepare a final draft of the guidelines. Another workshop would
be convened consisting of all of the academies, where the technical working group would present their final draft for validation. Once validated, the document would go to the senior officials, permanent secretaries, DGs, principle secretaries and state secretaries who would endorse the final document to be presented to the ministers. The next seating of the ministers would be in June 2023 under the chairmanship of the DRC.

Another task for the roadmap was to convene a policy dialogue of academies during the margins of the ministerial meeting, to discuss policy issues around the key role of academies on facilitating STI policy implementation and advancement nationally and regionally. The technical working group would be responsible for planning that policy dialogue.

Discussion

- Prof Kabanda supported the roadmap and suggested the addition of the following items:
  - Enhancing the platforms for discourse on SADC issues and facilitating the establishment of SADC think tanks to address key policy issues.
  - Conducting studies and publishing research that could be shared with other members to inform policy makers across the region.
  - Organising conferences and symposiums at which the science academies assumed leading roles and thereby increased their visibility.
- Ms Morgan noted Prof Kabanda’s suggestions and said that they would be incorporated into the roadmap. The roadmap would be developed with key deliverables and timelines, and would be shared with all SADC academy members and Ministers responsible for HE-STI. The workshop proceedings would be shared, and would be translated into Portuguese and French.

CONCLUDING REMARKS (SADC SECRETARIAT, LESOTHO ACADEMY OF SCIENCE AND TECHNOLOGY)

Ms Morgan thanked the UN Technology Bank, ASSAf and DSI for their partnership and support, LAST for co-hosting the workshop, and the DSI for co-sponsoring the workshop venue and catering. She thanked all virtual participants for their attendance, and the technical staff for their logistical support.

Mr Takalimane said that it had been a great honour to be part of the workshop, and looked forward to greater collaboration with the other academies, additional engagements and the provision of better service to society. He thanked the SADC secretariat for the important role that they played.

Prof Kalula said it was a pleasure and privilege to be standing in for Prof Jonathan Jansen, the President of ASSAf. Academies of Science designated themselves in different ways. In the case of ASSAf, ‘science’ was singular, and considered to be all encompassing. Others used ‘sciences’ in their titles to indicate inclusiveness. In both cases, the intention was the same and covered all academic knowledge. Prof Kalula expressed his gratitude to the SADC Secretariat and said that their role was not an easy one. Over the years, the region had made substantial progress as a result of the guidelines, principles, policies and encouragement from SADC. However, the SADC secretariat could only do so much, and it was up to the member states to take the work forward. Science represented ‘the only way out’ in terms of the problems the world faced. It was imperative that governments not only gave science greater space, but also recognised the contribution of scientists. Africa was not short of scientists, and innovation was taking place, but scientists needed support that went beyond funding. Donor support was very welcome, but a plan needed to be developed to ensure sustainability based on local resources. Academies needed to avoid the mistakes made by politicians in terms of the misuse of resources. Academies needed to communicate effectively with the authorities, but also with each other. Greater commitment was also needed from academy members, as it was often a few individuals who shouldered the bulk of the work. Academies had the capability to not only take science to governments but also to schools, and Prof Jansen did remarkable work in that regard. Prof Kalula had represented Prof Jansen at a meeting in Senegal, and he had been very impressed by the attitude of the Senegalese Government to science. The Academy of Senegal undertook a major programme each year, aligned with national priorities. They also had a robust system in place of taking science to schools. Prof Kalula praised the work of the ASSAf secretariat who managed to achieve a great deal with limited resources. He encouraged the academies to surround themselves with committed staff members and to treat those staff members well.

The meeting closed at 17:00.
### APPENDIX 1: LIST OF ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>AAC</td>
<td>Angolan Academy of Sciences</td>
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<tr>
<td>AAS</td>
<td>African Academy of Sciences</td>
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<tr>
<td>AMASA</td>
<td>Annual Meeting of African Science Academies</td>
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<tr>
<td>ASSAf</td>
<td>Academy of Science South Africa</td>
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<tr>
<td>AU</td>
<td>African Union</td>
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<tr>
<td>BAS</td>
<td>Botswana Academy of Science</td>
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<tr>
<td>CHPC</td>
<td>Centre for High Performance Computing</td>
</tr>
<tr>
<td>DRC</td>
<td>Democratic Republic of Congo</td>
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<tr>
<td>DSI</td>
<td>Department of Science and Innovation</td>
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<tr>
<td>DST-Lesotho</td>
<td>Department of Science and Technology of Lesotho</td>
</tr>
<tr>
<td>ET-STI</td>
<td>Education and Training, and Science, Technology and Innovation</td>
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<tr>
<td>GMOs</td>
<td>genetically modified organisms</td>
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<tr>
<td>IAP</td>
<td>Inter-Academy Partnership</td>
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<tr>
<td>KEAS</td>
<td>Kingdom of Eswatini Academy of Science</td>
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<tr>
<td>LAST</td>
<td>Lesotho Academy of Science and Technology</td>
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<tr>
<td>LDCs</td>
<td>Least Developed Countries</td>
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<td>LesYAS</td>
<td>Lesotho Young Academy of Science</td>
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<td>NASAC</td>
<td>Network of African Science Academies</td>
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<tr>
<td>NEF</td>
<td>Next Einstein Forum</td>
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<tr>
<td>OWSD</td>
<td>Organisation for Women in Science for the Developing world</td>
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<td>OWSD-BW</td>
<td>OWSD Botswana chapter</td>
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<td>RECs</td>
<td>regional economic communities</td>
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<tr>
<td>RISDP</td>
<td>Regional Indicative Strategic Development Plan</td>
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<tr>
<td>SADC</td>
<td>Southern African Development Community</td>
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<tr>
<td>SIPO II</td>
<td>Strategic Indicative Plan of the Organ</td>
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<tr>
<td>STEM</td>
<td>science, technology, engineering, and mathematics</td>
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<tr>
<td>STI</td>
<td>Science, Technology and Innovation</td>
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<td>UN</td>
<td>United Nations</td>
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### APPENDIX 2: LIST OF PARTICIPANTS

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization/Institution</th>
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<tbody>
<tr>
<td>Mr Francisco Bondo</td>
<td>Angolan Academy of Sciences</td>
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<tr>
<td>Prof Mario Fresta</td>
<td>Angolan Academy of Sciences</td>
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<tr>
<td>Dr Melusi Thwala</td>
<td>ASSAf</td>
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<tr>
<td>Dr Tozama Qwebani</td>
<td>ASSAf</td>
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<tr>
<td>Prof Evance Kalula</td>
<td>ASSAf</td>
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<tr>
<td>Prof Himla Soodyall</td>
<td>ASSAf</td>
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<tr>
<td>Dr Dikabo Mogopodi</td>
<td>BAS</td>
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<tr>
<td>Ms Mandry Ntshani</td>
<td>DSI</td>
</tr>
<tr>
<td>Ms Thato Morokong</td>
<td>DSI</td>
</tr>
<tr>
<td>Ms Lwandle Simelane</td>
<td>Eswatini Dept of Research, Science and Technology</td>
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<tr>
<td>Dr Thabile Ndlovu</td>
<td>KEAS</td>
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<tr>
<td>Mr Phesheya Sukati</td>
<td>KEAS</td>
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<tr>
<td>Mr Joshua Takalimane</td>
<td>LAST</td>
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<tr>
<td>Mr Nkosinathi Ndlovu</td>
<td>Royal Science and Technology Park, Eswatini</td>
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<tr>
<td>Mr Calicious Tutalife</td>
<td>SADC Secretariat</td>
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<tr>
<td>Ms Aneline Morgan</td>
<td>SADC Secretariat</td>
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<td>Ms Liwakala Mudangi</td>
<td>SADC Secretariat</td>
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<tr>
<td>Ms Federica Falomi</td>
<td>UN Technology Bank</td>
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<tr>
<td>Prof Gabriel Kabanda</td>
<td>Zimbabwe Academy of Sciences</td>
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<tr>
<td>Ms Alison Sussex</td>
<td>Scribe, Write Connection</td>
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African Academy Development: Strengthening Southern African Development Community (SADC) Science Academies for better service to society workshop