

ACADEMY OF SCIENCE OF SOUTH AFRICA TRANSFORMATION STRATEGY



science & innovation

Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA



Table of Contents

1. Purpose	3
2. Definition	3
3. ASSAf goals and mandate	3
4. Situational Analysis.....	4
4.1 Policy environment of the strategy.....	4
4.2 Membership election and demographic profile of Members	4
4.3 South African Young Academy of Science (SAYAS)	6
5. Principles of the ASSAf Transformation Strategy	6
6. Conceptualising transformation within ASSAf	7
6.1 Improving the demographic profiles related to race and gender	8
6.2 Promoting capacity building of young scientists within the national system of innovation.....	9
6.3 Developing and strengthening relationships with other stakeholders in the country	10
6.4 Advancing the quality of knowledge and the role of science in society	10
6.4.1 Building on trust in science	11
6.4.2 Addressing community related challenges	11
6.4.3 Developing an impact strategy that supports a mandate for societal well-being	12
6.4.4 Co-creation and public engagement of science	12
6.4.5 Relationship between business and scientists for broad positive impact of science	13
6.4.6 Assessing societal impact	13
6.4.7 Assessment of impact beyond the traditional academic impact factors.....	13
6.4.8 Promoting coherence about impact within the science ecosystem	14
6.4.9 Challenges and opportunities when using (social) media.....	14
6.4.10 Cross-disciplinary approach to improve on excellence.....	15
7. Delivery of the Strategy.....	15
7.1 Governance.....	15
7.2 Budget, Funding and Staffing	16
7.3 Innovative and effective communications strategy.....	16
7.4 Monitoring and Evaluation	17

1. Purpose

This Transformation Strategy sets out the meaning and applicability of transformation in the context of a national science academy and provides a framework to guide transformation in the Academy of Science of South Africa (ASSAf).

2. Definition

In South Africa, transformation is regarded as a means of redressing the imbalances that were created by the legacy of the apartheid regime and represents a move from the current state to a new state. Within the context of ASSAf, transformation is a dynamic process that results in a change in the Academy's Membership profile and the composition of the Academy's panels and Standing Committees with respect to race, gender, disability, geographical and discipline representation. The goal is not mere representation but full inclusion in the work and governance of the Academy. In addition, ASSAf will use this opportunity to innovate, learn, unlearn, and rethink adaptable strategies to embrace emergent change within a long-term view.

3. ASSAf goals and mandate

Overall, ASSAf has five strategic goals:

- Recognition and reward of excellence
- Promotion of innovation and scholarly activity
- Promotion of effective, evidence-based scientific advice
- Promotion of public interest in and awareness of science and science education
- Promotion of national, regional and international linkages

The ASSAf mandate is to bring together the country's top scientists to increase the value of science in society. As outlined in the 2020/1 – 2024/5 Strategic Plan, we propose doing this through the implementation of six outcome-based approaches:

- Outcome 1: Independent, authoritative and influential scientific advice
- Outcome 2: Science engagement
- Outcome 3: Mobilising knowledge
- Outcome 4: Facilitating partnerships
- Outcome 5: Scholarship support
- Outcome 6: Supporting transformation

ASSAf provides evidence-based science advice to government through various media including consensus studies, statements, policy briefs, conferences, symposiums, dialogues, and other convening activities. ASSAf has also incorporated into its Strategic Plans, as implemented in its Annual Performance Plans, activities that advance initiatives outlined in the National Development Plan (NDP) and other key policy frameworks of the country. ASSAf collaborates with other science councils, government departments, universities, private sector, and civil society organisations, in supporting evidence-based policymaking processes in South Africa. In addition, through engagement with regional and globally located partners, the Academy continues to address issues of national, regional, Pan African, and global importance.

While ASSAf has engaged in momentous work over the years, the urgency and importance of having more impact as an academy is grounded in the need to fight the socio-economic challenges that persist in the country and the wicked problems that continue to surface. ASSAf recognises that it has a vital role to play in the science, technology and innovation (STI) landscape, and needs to play a critical role as an effective change agent of equity in a complex, interconnected and ever-changing science landscape.

4. Situational analysis

4.1 Policy environment of the Strategy

The Transformation Strategy hinges on many academic and policy-related analyses, including the NDP, strategies of the Department of Science and Innovation (DSI) and other government departments. Poverty, unemployment, and inequality are highlighted as the triple challenges facing South Africa that require transformation for them to be addressed.

Other policy drivers considered in this strategy are given below:

- The **National Research and Development Strategy (NRDS)** identifies human capital development and the need to *transform the system through the upliftment of designated groups as essential and advocates for the pursuit of excellence on a global scale.*
- The **National Plan for Higher Education (NPHE)** provides an implementation framework for realising the objectives of the white paper on *transforming the higher education system to meet the social and economic development needs of the country.*
- The **Human Resource Development Strategy (HRDS)** recognises the need to implement a systematic strategy for human resources development to address the *disparities in wealth and poverty through the institutionalisation of human resource development planning and implementation.*
- The **Science, Technology, and Innovation Strategy for Africa (STISA)**, aims to achieve continental growth, sustainable development, and *social integration by drawing upon the potential of African people, especially women and youth, in its delivery.*
- The **White Paper for Science, Technology and Innovation** (2019) introduces ten policy shifts, one of which is transformation. It introduces a shift from an understanding of transformation that is based on gender and race only, to broadly encompass inclusivity, transformation and partnerships to unlock the full potential of the national system of innovation (NSI).
- The **Decadal Plan** that is being finalised.

4.2 Membership election and demographic profile of Members

Process of election of Members: Transformation of the ASSAf Membership has continuously been discussed within the ASSAf Council and the DSI. Per the ASSAf Act, new Members are elected every year by existing Members based on two main criteria, namely, academic excellence and contribution to society. Given the skewed demographics of Membership concerning race, gender, institutional affiliation and discipline since inception and the outcome of elections over the intervening 26 years, it is inevitable that this skewness would prevail into the present.

ASSAf has campaigned rigorously within its Membership, university research offices, Deputy-Vice Chancellors for Research, Faculty Deans, university communications departments, the National Research Foundation (NRF) Centres of Excellence, South African Research Chairs and other entities to nominate suitable candidates who satisfy the criteria for Membership. ASSAf introduced Membership Advisory Committees (MACs) to review new nominations within thematic, disciplinary areas as follows: MAC1 (Humanities and Social Sciences) includes economics, law and education; MAC 2 (Earth and Environmental Sciences) includes physical sciences, mathematical sciences, engineering and technological sciences; and MAC 3 (Health and Medical Sciences) includes life sciences and agricultural sciences. This intervention was

introduced as a way of bringing in expert involvement throughout the election screening process and to ensure that nominations received were reviewed by peers representing the disciplines of science within the MACs. Once the Committees have reviewed the nominations against the criteria of academic excellence and service to society, they are also encouraged to consider transformation imperatives around race, gender and institutional affiliation and to rate the applications within the MACs. The outcome of this process is then collated by the General Secretary and presented to Council to decide on the cut-off criteria for inclusion of nominees on the ballot form for voting by the Members.

Over the years, the ASSAf Secretariat has worked on streamlining the voting process to provide Members with easy-to-access electronic tools to obtain information to aid the voting process. Despite these interventions, the low number of Members who vote remains a challenge. More work must be done to improve on the branding of ASSAf among Members and in soliciting their voluntary participation in ASSAf activities.

Membership profile: The Membership has grown to 633 following the 2021 election and updating due to death and resignation of Members. Of the 633 Members, 186 (29%) of them are women and 208 (33%) are black.

The Academy also has 48 Members who are below the age of 50 and there are currently 136 members who are aged 70 and above. Membership of the Academy is also drawn from multiple disciplines.

There is an uneven distribution of Members at institutions across the country with very few Members located in historically disadvantaged universities (HDIs) (Fig.1). In addition to that, some disciplines are not well represented among the Membership (Fig. 2).

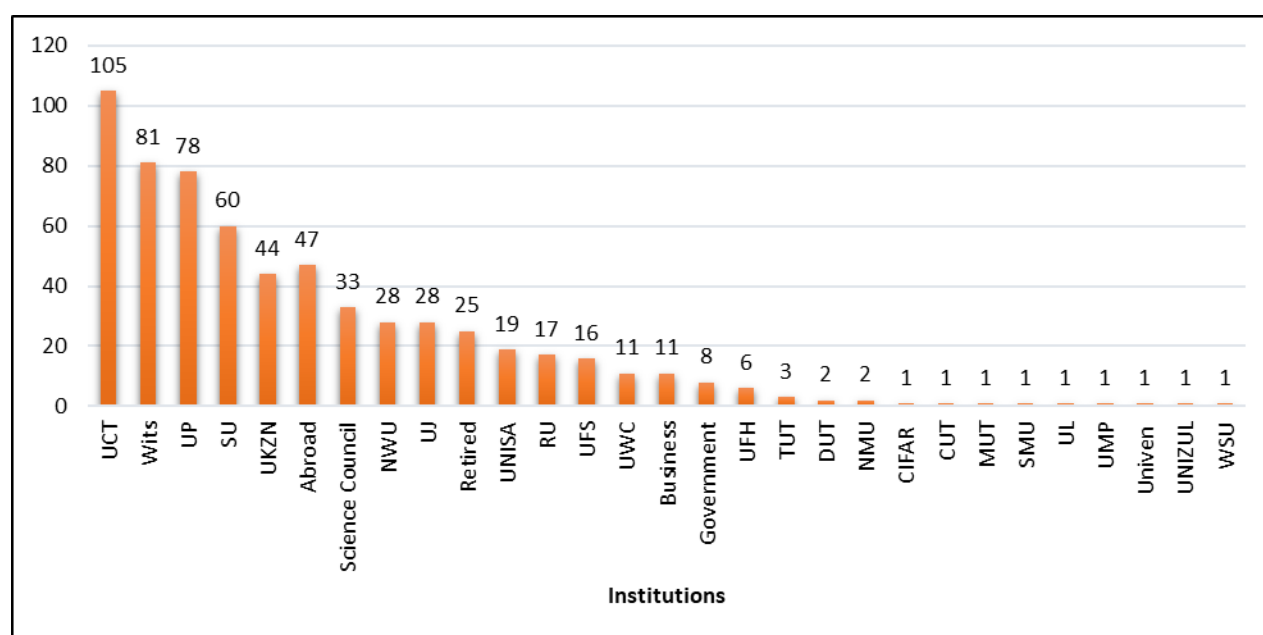


Fig.1. ASSAf Membership by Institutional affiliation

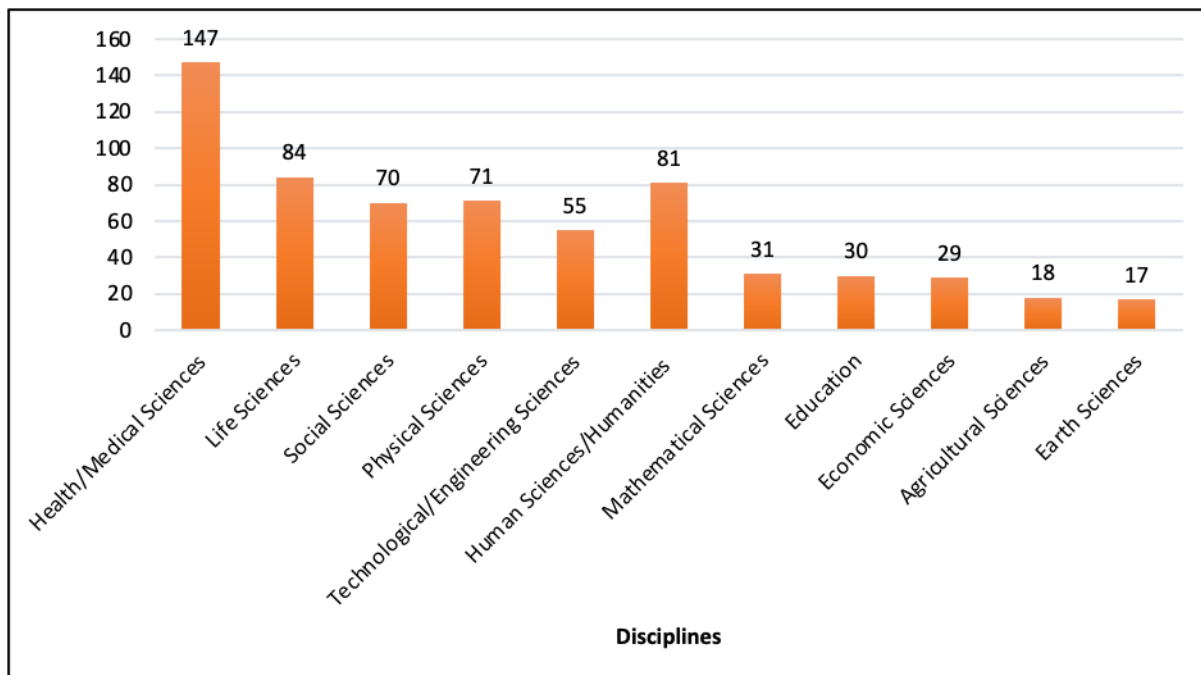


Fig.2. ASSAf Membership by discipline

4.3 South African Young Academy of Science (SAYAS)

The ASSAf Council supported the establishment of a young academy from which SAYAS came into existence in September 2011. In the founding year, 20 young scientists were elected. Ten new members have since been elected progressively on an annual basis with the total number of members now numbering 118. After five years of service, members become alumni and are replaced by newly elected members. Qualification revolves around the following criteria:

- Be in possession of a PhD or equivalent degree in any field of scientific enquiry, where science is defined broadly as encompassing natural sciences, social sciences, arts and humanities, medical sciences and engineering.
- Be under the age of 40 years and within seven years from award of a PhD at the time of nomination. Nomination of candidates who deviate from this profile requires additional motivation.
- Evidence of scientific excellence through a proven publication record, and receipt of honours and awards.
- Evidence of activities demonstrating service to society.
- Be willing to actively work towards achieving the goals of SAYAS as well as a commitment to attending the Annual General Meetings (AGM).

Membership profile: The SAYAS membership is much more representative by gender (52% female; 48% male) and race (African 43%, white 32%, Indian 22% and Coloured 3%) than ASSAf Membership.

5. Principles of the ASSAf Transformation Strategy

The ASSAf Transformation Strategy builds on the ASSAf Transformation Policy implemented in 2015 and is based on the following principles and values enshrined in the Constitution of the Republic of South Africa, notably:

- (1) human dignity, the achievement of equality and the advancement of human rights and freedoms; and
- (2) non-racialism and non-sexism.

In addition, ASSAf

- subscribes to the principles of excellence irrespective of origin, language, race or gender.
- recognises the value of diversity in all its activities.
- is mindful of the historical injustices of apartheid that excluded people from full participation based on race and deprived them of access to good quality education, particularly science and mathematics. In this respect, ASSAf has as one of its strategic objectives, the promotion of public interest in and awareness of science and science education.
- recognises that the strength of the science system in South Africa depends upon the full participation of all its people, regardless of race or gender.
- recognises the need to promote social cohesion through engagement, understanding, tolerance and respect for diversity in all its forms, and is conscious of its role in contributing to the national development effort and social transformation.

6. Conceptualising transformation within ASSAf

For ASSAf, transformation is about more than the necessary demographic changes to the profile of its Membership by race, gender, disability, *etc.* Such commitments to Member equity are and will remain important pursuits of our transformation. But fundamental change in South African science and society is also about the transformation of knowledge.

To what extent is the knowledge produced still hobbled by race essentialism and race determinism as found in the recent studies in fields like human anatomy and human genetics? How does the knowledge produced in the South African academy (universities, science councils, private sector research) impact on important concerns ranging from climate change and the energy crisis to public health and adult literacy? Are senior scholars and scientists, such as Academy Members, themselves contributing to the next generation of knowledge producers in the academy?

Does the knowledge produced in our institutions draw on and reflect the broadest range of theoretical and methodological traditions rather than remain stifled by doctrinaire positions on important questions? Is knowledge produced imbued with a criticality that allows for self-reflection, innovation, creativity and the breaking of disciplinary boundaries? To what extent is the research produced in the national science system building and advancing African knowledge traditions even as it enjoys a rich and productive interaction and exchange with knowledge from other parts of the world (e.g., Asia, Latin America, Europe)?

Transformation of knowledge in South African society will always be shortchanged unless it seeks active engagement and collaboration with knowledge and knowledge producers in the region and across the continent. Pandemic outbreaks and migrancy alone demonstrate the necessity of a scientific enterprise being borderless, especially in relation to its surrounding geographies. This does mean asking probing questions such as the degree to which the knowledge enterprise in South Africa builds on and contributes to knowledge production in Africa more broadly.

In this regard, the transformation of knowledge is found not only in its *application* to human problems such as poverty and unemployment, but in the very *constitution* of knowledge itself. How are scientific problems selected and funded? In other words, what knowledge counts in the prioritisation of budgets, and what does not? These are inevitably political problems since to choose is to decide what is important, and what is not. There should be an equally strong commitment to funding knowledge production in the humanities, education and the social sciences as there is to the sciences, engineering and technology-related fields.

And yet what happens to knowledge produced for purposes of policy and planning? Is there a commitment to “making knowledge work” from conception to execution to application? Knowledge for action is and should be a commitment of any Academy that produces so

many consensus studies of high quality for purposes of advising government and informing the public.

Knowledge produced from the public purse must therefore benefit and be seen to be benefitting ordinary citizens. Are such commitments built into research designs or contracted in funding allocations? This does not mean that there is no place for blue-sky or exploratory research without such development strings forcefully attached; such a position would undermine commitments to free and unfettered scientific inquiry but also misunderstands the fact that the very roots of applications-based research often flow from open-ended science. This is what ASSAf means by the transformation of knowledge, a commitment that is inevitably part and parcel of the much-needed changes in the demographic representation of the scientific community in South Africa.

In laying out this Transformation Strategy, ASSAf's core beliefs, values, and principles will continue to define its programme of work. The Academy will endeavour to protect its mission, put its Membership first while focusing on elevating equity, advancing quality knowledge production, and building capacity. ASSAf has conceptualised transformation as an intentional and structured process of change regarding its Membership, knowledge generation, and its programme of activities.

The objectives of the ASSAf Transformation Strategy are as follows:

- a) To improve on the demographic profiles related to race, gender and disability at all levels within ASSAf.
- b) To promote capacity building of young scientists within the national system of innovation.
- c) To develop and strengthen relationships with other stakeholders in the country.
- d) To advance quality of knowledge and the role of science in society by broadening the fields of study that ASSAf's Membership engages with and bring in diverse disciplines to contribute to the redress of historical inequities and improved social cohesion and to enhance the societal relevance of the science that is being undertaken.

6.1 Improving the demographic profiles related to race, gender and disability

Improving the demographics relative to race will be achieved through:

- Encouraging ASSAf Members to nominate and vote for peers who make a significant contribution in advancing their discipline with more emphasis on advancing black scientists during the annual Call for Membership election process while maintaining excellence in science and service to society.
- Emphasising in the nomination form that historically disadvantaged individuals are strongly encouraged to seek nomination to the ASSAf Membership.
- Balancing the racial composition of Membership Advisory Committees (MACs) as much as possible.
- Utilising ASSAf Members and networks based within HDIs to raise awareness of the Academy and the benefits of Membership.
- Including in the reports, statistics on the number of black and white nominees, successful nominations, numbers voted in, number voting and how many were part of the MACs; and
- Ensuring that transformation of the Academy is continuously part of the agenda of Council and promoting equity in all meetings, strategic planning sessions, and all ASSAf reporting outcomes.

Increasing the number of ASSAf Members who are female will be achieved through:

- Establishing a Gender Advisory Committee (GAC) as one of the ASSAf Standing Committees to advise on ensuring and promoting gender equity in all activities of the Academy.
- Emphasising in the nomination form that female individuals are strongly encouraged to seek nomination to the ASSAf Membership.

- Encouraging ASSAf Members to nominate more female scientists during the annual Membership election process.
- Balancing the gender composition of MACs as much as possible.
- Reaching out to female ASSAf Members based at HDIs or with networks at these institutions to raise awareness of the Academy and benefits of Membership.
- Including in the reports, statistics on the number of female nominees, successful nominations, numbers voted in, number of female ASSAf Members voting and how many were part of the MACs.
- Ensuring that gender transformation is continuously a part of the agenda in Council meetings, strategic planning sessions, and reporting outcomes.
- Conducting studies and convening stakeholders around key men and women in science issues in the country.
- Expanding and supporting activities that foster the next generation of women in science through collaboration with the Organization for Women in Science for the Developing World (OWSD) National Chapter, Black Women in Science (BWIS), Nka'Thuto EduPropeller, the Women in Science, Engineering and Technology (WISSET) National Chapter and others.
- Expanding and supporting activities that aim to increase the participation of women in science and ensuring that gender balance is considered when designing and implementing all ASSAf activities.

An intensified focus on disability

ASSAf recognises that disability inclusion and principles of universal design and access are requirements in terms of South Africa's local and global commitments, for example, to the United Nations Declaration on the Rights of Persons with Disabilities (<https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html>); and the White Paper on the Rights of Persons with Disabilities (https://www.gov.za/sites/default/files/gcis_document/201603/39792gon230.pdf). In addition to these commitments, ASSAf recognises that the best science to address the complex challenges of our country and continent must be inclusive and allow for full participation of all people, including those with disabilities, and be of benefit to all, including those with disabilities.

ASSAf acknowledges that, although there has been a commitment from the Academy to disability rights and inclusion, the Academy is still in the early stages of moving to full inclusion. Much more work needs to be done in this regard, and ASSAf commits itself to work on the following issues and others which may arise:

- Routine collection of disability status data for ASSAf Members and structures, along the same lines as collection of data on race and gender.
- Reporting on disability statistics along with race and gender statistics.
- A progressive audit of accessibility of ASSAf physical and virtual infrastructure to allow full access by all scientists on universal design principles.
- Commitment to mainstreaming of disability issues in broader research and development endeavours.

As a first step to reaching these aims, and recognising the backlog in this area, ASSAf commits to the establishment of a task force mandated to consider and develop guidelines on monitoring disability inclusion in all aspects of our work, and to suggest ways of supporting universal design and disability inclusivity in research more broadly.

6.2 Promoting capacity building of young scientists within the national system of innovation

This will be achieved through:

- Encouraging ASSAf Members to foster and mentor young scientists (in terms of both chronology and career) by actively participating in national programmes such as the New Generation of Academics Programme (nGAP), Future

Professors Programme (FPP) and others, in order to nurture a new generation of Academy Members.

- Supporting the SAYAS as the national junior science academy by providing Secretariat support as well as partnering with them in adding the voice of young scientists in providing science advice.
- Ensuring that SAYAS Membership, TWAS Affiliates in South Africa, Lindau Nobel Laureate meetings, Annual Young Scientists Conferences and BRICS Young Scientists Conferences and other activities provide opportunities to a diversity of young scientists to promote opportunities to assist them in advancing their careers.
- Using social media, web-based, printed, and other resources to raise awareness on activities undertaken by young scientists.
- Working with the NRF and other DSI entities to create a nationwide mentorship programme for young scientists.

6.3 Developing and strengthening relationships with other stakeholders in the country

This will be achieved through:

- Identifying champions from all universities, with emphasis on the HDIs, in partnership with SAYAS and OWSD SA as ASSAf-hosted organisations and other relevant stakeholders, for example, the South African Women in Science Awards (SAWISA) and other national partners like Black Women in Science among others.
- Working with the identified champions to host workshops, seminars, and meetings to mobilise existing and potential ASSAf Members, as well as to facilitate mentorship and capacity building initiatives.
- Providing funding to the champions for hosting these engagement meetings that address gender, race, and disciplinary issues.
- Creating linkages with the research offices, transformation offices and communication offices of HDIs to ensure that calls for ASSAf Membership nominations are disseminated widely.
- Conducting regular face-to-face visits to HDIs when possible, and utilising virtual platforms, to increase awareness of the Academy and foster engagement with the HDIs.
- Encouraging increased collaboration with regard to events and activities hosted by HDIs to share information on the work of the Academy.

Partnerships with other organisations involved in the transformation of science will be promoted by:

- Expanding and formalising relationships with a broader array of organisations such as the Commission on Gender Equity, the National Youth Development Agency and others involved in the transformation agenda.
- Strengthening cooperation between ASSAf, the Department of Higher Education and Training (DHET) and Universities South Africa (USAf).
- Encouraging partnerships with the private and civil society sectors.

6.4 Advancing the quality of knowledge and the role of science in society

ASSAf recognises that knowledge production is a political process that occurs and seeks to create certain fields of power. Present-day research in the development sector is inequitable and perpetuates further exclusion. For ASSAf, transforming knowledge production is linked with:

- Challenging the assumptions of westernised, mainstream, traditional epistemologies and methodologies of knowledge production.
- Introducing human-centric and participatory approaches, organising a team so that people with lived experiences and various cultural competencies work together and lead projects, and giving more focus to homegrown solutions.
- Creating a space for change, especially for those with marginalised identities.

- Embracing a plurality of decolonial knowledge, experiences, and truth sources.
- Changing how studies are designed, generated, published, disseminated and used.
- Shifting away from top-down approaches to prioritising bottom-up theories of socio-economic change and transformation, cultural competencies, and lived experiences.
- Developing a critical knowledge production process that challenges scientists to bring about change(s) for the benefit of society.
- Applying a feminist lens to all ASSAf analyses and embracing an approach that emphasises how power relations, systems and identities intersect and interact in driving inequalities, poverty and injustice.

In addition, several other factors will be considered when implementing this strategy. These include:

6.4.1 Building on trust in science

Public trust in science/scientists is essential when the risks and benefits of new technologies and medical interventions are not well understood. ASSAf can enhance this trust by promoting:

- Scientists to build relationships in and across communities in an inclusive manner through their active community participation in how problems are defined, and solutions found. They also need to showcase applied science to the public.
- Scientists to make connections and build trust with science communicators and communities through recognising that society is an active participant, not talking down to laypeople but communicating with them in an understandable way without compromising accuracy.
- The message that scientists are also members of their community, with the same wishes and hopes for society, and that they are looking at research and evidence to try and answer questions as well as promote change that will positively impact their lives too.

6.4.2 Addressing community-related challenges

Several factors need to be considered when ASSAf engages with communities:

- Establish a good working relationship with the community.
- Involve the community affected by the challenges or interested in innovations from start to end and provide feedback and allow for consultation throughout.
- Identify whether the problem or innovation is national, provincial or municipal and focus on the authorities involved.
- Involve all stakeholders in the community, i.e., leaders in the community, political parties, local municipalities, *etc.* Agreement should be reached in identifying problems and which problems need to be addressed.
- Uphold ethics in all engagements with the community.
- Co-design, co-implement and co-monitor and evaluate the developed mitigation measures/strategies.
- Develop a clear and transparent communication line and communication strategy.
- Build trust with funders and all other stakeholders.
- Create publicity, guided by the standard operating procedures (SoP), ethics, integrity, intellectual property rights, *etc.*

6.4.3 Developing an impact strategy that supports a mandate for societal well-being

The key element when assessing the impact of any strategy is the reach (what was the breadth) and significance (how important was the change) of the strategy. Some benefits are for the scientific community and others are for society. From the perspective of an academy, both are equally important and should show mutual benefit. The following are some suggestions of how ASSAf could achieve this mandate:

- Identify burning issues (gender issues, gender-based violence, crime, corruption, poor education, poverty, food insecurity, mental illness, etc.) and prioritise studies around them.
- Solicit expert, consensus advice from Members in the various fields on means to mitigate.
- Identify government departments and key stakeholders in the specific sectors to action mitigation and measure outcomes.
- Identify champion/s and use champions to inform, guide and assist stakeholders in implementing advice, marshalling resources/sponsors and creating awareness.
- Use [United Nations' special days / weeks](#) (for example) as opportunities to promote awareness of issues and what help is available for society.
- Conduct an Institutional Review every five years by external reviewers to assist with SWOT (strengths, weaknesses, opportunities, threats) analysis, monitoring and evaluation.
- Brainstorm and develop the strategy together with our society.

6.4.4 Co-creation and public engagement of science

The COVID-19 pandemic has demonstrated the power of social media in engaging the public and increasing the impact of science. Life-altering decisions are made by citizens with information obtained through social media (to vaccinate or not, to use specific medicine like Ivermectin or not, etc.). Often this advice comes from sources with no, little or false information. The science community should be more focussed on using social media as a cheap, accessible tool and platform to engage with citizens and stakeholders. Messaging should be co-created by stakeholders and distributed from different reliable sources to reinforce the impact, such as those scientists who have built a relationship with the public.

Hierarchies need to be broken down between local government, business life, universities, citizens and other stakeholders. Instead of being a top-down or bottom-up process, co-creation promotes a multi-directional approach to problem solving.

- This implies knowledge production, knowledge transfer, and knowledge use within a single process towards a common goal.
- Co-creation must not be adopted only as a participatory administrative practice. Citizen participation should be enabled already from political agenda-setting as a way of opening avenues for participatory democracy.
- Engagement with community and civil societies from both urban and rural communities should be encouraged.
- Hold public engagements and structured deliberations using platforms that are ideal for all such as radio stations, social media, webinars, face-to-face meetings if circumstances permit, or workshops. Use local/online radio stations using local languages in the various communities. It is important to build relationships with

these radio stations in order to gain access to broadcasting times and for them to engage with scientists when required.

- Promote the social responsibility of scientists, for example, giving back to the communities in affordable ways, e.g., distribution of face masks to patients at township hospitals during the COVID-19 pandemic.

6.4.5 Relationship between business and scientists for broad positive impact of science

Scientists and business should jointly identify needs and develop solutions for scientists to test and business to take to market. This could be achieved by:

- Cultivating mutually beneficial relationships.
- Continuing to build on Science-Business Leadership Forums – it is important to get the two to talk to each other.
- Providing a better understanding of how the sciences work in seeing returns to business and *vice versa*.
- Forging and structuring relationships and networks that can improve the relationship.
- Aligning company research to the sciences and making connections with civil societies to benefit from the funds that are given to civil societies.

6.4.6 Assessing societal impact

It is important to note that societal impact relates to what has **changed** instead of what has been done and mechanisms should be put in place to monitor and evaluate these changes.

Consideration should also be given to the impact on advancing the sustainable development goals (SDGs). The real value of the SDGs should be reformulated to engage with the specific challenges in society and to evaluate how members of society could collectively contribute to addressing the challenges. The need for collaborative action of researchers, society, industry, and policymakers must be emphasised.

Linking the SDGs with other national directives as outlined in the NDP, the STI White Paper, the Decadal Plan and other global challenges reinforces a systems approach when addressing societal challenges.

6.4.7 Assessment of impact beyond the traditional academic impact factors

Instead of using quantitative common measures of author impact such as h-index, g-index; i10-index and so on, an impact evaluation that is qualitative or mixed method in nature could be used. These could include criteria that embody academic excellence but also consider advancement of societal issues, e.g.:

- Active participation in professional associations. In this instance the Continuing Professional Development (CPD) points could be taken seriously.
- Consideration of community engagement activities at one's institution and also other academic citizenship activities.
- Contribution to promoting the SDGs.
- Longevity of outcome.
- Implementation of outcome.
- Actual impact on society (real change).

- Patents, policies.
- Online activity/discussions measured through Altmetric tools.
- Media monitoring.
- Funding of start-ups to encourage innovation, commercialisation, and creation of employment opportunities.
- Alignment with key national priorities.
- Use of research projects that address pertinent societal challenges.
- Community engagement contributions.

6.4.8 Promoting coherence about impact within the science ecosystem

This could be achieved through:

- The promotion of interdisciplinary research. Interdisciplinary research will provide collaborative opportunities for researchers and practitioners to integrate techniques, knowledge, tools, orientations, concepts and theories from different disciplines or bodies of specialised knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice.
- Development of an overarching policy document to draw the information on impact all together.
 - Partnerships and co-operation between government and private sector.
 - Partnerships and co-operation between scientists and communities.
 - Partnerships and co-operation between scientists and the media.
 - International partnerships and co-operation.
 - Interdisciplinary partnerships and co-operation.
- Use of the Committee of Heads of Organisations for Research and Technology (COHORT) for wider engagement of science among all stakeholders.

6.4.9 Challenges and opportunities when using (social) media

Social media holds many opportunities for communicating science to society and entering into discussions with a diverse audience. It can:

- Distil science into a multitude of formats (scientific reports, toolkits, posters, flyers, pamphlets, Twitter posts, YouTube videos) in easy-to-understand formats to improve reach.
- Showcase the work and the people doing it.
- Engage with the public through surveys, monitor impact of social media outputs, track views and reach and transparency.

Social media offer opportunities to:

- Foster public trust in science.
- Speak directly with communities, unfiltered.
- Timely access to and spread of scientific knowledge.
- Sway public opinion and set trends.
- Widespread information from a variety of sources (international, local, cross-cultural).
- Appeal to wider demographics by making science accessible, fun and interesting, thereby promoting science to a wider audience.
- Encourage networking and collaboration through easy access.
- The choice of medium for better/targeted communication.
- Low cost means of branding and advertising or dissemination.
- Marketing of activities and highlighting areas of concern.

- Collaborate and communicate the same message from different platforms and stakeholders to reinforce the message.
- Partner with a spokesperson/celebrity ambassador to generate a wider reach.

Current challenges include:

- Widespread dissemination of misinformation through un-vetted or non-accredited sources.
- Access for the masses, including people living with sensory disabilities.
- The demand for frequent interactions.
- Gaining traction in a competitive/cluttered online space.
- Gap between generations of current researchers and social media (training required).
- Governance surrounding scientists' interactions with the public on social media.
- The need for fact-checkers to check social media messages before they are disseminated.

6.4.10 Cross-disciplinary approach to improve on excellence

National academies are better positioned to promote initiatives and projects that are trans-disciplinary since the Membership of the Academy consists of scientists from different backgrounds. Encouraging continuous dialogue among experts from varying disciplines provides opportunities to cross-pollinate ideas and co-learn.

In terms of activities, ASSAf can increase the number of events hosted that include panellists from across disciplines who address topics of national and global importance, e.g. climate change, response to the COVID-19 pandemic, and the Just Transition.

The *South African Journal of Science* promotes and supports multidisciplinary publications and publications of special issues featuring specialised topics from multidisciplinary perspectives.

7. Delivery of the Strategy

7.1 Governance

ASSAf organises its activities in three broad groupings, namely, Members, Council, and the Secretariat. ASSAf Membership brings together 633 Members to provide science advice to government and other stakeholders on critical issues, such as poverty, sustainable development, climate change, biotechnology, and health among other topics. The Academy Membership does not have a cap on numbers and, therefore, new Members are selected annually.

Excellence and service to society, irrespective of race, nationality, age, or gender, are the hallmarks of Academy Membership. The Academy promotes inclusivity where all feel welcome. Membership into the Academy is by election and hence equity targets are difficult to achieve. However, it is hoped that through this Transformation Strategy, the Membership diversity goals will be achieved.

The ASSAf Council is made up of 16 Members elected by the ASSAf Membership. They include the advisers and one Member seconded by the Minister of Higher Education, Science and Innovation. The Council leads the Members and the Secretariat as the highest decision-making body of the Academy. The Council is led by a President and supported by an

Executive Committee that comprises two Vice Presidents, a General Secretary and a Treasurer.

The Secretariat currently comprises 30 staff members led by the Executive Officer. They are the implementing arm of the Academy who oversee the operational activities of ASSAf. In some activities, the Secretariat works with the Standing Committees that are represented by selected Members and other experts who conduct consensus studies, and host webinars and other activities that promote their mandates.

The Secretariat works closely with SAYAS and women in science organisations. Working together, the goal is to promote an organisational culture that is respectful of diversity, values diversity and promotes inclusiveness that encompasses people with disabilities.

The Academy subscribes to the need to apply Broad-Based Black Economic Empowerment (B-BBEE) principles in its procurement processes and submits annual employment equity reports to the Department of Labour. Diversity in the membership of ASSAf's various study panels and Standing Committees must be considered when such panels and committees are established. This is regarded as a key intervention to profile scholars/researchers and to position them for possible nomination and subsequent election to ASSAf Membership.

Each of the three Academy's groupings will be involved in the implementation of this Transformation Strategy by ensuring that actions proposed under each objective are undertaken. Orientation on the Strategy, its implementation, monitoring and evaluation will be part and parcel of the Academy's operations.

7.2 Budget, funding and staffing

The Academy will dedicate a budget from baseline funding to deliberately undertake activities to address transformation.

The Academy will also develop and implement a dynamic fundraising mechanism.

The Academy will build sustainable relationships with potential donors.

The Academy will ensure that transformation forms part of the responsibilities of a senior staff member who will ensure that this Transformation Strategy is implemented at all levels of ASSAf's operational activities.

This Strategy will be incorporated into the existing monitoring and evaluation framework of the Academy as part of the operations and activities of ASSAf.

7.3 Innovative and effective communications strategy

The Academy will design ways to monitor the success of different communication strategies in achieving the goals of this Strategy and to adopt them accordingly.

The Academy will be more proactive in science communication and increase its engagement with the media, decision-makers, and the general public on matters outlined in this Strategy.

ASSAf will also utilise effective methods for the dissemination of ASSAf statements and reports to policymakers and the general public.

Academy activities will be aligned to key transformation movements in the country like 16 days of gender activism, Women's Day, or Youth Day, among others.

Innovative communication tools will be explored; for example, by forming strong connections with the unique social media presence and skills of SAYAS and OWSD SA Members.

Methods to monitor the success of different communication strategies in achieving the goals of this Strategy will be designed and adopted accordingly.

7.4 Monitoring and evaluation

A Monitoring and Evaluation (M&E) Framework adapted from that which already exists for ASSAf will be implemented to monitor progress. Indicators that will be measured include, where appropriate, gender, race, discipline, and geography disaggregated data and the application of a youth and gender lens.

Targets will be set at the beginning of each financial year, guided by ASSAf's Annual Performance Plan. Reporting will be the responsibility of each programme's manager through their respective staff members to ensure integration across the whole of ASSAf.

The quarterly and annual reports submitted to Council, DSI and Parliament will capture the transformation indicators after the end of each financial year. Key areas to be targeted are Council membership; ASSAf Membership; membership of committees; Secretariat composition; nominations for prizes/awards; and the application of a gender and youth lens in studies and events.

The five-year Institutional Review, which is an evaluation process for the Academy, will include transformation indicators.