PROCEEDINGS TOWARDS COORDINATING NATIONAL ROLE PLAYERS & ACTIVITIES TO ACHIEVING THE SUSTAINABLE DEVELOPMENT GOALS:

A Focus on SDG 6 (Water and Sanitation)

23 – 24 July 2019

6 CLEAN WATER AND SANITATION

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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.

SUMMARY

Context

The workshop titled "Landscaping the coordination of national role-players and activities toward Sustainable Development Goal 6 (SDG 6 on water and sanitation) in South Africa" was held on 23 and 24 July 2019. The event was a partnership between the Academy of Science of South Africa (ASSAf), the Interacademy Partnership (IAP) and the South African Department of Water and Sanitation (DWS), as the national champion of SDG 6. The event was funded by the IAP Project "Harnessing Science, Engineering and Medicine to Address Africa's Challenges."

ASSAf supports the IAP in its initiative to promote and advance the Sustainable Development Goals (SDGs) in Africa. While ASSAf does not undertake research specifically on the SDGs, many of its consensus studies, workshops and symposia have focussed on topics linked to the SDGs, and a qualitative assessment of about 50 of ASSAf's publications has highlighted ASSAf's footprint on SDG-related goals.

Objectives

The overall objectives of the workshop were:

1. to demonstrate the importance of the coordination of the water sector for the benefit of all stakeholders and the ultimate realisation of SDG 6;
2. to provide information to the water sector on progress towards achieving the SDG targets and identify where there are gaps and opportunities for further collaborative working;
3. to help further inform the definition of each of the SDG 6 targets;
4. to demonstrate the value of a national science academy in convening different stakeholders working on shared challenges and strengthening the science-policy interface; and
5. to highlight the vital role of scientific research in helping to deliver the UN SDGs.

The workshop was attended by over 130 people representing primarily national government, local authorities and practitioners. Academia and civil society were also represented.

Programme

The first day focused broadly on the UN SDGs with discussions on progress and reporting on SDGs at a global, continental and national scale. Focusing on the water sector, several African initiatives were presented, highlighting shared challenges and the importance of coordinating respective efforts. Coordination of the water sector in South Africa was discussed in detail, exploring each of the targets of SDG 6 in turn.

The second day was more interactive. Following a plenary presentation on country reporting on SDGs in South Africa and how data are being used to monitor progress, participants broke into self-nominated groups. Each focused on clusters of SDG 6 targets and the challenges around their domestication and monitoring of progress. Each group then provided formal feedback in plenary, stimulating questions and debate, making new and reinforcing existing connections.

Key messages

The key messages emanating from the workshop were as follows:

1. Driven by the DWS, the national champion of SDG 6, the water sector in South Africa is relatively well-coordinated, helping to streamline collective efforts to achieve SDG 6.
2. Coordination, collaboration and partnership between key stakeholders are vital to these efforts. This includes engaging with, and listening to, civil society and academia. In recognising common purpose, respective strengths and capabilities, progress can be more efficient and effective, especially when complemented by accurate and timely sharing of knowledge, information and data.
3. High-quality, relevant and timely data, grounded in scientific principles, are key to understanding the current state of progress toward SDG 6, and identifying where policy interventions are working well and where they are not. This can help identify, develop and refine targets and their indicators. The development of formal metrics for each target, and understanding their interdependencies, rely on appropriate and rigorous data from reliable and diverse sources. In understanding the current state of progress and having clear, achievable and measurable targets, plans and strategies can be developed that are fit-for-purpose, coherent and implementable.
4. Understanding and accounting for the synergies and trade-offs between SDG 6 targets, and between SDG 6 and other SDGs, are vital and requires a holistic approach to their implementation.
5. The scientific community is a key partner in the realisation of all SDGs. Science is a generator of new knowledge and data and provides the foundation for experimental innovation. National science academies have a role to play in promoting science and serving as a 'neutral broker' for bringing together diverse stakeholders from different sectors, disciplines and geographies.

Whilst the workshop focused specifically on SDG 6, these key messages are relevant and transferrable to all SDGs.

Conclusion

The ASSAf-DWS-IAP workshop provided an opportunity for SDG 6 target leaders to engage with members of the sector, civil society and academia, and gain valuable input into the refinement of SDG 6 targets. The workshop helped form new collaborative partnerships, and strengthened existing ones, which could ultimately result in a strengthened sector.

ASSAf received positive feedback on its role as a 'neutral broker' and as a point source for scientific input. The Academy will explore opportunities to replicate this activity for other SDGs or clusters of SDGs to improve coordination and insight by convening wide-ranging stakeholders, promoting collaboration and scholarly discourse.

Summary is not part of the conference proceedings

TOWARDS COORDINATING NATIONAL ROLE PLAYERS & ACTIVITIES TO ACHIEVING THE SUSTAINABLE DEVELOPMENT GOALS: *A Focus On SDG 6 (Water and Sanitation)*

Date: 23 – 24 July 2019

Venue: St George's Hotel and Conference Centre,
City of Tshwane

DAY 1: TUESDAY 23 JULY 2019

Opening Plenary

Welcome and Introduction – Prof Himla Soodyall: Executive Officer, Academy of Science of South Africa (ASSAf)

Prof Soodyall welcomed delegates on behalf of ASSAf and the Department of Water and Sanitation (DWS), and acknowledged members of the ASSAf Council, the Network of African Science Academies (NASAC) Board, members of the diplomatic corps, and representatives of various stakeholder partners and entities.

She noted that it had been a short but successful journey since December 2018 when ASSAf had co-hosted with the Department on Science and Innovation (DSI), previously the Department of Science and Technology (DST), the first stakeholder engagement on the Sustainable Development Goals (SDGs). The Inter-Academy Partnership (IAP) had set-up a working group focusing on how to use science, engineering and medicine to bring together various African academies and other stakeholders on the African continent to foster collaborations and synergistic actions to advance the SDGs.

Following on from the ASSAf/DSI meeting and other engagements with the IAP, it was apparent that while there was a great deal of activity around SDGs in South Africa and elsewhere on the African continent, there was lack of synergy and coordination, resulting in many gaps in terms of addressing specific objectives within the 17 SDGs.

The DWS seemed to have coordinated their activities well and shared interesting insights and their success at building networks around achieving many of the objectives related to SDG 6 (Clean water and sanitation – Ensure availability and sustainable management of water and sanitation for all).

ASSAf partnered with the DWS to host this workshop inviting stakeholders who were engaged in activities related to SDG 6, as well as scholars and policymakers interested in SDGs. The workshop served as a platform to advance and accelerate synergistic activities to promote achieving the SDGs. Prof Soodyall acknowledged the IAP for their generous sponsorship of the workshop.

Delegates were encouraged to participate actively in the two-day programme and to look for opportunities to collaborate with other stakeholders.

Overview of the SDGs: International Experiences and Global Progress – Ms Magamase Mange: National Programme Manager, United Nations Environment Programme (UNEP)

In her introduction, Ms Mange quoted António Guterres, Secretary-General of the United Nations (UN), who had warned that, if the SDGs were to be achieved, water could no longer be taken for granted. It was time to change how water was valued and managed.

Ms Mange's presentation was based on the 2019 UN report on the SDGs "The Sustainable Development Goals Report". With about a decade left for implementation of the SDGs, many country signatories had managed to integrate the SDGs into their national development plans. Despite progress having been made in some areas, huge challenges remained, in particular the need for data and evidence, and the need to hasten progress towards achieving the 2030 Agenda for sustainable development. The interlinked nature of challenges and solutions called for an integrated and holistic approach.

There had been some definite progress towards achieving the SDGs: extreme poverty had declined considerably from 36% in 1990, to 16% in 2010, and 10% in 2015; the under-five mortality rate had fallen by 49% between 2000 and 2017; immunisations had saved millions of lives; and the vast majority of the world's population now had access to electricity.

Countries were taking concrete actions to protect the planet: marine protected areas had doubled since 2010 to 17% of national waters; countries were working together to address illegal fishing; 186 parties had ratified the Paris Agreement on climate change; and almost all had communicated their first nationally determined contributions.

About 150 countries had developed national policies to respond to the challenges of rapid urbanisation; and 71 countries and the European Union now had more than 300 policies and instruments supporting sustainable consumption and production.

A wide range of international organisations, businesses, local authorities, scientists and civil society organisations (CSOs) had engaged positively with the SDGs.

The challenges included:

- **Environmental challenges:** Notwithstanding progress, many areas needed urgent collective attention. The natural environment was deteriorating at an alarming rate: sea levels were rising; ocean acidification was accelerating; the past four years had been the warmest on record; one million plant and animal species were at risk of extinction; and land degradation had continued unchecked.

- **Social challenges:** Efforts to end human suffering and create opportunities for all were progressing too slowly. The goal to end extreme poverty by 2030 was being jeopardised by the struggle to respond to entrenched deprivation, violent conflicts and vulnerability to natural disasters. Global hunger was increasing, and at least half the world's population lacked essential health services. More than half the world's children did not meet the standards in reading and mathematics; only 28% of persons with severe disabilities received cash benefits; and women in all parts of the world continued to face structural disadvantages and discrimination.

Member states agreed that these challenges were interrelated and had called for integrated solutions. It was imperative to take a holistic view of the 2030 Agenda and to identify the areas of highest impact in order to target interventions. Two challenges were highlighted, namely climate change and increasing inequality.

Climate change was the area requiring most urgent action. Due to record-high greenhouse gas emissions, atmospheric carbon dioxide levels were at 146% of pre-industrial levels, and global warming was projected to reach 1.5°C in the coming decades. The effects of climate change would be catastrophic and irreversible, including increasing ocean acidification, coastal erosion, extreme weather conditions, more frequent and severe natural disasters, continuing land degradation, loss of vital species, and the collapse of ecosystems. These effects would render many parts of the globe uninhabitable and affect the poor the most. The effects would put food production at risk, leading to widespread food shortages and hunger. Climate change could potentially displace up to 140 million people by 2050.

The other defining issue was increasing inequality, both within countries and between countries. Poverty, hunger and disease continued to have the greatest impact on the poorest and most vulnerable groups of people and countries. Over 90% of maternal deaths occurred in low- and middle-income countries. Three quarters of all stunted children lived in Southern Asia and sub-Saharan Africa. Relative to people in non-fragile situations, people living in fragile states were twice as likely to lack basic sanitation, and about four times as likely to lack basic drinking water. In a similar comparison the youth were three times more likely to be unemployed than adults. Women and girls performed a disproportionate share of unpaid domestic work and lacked autonomy in decision-making.

In relation to Goal 6, Ms Mange stressed that fresh water was a precious resource that was essential to human health, food and energy security, poverty eradication, and many other aspects of sustainable development. Yet, like other natural resources, water was under threat.

The demand for water had outpaced population growth, and half the world's population was already experiencing severe water scarcity for at least one month in a year. Most rivers in Africa, Asia and Latin America were more polluted now than they had been in the 1990s. An estimated 50% to 70% of the world's natural wetland area had been lost over the last 100 years.

While substantial progress had been made in increasing access to clean drinking water and sanitation, billions of people, mostly in rural areas, still lacked these basic services. In response, donors had increased their aid commitments to the water sector by 37% between 2016 and 2017. Most countries recognised the importance of better coordination of the use of water resources and had put integrated management plans in place.

However, much more effort was needed to improve access to water and sanitation services, increase wastewater treatment capacity, enhance water use efficiency, expand operational cooperation across transboundary water basins, and protect and restore freshwater ecosystems.

Two billion people lived in countries experiencing high water stress, and about four billion people experienced severe water scarcity for at least one month in a year. Over the last century, global water use had increased at more than twice the rate of population growth. That growth, along with

rapid urbanisation, socioeconomic development and changing consumption patterns, continued to drive water demand which was heightened by climate change.

By 2030, an estimated 700 million people could be displaced by intense water scarcity. Currently, one third of countries had medium to high levels of water stress. Countries in North Africa and in Western, Central and Southern Asia were experiencing high levels of water stress. To reduce pressure on freshwater resources, every country and region needed to increase the use of non-conventional water resources, such as the reuse of wastewater, desalination of water, and direct use of agricultural drainage water.

Between 2000 and 2017, the proportion of the global population using safely managed drinking water (the highest level of service) had increased from 61% to 71%. The fastest progress had been seen in Central and Southern Asia and in Latin America and the Caribbean. Overall, 90% of the world's population had at least basic drinking water services. Despite these gains, 785 million people still lacked basic drinking water services in 2017.

The proportion of the global population using safely managed sanitation services had increased from 28% in 2000 to 45% in 2017, with East and South-East Asia making the fastest progress. An additional 30% of the global population used basic sanitation services. Despite that progress, an estimated 673 million people (9% of the global population) still practised open defaecation in 2017, mostly in Southern Asia. Achieving universal access to basic sanitation services by 2030 would require doubling the current annual rate of progress.

In 2017, three out of five people worldwide had a basic handwashing facility with soap and water on the premises, compared with less than one out of three (28%) in the least-developed countries. That meant that, globally, an estimated three billion people were still unable to wash their hands properly at home.

Basic water, sanitation and hygiene services were important not only in homes, but also in public areas where people congregated. In 2016, one third of all primary schools lacked basic drinking water, sanitation and hygiene services, which adversely affected the education and health of millions of schoolchildren, particularly girls coping with menstruation. One out of four health-care facilities worldwide also lacked basic drinking water services, affecting over two billion people and increasing the infection risk of people seeking medical care.

Water resources must be carefully managed to ensure sustainability and equitable sharing among users. The global framework for such an approach was known as Integrated Water Resources Management (IWRM), and it covered policies, institutions, management instruments and financing.

Of the 172 countries that had reported on their implementation of IWRM in 2018, 80% had medium to low levels of implementation or higher, which meant that they had laid a solid foundation for implementing the many elements of the approach. However, 60% of countries were not on track to reach the 2030 target of full implementation.

Accelerated progress was needed, particularly in the area of sustainable financing. In 2018, the average global score for IWRM implementation had been 49%. Community participation was key to ensuring that IWRM was adapted to local contexts. Seventy per cent of countries had reported that they had procedures in place, defined in either policy or law, for community participation in the areas of rural drinking water supply and water resources management. However, implementation of those procedures was constrained due to the lack of human and financial resources.

The 2030 Agenda for Sustainable Development recognised that rising inequalities, natural resource depletion, environmental degradation and climate change were occurring across the world. All these challenges had links to water resources and water-related ecosystems, and a failure to address them could undermine the ability of nature to provide key functions and services as well as the potential for countries to transition to sustainable and resilient societies.

Some key messages for countries to consider in striving to realise the 2030 vision included:

- **Inefficiency in water use:** Few countries had the natural and financial resources required to continue increasing water extraction. The alternative was to make better use of available resources. Agriculture offered opportunities for significant water savings given that the agricultural sector accounted for almost 70% of global freshwater withdrawals. Saving just a fraction of that amount would significantly alleviate water stress globally.

- **Water pollution and wastewater:** It was estimated that the vast majority of the world's wastewater was released into water bodies without any kind of treatment. Estimates suggested that if the natural environment continued to be degraded and unsustainable pressures put on global water resources, 45% of the global gross domestic product (GDP), 52% of the world's population, and 40% of global grain production would be at risk by 2050. Tackling pollution at its source and treating wastewater protected public health and the environment, mitigated the costly impact of pollution, and increased the availability of water resources, in addition to recovering valuable nutrients and water resources.

- **Extreme hydrological events:** More intense and increasingly frequent floods and droughts as a result of climate change had become a growing concern and posed an imminent danger in risk-prone areas. Investment in data collection and monitoring to build countries' anticipatory capacity was urgently needed. The protection and restoration of water-related ecosystems could also help in mitigating the risks associated with floods and droughts.

- **Rising inequality:** Inequality was rising in terms of the availability and quality of water resources. People without adequate access to drinking water, energy and sanitation, and those living in polluted areas, often constituted overlapping segments of the population. The impacts of water challenges and risks thus disproportionately affected the most marginalised groups and communities in society. Water pollution in impoverished areas often went unnoticed and was left unaddressed. Providing access to safe drinking water and sanitation for those without access should be the priority in ensuring that no-one was left behind. Implementing a holistic approach

to IWRM could provide institutional structures and multi-stakeholder processes to engage marginalised groups in decision-making on water use and allocation.

Africa Voluntary National Review (VNR), July 2019

The United Nations Environment Programme (UNEP) Policy and Programme Division had conducted the VNR in collaboration with 17 African countries to better understand how it could help these member states to achieve their commitments under the 2030 Agenda for Sustainable Development. This key pillar of the review process that was required of member states revealed the following three priorities:

- **Data collection and monitoring** of SDG indicators was a challenge for more than half the countries reviewed. This presented an opportunity for UNEP to work with lead government agencies to enhance technical capacities related to statistics and the environment. Lessons could be drawn from African countries with successful strategies, such as Rwanda.
- **Mobilisation of financial resources** remained a key challenge. Countries needed support to develop innovative domestic and external resource-mobilisation strategies for environmental protection, in addition to robust mechanisms for citizen participation, accountability and transparency in the use of the mobilised resources and all other public resources.
- **Gender inequality** in access to opportunities was an issue affecting all the SDGs. UNEP had an opportunity to partner with governments and other stakeholders to foster progress on gender equality in relation to the environment, with the possibility of creating a ripple effect. For example, energy, water and ecosystem management presented opportunities to bridge gaps related to gender and poverty. Some countries had successful interventions at sub-national levels that could be scaled up to national level.

In the VNR, the chapter on South Africa identified areas of progress and challenges. The following progress had been made:

- Addressing gender inequalities
- Implementation of the United Nations (UN) Framework Convention on Climate Change and the Paris Agreement
- Increased access to sustainable and modern energy sources
- Conservation of the oceans
- Adoption of the Integrated Urban Development Framework
- Continued investment in harnessing science, technology and innovation (STI).

The challenges included persistently high levels of inequality; femicide and continuing violence against women; persistent discrimination; and securing a just transition to a low-carbon economy while highly dependent on fossil fuels.

The UN's planned levels of engagement included providing global leadership, contributing to topics of immediate and pressing concern, and actively following other closely related processes.

UNEP would continue to engage practically through a combination of ongoing and new initiatives in support of member states. A range of key work areas would be pursued including providing expertise, developing and disseminating tools and techniques, and various awareness-raising and knowledge-sharing efforts.

Many activities would be carried out through existing and new partnerships with the UN system and other expert organisations including national government institutions, non-governmental organisations (NGOs) and the private sector.

The UN was actively involved in helping countries achieve the 2030 Agenda through programmes such as Mainstreaming, Acceleration and Policy Support (MAPS). UNEP had been involved in many initiatives in South Africa, including a dialogue organised by the Water Research Commission (WRC) to set up a research agenda for the SDGs, and reviewing water accounts with Stats SA.

Overview of the SDGs in South Africa – Mr Lusanda Batala and Dr Mthokozisi Tshuma, Department of Planning, Monitoring and Evaluation (DPME)

Mr Batala reported on highlights from South Africa's contribution to the VNR, which had been presented to the UN in New York in July 2019. The year 2019 marked 25 years since South Africa's first democratic election. Since 1994, the government had been developing fiscal and social policies to improve the quality of life of poor people. Progress had been made in relation to reducing extreme poverty by means of a progressive pro-poor tax system that supported the provision of social assistance and free basic services, expanding access to schooling and addressing gender discrimination. In relation to reducing gender discrimination, South Africa was a signatory to regional and international conventions; the involvement of women in Parliament had increased from 25% in 1994 to 46% in 2019, and 50% of cabinet ministers were women.

South Africa had played a critical role in the development of global, continental and regional agendas:

- In 2013, under South Africa's chairpersonship, the African Union (AU) had adopted *Agenda 2063: The Africa we want*.
- As a rotating chair of the G77+China, South Africa had led the group during the SDG negotiations.
- Through Stats SA, South Africa had played a key role in the development of indicators for the SDGs and the AU Agenda 2063.

South Africa was committed to achieving the goals of the SDGs, Agenda 2063, and the Southern African Development Community Regional Indicative Strategic Development Plan (SADC-RISDP).

South Africa's National Development Plan (NDP), the SDGs and Agenda 2063 were mutually reinforcing agendas. The NDP Vision 2030 had been adopted in 2012 as South Africa`s development roadmap. It predated the adoption of the UN's 2030 Agenda for Sustainable Development in 2015 and the AU's Agenda 2063.

The NDP had a 74% rate of convergence with the SDGs. It prioritised job creation, the elimination of poverty, the reduction of inequality, and growing an inclusive economy by 2030. Similarly, Agenda 2063 envisioned a prosperous Africa based on inclusive growth and sustainable development; and the SDGs aimed to end poverty, protect the planet and ensure prosperity for all. Other similarities are illustrated in Table 1.

Table 1: Examples of alignment between the NDP chapters and the SDGs

NDP	SDG
Chapter 3: Economy and employment	Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Chapter 6: An integrated and inclusive rural economy	Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture Goal 12: Ensure sustainable consumption and production patterns
Chapter 10: Promoting health	Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture
Chapter 11: Social protection	Goal 1: End poverty in all its forms everywhere in the world Goal 3: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Achieving the SDGs would require government, business and civil society to work together. The following approach was proposed:

- **Alignment with global and continental frameworks:** Stakeholders were encouraged to align their existing objectives and missions with the SDGs, NDP and AU frameworks, and to refer to these in strategies, plans and projects.
- **Collaboration:** The efforts of the various stakeholders, including the government, private sector and civil society, should be mapped, synergies identified, and alignment promoted. Platforms for sharing and networking could be created, as well as tools and mechanisms to enhance coordination between groups and associations.
- **Advocacy:** A series of public awareness campaigns should be launched at local government level to promote the relevance of the SDGs in simple terms; and tools and guides should be developed to enhance the understanding and application of the SDGs. Regular communication and collaboration could be enabled by means of a cloud-based platform.

Despite close alignment of the NDP goals and the SDGs, the lack of coordination between government departments presented a challenge. For many people, it was unclear who was responsible for

integrating the efforts of various departments or providing information on progress toward achieving the SDGs. In response, a coordination mechanism model had been developed (Figure 1).

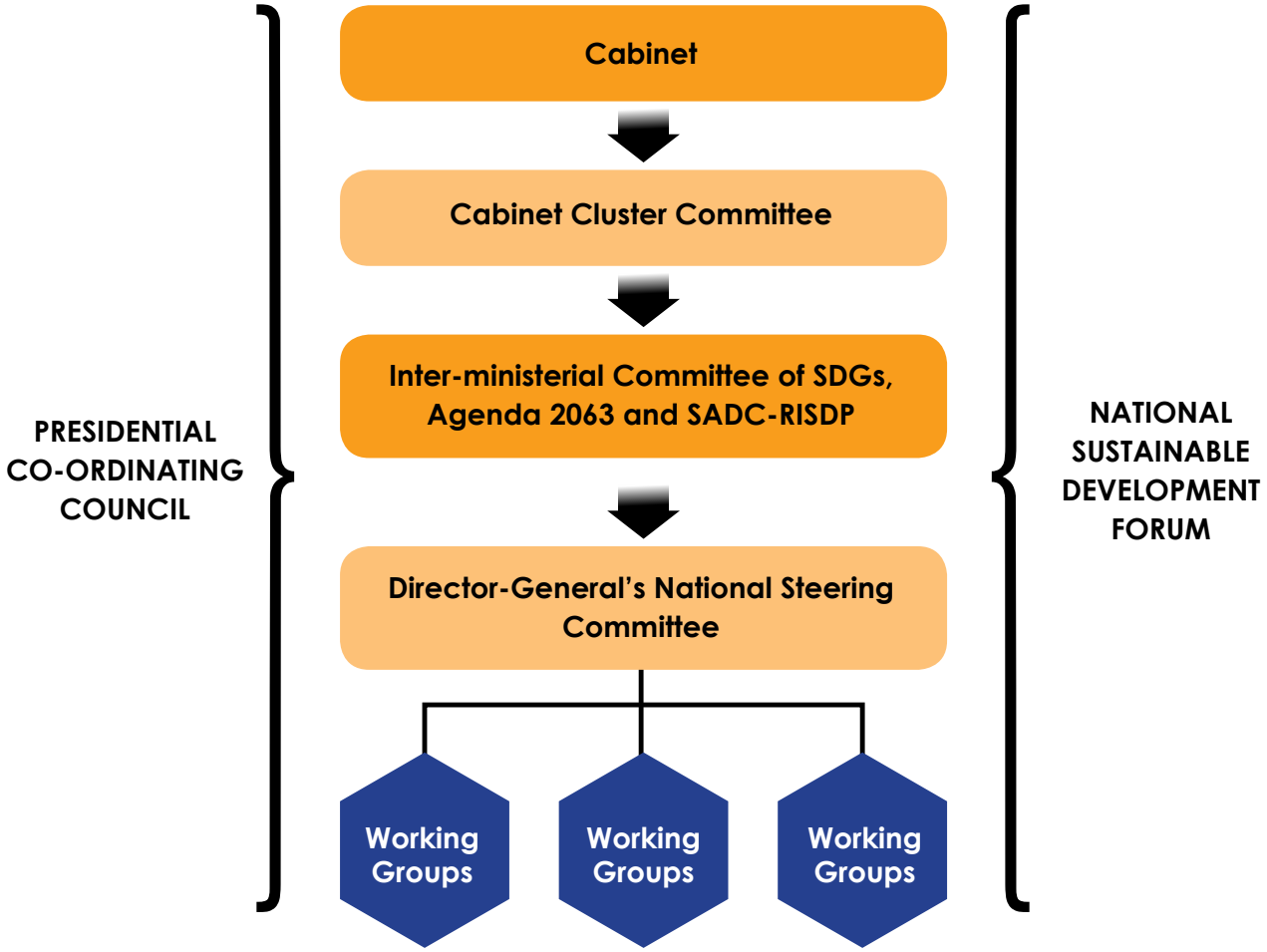

Figure 1: The National Coordination Mechanism model

A steering committee involving DPME, Stats SA and other government departments had been established to develop the terms of reference and a proposal to Cabinet on how to coordinate the various developmental agendas to which South Africa was committed. Discussions on a coordination mechanism had begun in 2015, and in March 2019 the terms of reference and proposal had been approved by Cabinet.

This structure would coordinate the South African government's responses to regional, continental and global commitments, including Southern African Development Community Regional Indicative Strategic Development Plan (SADC-RISDP), Agenda 2063 and the SDGs. This multi-level coordinating function was located within the DPME.

The National Steering Committee, led by the DPME, comprised Directors-General of a number of departments including, among others, Stats SA and the departments of Environment, Forestry and Fisheries (DEFF); DWS; International Relations and Cooperation (DIRCO); and Finance.

At the political level, a new inter-ministerial committee had been established to enhance coordination, chaired by the Minister in the Presidency. Communication with Cabinet took place via the Cabinet Clusters. Non-state actors such as CSOs, the private sector and development partners were included in the National Sustainable Development Forum, which reported to the President's Coordinating Council. This coordination mechanism should enable information on progress with the SDGs to be readily available to interested parties.

South Africa's VNR had been submitted to the UN on 17 May 2019. The review confirmed that South Africa was committed to the full and integrated implementation of UN Agenda 2030, which built on the foundation laid during the implementation of the Millennium Development Goals (MDGs). It was recognised that achieving the SDGs was in South Africa's interests.

Significant progress had been made on the country's developmental journey since the advent of democracy in 1994. This had included addressing gender inequalities, and prioritising access to affordable, reliable, sustainable and modern energy for all, particularly the poor.

South Africa had taken action to address climate change, and to conserve the oceans, seas and marine resources for sustainable development. The country had continued to invest in and harness STI to address the SDGs, taking cognisance of the impact of the Fourth Industrial Revolution.

Despite progress with development, the country still faced major challenges, including high levels of unemployment, poverty and inequality; and inadequate economic growth due to various structural constraints.

Critical interventions to enable the achievement of the SDGs included stimulating the economy; improving employment levels, especially amongst the youth; raising investment; and attracting funding for sustainable development. There was a need to strengthen the capacity of the state, as well as partnerships between government, the private sector, organised labour, CSOs and development partners. On a technical level, the need to generate disaggregated data related to a number of indicators was a serious concern.

While the VNR covered all the SDGs, certain goals were discussed in depth at the meeting at the UN in New York in May 2019. Progress and challenges related to these goals are summarised in Table 2.

Table 2: Progress and challenges related to key SDGs

Goal	Progress	Challenges
Goal 4: Quality Education	• Expanded access to education • Increased state funding • Improvement in literacy levels • Improving physical conditions of learning for children • Access to potable water • High rates of early childhood development opportunities • Approximately 95% of youth aged 16–18 years had completed Grade 7 • Just under 90% of those aged 19–21 had completed Grade 9 • Less than 51% of those aged 19–21 had completed Grade 12	• Low rates of participation in higher school grades • High drop-out rates of children living with disabilities • Low levels of Internet access
Goal 8: Decent work and economic growth	• January–March 2019: 16,291 million employed compared with January-March 2016: 15,675 million • The ratio of gross fixed capital formation to GDP (investment) averaged 19% over the past three years • Government had legislated a minimum wage • Various social grants provided a social protection floor • Protection for domestic workers	• Insufficient jobs were being created to reduce high unemployment levels • 27.6% unemployment in the first quarter of 2019 • January – March 2019: 6,201 million unemployed compared with January – March 2016: 5,723 million • The South African economy was de-industrialising: manufacturing declined from 19.3% in 1994 to 12% in 2018 as a proportion of GDP
Goal 10: Reduced inequalities	• Since 1994, South Africa had set out to reduce inequality in society and the corporate sector • Combatting inequality was enshrined in the Constitution, and added as a goal of the NDP, MDGs and SDGs • Policies and laws to address inequality included: Broad-based Black Economic Empowerment; Access to Education; Employment Equity Act (No. 55 of 1998); and Women Empowerment and Gender Equality Bill	• Race, geography, education, age, and access to labour markets were key drivers of high inequality in South Africa

Goal	Progress	Challenges
Goal 13: Climate action	• South Africa submitted its nationally determined contribution to the international community as required by the Paris Agreement • Government had implemented a comprehensive set of strategies, policies and plans within key sectors in order to reduce greenhouse gas emissions • There had been investment in renewable energy	• To scale up current initiatives, South Africa required significant funding, which was currently scarce • South Africa had a skills gap in this area that needed to be filled
Goal 16: Peace, justice and strong institutions	• Improved access to justice and a transformed police system that served and treated all as equal before the law • Existence of independent national human rights institutions • Banning of corporal punishment in schools • Strengthening of Chapter 9 institutions to ensure accountability • Independent judiciary • Legal aid services available to all	• Discrimination was still prevalent, based on race, gender, religion and sexual orientation, among others • Inadequate resources to support community-based policing efforts • Quality of legal aid services needs to be improved

The means where the SDGs were to be implemented included the following activities related to SDG 17 (Partnerships for the goals):

- Improving access to technology, especially by developing countries, to facilitate the sharing of ideas
- Establishment of an STI multi-stakeholder forum to share knowledge and foster innovation
- Increased trade among countries to increase the exchange of knowledge and technology
- Strengthening of the North–South relationship in order to mobilise funds to make the SDGs a reality.

The main messages presented in the VNR in relation to SDG 6 (Clean water and sanitation) were, firstly, that South Africa had achieved significant improvement in access to safe water and sanitation services; however, some areas, particularly informal settlements, remain underserved. Secondly, the sustainability of water resources was threatened by poor management that had led to excessive water losses and insufficient water resources. There had been progress in the provision of safely managed drinking water, from 60% of the population in 1995 to 75% in 2016.

The challenges included a lack of infrastructure hampering the provision of sanitation, particularly in rural areas. Furthermore, poor operation and maintenance of both water and sanitation infrastructure, combined with the use of infrastructure beyond its design capacity, was eroding the reliability and sustainability of supply.

Globally, the proportion of the population using safely managed drinking water services had increased from 61% to 71% between 2000 and 2015 and the percentage remained unchanged until 2017.

The proportion of the global population using safely managed sanitation services had also increased, from 28% in 2000 to 45% to 2017, with the greatest increases in Latin America and the Caribbean, sub-Saharan Africa, and East and South-East Asia. In 2017, approximately 60% of people worldwide and 38% in the least developed countries had basic hand-washing facilities with soap and water at home; however, an estimated three billion people lacked such access.

Despite progress, billions of people in the world still lacked access to safe water, sanitation and hand-washing facilities. Data suggested that achieving universal access to even basic sanitation services by 2030 would require doubling the current annual rate of progress. More efficient use and management were critical to addressing the growing demand for water.

A call had been made to commit to taking transformative action as the decade of action on SDG achievement was launched.

The UN High-level Political Forum on Sustainable Development (HLPF) highlighted the need for:

- Inclusion of all South Africans, especially those who had been left behind and were still behind
- Effective and democratic institutions capable of implementing the SDGs
- Political commitment to, and national ownership of, the 2030 Agenda for Sustainable Development at a time when multilateralism was being threatened
- Improved data analysis
- Meaningful engagement with civil society
- Solution-oriented VNRs that capture interconnections
- Stakeholders willing to move out of their comfort zones so that implementation could advance at a swifter pace
- Further mainstreaming of the SDGs into planning, and integration of SDGs into budgets
- Bringing multiple actors together for implementation.

South Africa had confirmed its commitment to realising the 2030 Agenda based on the principles of:

- **Collaboration:** creating strong partnerships between national, provincial and local government, civil society, Chapter 9 institutions, trade unions, the private sector and academia
- **Coherence:** recognising the integrated nature of the SDGs
- **Impact:** approaching the 2030 Agenda with a sense of urgency.

The next steps included implementation of the approved National Coordination Mechanism; developing a strategy and roadmap for overall implementation of the 2030 Agenda; developing a communications strategy to ensure greater awareness of the SDGs, especially at local government level; establishing an integrated planning, monitoring and evaluation (M&E) system for the SDGs; and strengthening coordination of the SDGs with all stakeholders.

Message from the IAP - Dr Tracey Elliott, Project Director, IAP

The IAP is a global network of 140 science, engineering, technology, and medical academies, representing over 100 countries, that work together on issues of common concern around the world. The IAP is trying to mobilise the academies to work more effectively the implementation of the SDGs.

IAP members potentially represent over 30,000 scientists, hailing from four regional networks, namely Africa, Asia, the Americas and Europe. NASAC comprises 28 African academies.

IAP has been exploring how the academies can work at a national level as conduits between governments and academic communities, as sources of knowledge and expertise on issues of vital importance to the SDGs, and as advocates for national investment in STI.

The IAP has supported the present workshop, anticipating that other academies might convene similar meetings to try to improve the coordination and coherence of efforts to implement the SDGs.

Discussion

Ms Mahadi Mofokeng, DWS, enquired what measures were in place to ensure that government departments that were not yet part of the HLPF became members, so that what needed to be achieved in terms of the SDGs could be escalated to the appropriate panel members.

> **Mr Lusanda Batala, DPME,** replied that the aim of the VNR was not just compliance, but an opportunity to identify the challenges and discuss them with stakeholders in order to translate those challenges into opportunities. The coordination mechanism was put in place to allow the outcomes of these dialogues to inform Cabinet of what was needed.

Prof Mohamed Hassan, Sudanese National Academy of Sciences, asked if South Africa had integrated the SDGs into the NDP, as recommended by Ms Mange.

> **Mr Lusanda Batala, DPME,** stated that the NDP had guided South Africa's negotiations around the post-2015 agenda, and the SDG indicators had been aligned with South Africa's Medium-term Strategic Framework (MTSF) indicators. The mapping exercise had indicated a 74% level of alignment between the SDGs and the NDP.
>
> **Ms Magamase Mange, UNEP** observed that the NDP was well aligned with the SDGs, and that there were many examples of actions carried out by various sectors in South Africa that were localising the indicators and closing the gaps. Other African countries had laid foundations but, whereas South Africa already had an NDP, some other countries had had to develop theirs from the start.

Prof Barney Pityana, Vice-President, ASSAf, pointed out that something had been missing from the presentations. South Africa was good at producing plans and even providing the necessary budgets, but all departments were failing to give citizens value for money. He asserted that there were many reasons for this but focused on one that had not been mentioned. South Africans exhibited a lack of pride in themselves, coupled with a lack of commitment to doing the right thing. Public servants, who should be committed to serving those who needed them most, generally treated citizens badly. This attitude extended beyond the government service into the private sector.

The country lacked a strategy for citizens to become better South Africans, and how to feel proud to be working for the common good rather than committed to bettering themselves and their families only. The high levels of corruption were not surprising, as people focused on getting as much as possible for themselves from the public purse. Similarly, the criminal justice system was not working properly because officials, whether police or prosecuting authorities, were not committed to doing what was needed for the public good.

In South Africa, by and large, the problem was not a lack of money or policies. Implementation was impossible because of the attitudes of the people responsible. Planning and budgeting were not enough; South Africans would continue not to benefit from investments unless there was a significant programme of national renewal leading to a serious change of hearts and minds.

Prof Pityana was concerned about the lack of public discourse on how to transform the character of South Africans. While statistics could be presented that on the face of it looked good, in fact South Africans were poor, angry, selfish, individualistic, and really did not care.

Prof Soodyall, ASSAf, reiterated Prof Pityana's concerns regarding how South African society recognised individual citizens. She asked how those present, who represented various stakeholders and entities, could respond to the call of conducting themselves in a way that served the common good. She also asked how the average person on the street, who was not represented at that forum, could participate.

Dr Bongani Ncube, Cape Peninsula University of Technology (CPUT), asked delegates whom they represented and who 'the community' actually was. Protest action was a common occurrence, but who was responsible for engaging with protesting communities to find out what messages were being heard? She enquired how researchers and others could practically engage with people in remote rural areas, for example.

> **Mr Lusanda Batala, DPME,** thanked Prof Pityana for the points he had raised. If he and his colleagues in government were contributing to this situation, he asked how this could be changed. He recognised that it had to start with himself as a public official in terms of the quality of service he provided.
>
> With regard to how to approach people at grassroots level, policymakers and professionals knew about the SDGs, but it was unlikely that ordinary citizens understood them. CSOs could spread the messages as they worked with people at grassroots level. They were key stakeholders with whom government needed to form partnerships.

Ms Mariette Liefferink, Federation for a Sustainable Environment, a representative of civil society, noted that the NDP stated that active citizenry was necessary for democracy to flourish and to hold business and government to account. She asked what steps were being taken to include members of civil society, especially the poor and marginalised, in meaningful engagements such as the current workshop; and what steps had been taken to capacitate communities who were often the victims of human rights abuses.

> **Mr Lusanda Batala, DPME,** noted that the National Sustainability Forum had been established within the National Coordination Mechanism to involve CSOs in government initiatives. It was important to operationalise this forum.
>
> **Mr Bheki Mbentse, DWS,** was responsible for SDG 6 target 6.B, which referred to community participation. The indicator for SDG 6.B referred to the number of administrative units with policies and procedures in place. South Africa had developed policies and procedures, but could not prove that there was effective participation, even though many processes such as Integrated Development Planning did involve consultation. It was important to find ways of reporting on consultation in the process of domesticating the SDG indicators. Simply having policies in place made it appear that effective consultation was taking place, whereas this might not be the case.

Ms Anet Muir, DWS, noted that the SDGs needed to be integrated into performance agreements to ensure their implementation. Given the recent changes to government ministries and departments, she asked if the SDGs had been included in individual ministerial agreements in the Medium Term Strategic Framework (MTSF) for the next five years.

> **Dr Mthokozisi Tshuma, DPME,** stated that the MTSF was currently being developed and a first draft had been presented to departments. The indicators were being reviewed to ensure that they were aligned with Agenda 2030.

Ms Refiloe Moloi-Owoyomi, DWS, asked how South Africa was performing in comparison with other SADC and African countries.

> **Ms Magamase Mange, UNEP,** replied that the VNR report had been prepared by the Africa Office of UNEP but only 17 African countries had participated. The report was not yet publicly available.

Prof Soodyall, ASSAf, thanked the speakers for stimulating interest in the topic. It was clear that the academies were playing an important role in bringing diverse voices together and using the tools of science to address issues of concern to society.

The session had identified stakeholders and hierarchical structures involved in operationalising the SDGs. However, as Prof Pityana had reminded delegates, societal issues continued to demand attention.

Prof Soodyall observed that ASSAf could serve to bring people together to have these conversations. It was important to work together as a collective and to move together in a positive direction.

Policymakers' Booklet: Grand Challenge of Water Security in Africa – Ms Jackie Olang-Kado, Director, Network of African Science Academies (NASAC)

NASAC was a consortium of African science academies with 28 members, all but one of which (the African Academy of Sciences, AAS) were national academies. NASAC was founded in December 2001 to 'provide authoritative science advice for policy formulation for development in Africa.' One of the key activities of NASAC was the production of reports and booklets for policymakers.

NASAC had produced four policymakers' booklets and the intention was to produce one per year on topics relevant to member academies and regions. Publications were produced in response to requests and to address regional frameworks to which NASAC subscribed.

The four policymakers' booklets were:

- Climate change adaptation and resilience in Africa, which responded to SDG 13 (Climate action)
- Changing disease patterns in Africa, which responded to SDG 3 (Good health and wellbeing)
- The grand challenge of water security in Africa, which responded to SDG 6 (Clean water and sanitation)
- Harnessing modern agricultural biotechnology for Africa's economic development, which responded to SDG 2 (Zero hunger).

NASAC also contributed regional perspectives to reports on global issues; for instance, the report *Opportunities and challenges for research on food and nutrition security and agriculture in Africa* was produced as the African contribution to a global report. The report responded to multiple SDGs and identified six priority areas for action, namely political commitment; efficient agriculture and food systems; resilient farming systems; human health and wellbeing; food safety and waste reduction; and human capacity development.

NASAC makes its research outputs widely available and engages with young researchers and early-career scientists through national young academies and the Global Young Academy (GYA) to broaden participation in African science academies and ensure that research undertaken by senior scientists is carried forward into the future.

To counteract the tendency of research to be conducted in silos, there had been an emphasis on transdisciplinary research and creating a community of practice. NASAC also emphasises the importance of place-based knowledge production by its researchers to ensure that the activities are relevant to the African context. By encouraging scientists, policymakers and communities to work together, NASAC had learnt the true meaning of knowledge co-design and co-production, which had enhanced the relevance of research to realising the SDGs in Africa.

NASAC had recognised the need to get its publications into the policy spaces and environments where they would have an impact. Members had championed their publications through, for example, focus group discussions with relevant stakeholders and speaking about them at every opportunity.

NASAC members were involved in a wide range of activities which drew on their publications:

- Networking and convening activities, such as the Annual Meeting of African Science Academies (AMASA), Conferences of the Parties (CoPs) and G20 gatherings
- Academy mentorship programme, which used the policymakers' booklet to support the establishment of academies in countries where they did not yet exist
- Science–policy dialogues, which generated relevant recommendations for tackling issues
- Women in Science Programme, which drew on the booklet on water quality to ensure that a gender lens was applied to the achievement of SDG 6
- Science Education Programme, which encouraged young people at school level to consider a career in science
- Leading Integrated Research in Africa for Agenda 2030 Programme (LIRA 2030), which involved researchers in tackling issues relevant to local governments and communities.

Lessons learnt by NASAC in relation to SDG 6 included recognising that global issues affect local environments, and that it is important to translate research into information that is meaningful to communities. In responding to issues, it is important to take a solution-oriented approach that leads to collective action and reduced resource duplication and wastage. To this end, it is essential to involve all concerned stakeholders from the outset of the initiative, including academics, policymakers, the private sector and members of the public.

The NASAC publications have to be living documents that enable people to address sustainability challenges. To this end, a policy brief and a layman's version of the booklets were developed. Furthermore, it is critical for both policy and the community that gender and poverty-reduction lenses are applied to publications and activities.

The policymakers' booklet highlighted the following nine key messages:

1. **Why water is important:** More food and secure water were needed for a growing population in Africa. Water production had to be of good quality at a time when water sources were becoming scarcer.
2. **The water-food-energy nexus:** Water was a limited resource, but the Africa Water Vision 2025 warned that it should not become the factor that limited food and water security on the continent. Efficient use was paramount.

3. **Education, knowledge and development:** Without knowledge and information, it would not be possible to achieve SDG 6; capable institutions, infrastructure and personnel were needed.

4. **Access to safe water and sanitation:** African leaders had to commit to sustainable access to safe and clean water supply and sanitation, and plan and manage water resources to enable national and regional cooperation and development.

5. **Water resources and infrastructure for economic development:** The water services sector required effective oversight and revenue. Where there was a government tax on water, it might be advisable that this be used to finance water services directly rather than being diverted to the national fiscus; at the very least, this revenue should ensure effective oversight of the provision of water resources and infrastructure.

6. **Managing transboundary systems:** Most African rivers, lakes and groundwater aquifers crossed national boundaries. In situations where the rule of law could not be upheld, scientists were recommending that treaties needed to be developed in a cooperative, politically sensitive manner so that water wars did not occur and water as a common good could continue to be provided for all concerned.

7. **Global change and risk management:** In the context of global change, planning for early-warning systems was required. Policy development to reduce disaster risk was complex and needed a multidisciplinary approach.

8. **Water governance and management:** African countries needed to streamline policy and address corruption. This required financing to provide infrastructure and put the necessary governance structures in place.

9. **Financing:** Infrastructure needed to be funded and built to ensure that everyone had access to clean safe drinking or agricultural water and that over-reliance on rain-fed agriculture was reduced. Policymakers needed to appreciate the value of analysing the water sector and water resources so that the environmental and social benefits could be realised by all.

The key message cutting across all nine messages in the booklet was the need to find an integrated way of involving all players in the water sector to come up with mechanisms that enable science to benefit both policy and communities.

Discussion

Mr Thobile Mthiyane, DWS asked if, in relation to the need for integration and the point about the water-food-energy nexus, the policymakers' booklet provided any guidance on how the three sectors (representing SDGs 2, 6 and 7) could work together. He also directed his question to the DPME, asking if there were national mechanisms to enable integration.

> **Ms Jackie Olang-Kado, NASAC** replied that the booklet did not provide guidance at a national level because it had been written from a continental perspective. At a national level, the academies were required to contextualise the messages and recommend what would work in their countries.

At the highest political level, it was essential to focus on interconnections between the SDGs as well as between ministries and departments. Having this in place would facilitate communication between different sectors, including science and technology. There was a need for an in-depth look by the national academy at the possibility of convening the various sectors. Political goodwill was required to ensure a multisectoral approach to tackling these issues.

Dr Tendai Sawunyama, Inkomati-Usuthu Catchment Management Agency (IUCMA), noted that a number of key messages from the presentation needed to be adopted if South Africa was to implement SDG 6. From the perspective of the catchment management agencies (CMAs), it was necessary to strengthen the development of indicators relevant to the local catchment level. Existing indicators had been developed for a broader scale. He asked if the booklet on water security provided guidelines on developing local-level indicators.

Ms Jackie Olang-Kado, NASAC, reiterated the point that the report had taken a regional approach and therefore did not provide local-level data or indicators. It was critical, however, for NASAC as a network that the key messages in the booklet were applied locally.

Prof Soodyall, ASSAf, introduced Prof Rajaa Cherkaoui El Moursli from Morocco who served on many committees, including the NASAC board, the working group of the IAP, and the International Science Council. In an earlier session there had been questions about what was happening in the rest of Africa. Prof Raja was invited to talk about transcontinental activities.

Prof Rajaa Cherkaoui El Moursli observed that there were many similarities between South Africa and Morocco. It was very important for Morocco to achieve the SDGs. In order to advance, a country needed an achievable number of priorities. For Morocco, the first priority was energy, especially solar energy. In this regard, Morocco would have the biggest solar farm in the world in the Sahara. Morocco's water policy had been in place for about 20 years. A new area of focus was STI. An inter-ministerial committee had been established to develop a strategy and priorities. All African countries required STI policies and needed to harness the good ideas of their young people. The whole continent experienced challenges related to water, and therefore every country needed a strategy for water and energy.

Introduction to the Water Research Commission Project: Interlinkages for SDG 6 Indicators and Cross-over SDGs – Ms Amanda Nyingwa, Pegasys

Owing to the integrated nature of the SDGs, focusing on interlinkages was of critical importance in realising the 2030 Agenda for Sustainable Development. It was important to understand the interactions between the SDGs, including both trade-offs (negative) and co-benefits or synergies (positive). Key aspects of these interactions, such as the geographical context, resource endowments, time horizon and governance, needed to be unravelled.

It was important to think systematically about interactions across the SDGs, and to reduce the likelihood that SDG implementation could develop in silos, with different stakeholders managing different SDGs

in isolation from one another. A process of mapping out the interlinkages between SDG indicators enabled these silos to be broken down, and made the integration of priorities, interventions and activities possible. Policy coherence across sectors would enable more sustainable management.

The overarching purpose of the WRC project was to address knowledge gaps in interlinked water-related SDG indicators. This was being done by identifying interlinkages between SDG 6 indicators and those of other SDGs and recommending a list of priority interlinked indicators for domestication. This would help to enable both vertical and horizontal coherence and integration in implementation, reporting, and monitoring and evaluation of interlinked indicators. The project also aimed to identify research needs for interlinked indicators, and to table challenges and opportunities regarding the domestication of water-related interlinkages.

The project had the following aims:

- **Assess SDG 6 indicator linkages with other SDGs:** To critically assess interlinkages between SDG 6 indicators and other SDG indicators in order to determine dependencies, trade-offs and implications for implementation.
- **Present research needs on localising interlinked SDGs:** To present research needs and recommendations on how to improve the institutionalisation, localisation and implementation of interlinked water-related SDGs.
- **Evaluate the extent to which interlinked water-related SDGs can be domesticated:** To evaluate the extent to which interlinked water-related SDGs can be domesticated in order to minimise the effect of negative or disabling factors.
- **Provide recommendations on appropriate systems and platforms:** To provide recommendations on the development of appropriate systems and platforms for the M&E of progress on the implementation of water-related SDG interlinked indicators.

Expected outputs of the project included:

- Input on the design of a tool to support collaborative efforts between teams from several organisations working on indicator domestication, and on future research needs
- A framework for water-related interlinked SDGs and the identification of research needs for collaborative indicator domestication
- Deep assessment of the importance and priority of interlinkages that could support or hinder successful domestication of the SDGs.

Initial mapping of interlinkages between SDG 6 and other SDGs had been undertaken. The mapping exercise had considered indicators that were strongly enabling, linked or disabling, in particular those related to poverty, inequality and unemployment; gender responsiveness; and efficiency of water use in this water-scarce country. It identified areas where different government ministries and departments needed to work together to ensure the provision of basic services.

Table 3 summarises the outcomes of the initial mapping activity, which investigated linkages between SDG 6 and other SDGs.

Table 3: Outcomes of the WRC's mapping activity showing linkages between SDG 6 and other SDGs

SDG Interlinkages	Possible outcomes of interlinkages
6.1.1 ⇨ 1.4.1 ⇦ 6.2.1	The achievement of access to safely managed water and sanitation as well as hygiene facilities would directly **enable** the commitment to have all households enjoying access to basic services
2.3.1 ⇦ 6.4.1	Commitment to double agricultural production of small-scale farmers could **disable** efforts to increase water-use efficiency unless it was undertaken in a sustainable manner.
6.1.1 ⇨ 2.1 & 2.2 ⇦ 6.2.1	The combating of hunger and malnutrition would partly be **contingent** upon adequate, universal and affordable access to water. Therefore, one of the key preconditions to eradicate hunger and malnutrition would be to ensure adequate access to affordable drinking water and adequate sanitation facilities.
6.1.1 ⇨ 3.9.2 ⇦ 6.2.1	The achievement of access to safely managed water and sanitation including access to as well as hygiene facilities would directly **enable** commitment to reduce mortality rates attributed to unsafe water, unsafe sanitation and lack of hygiene.
6.1.1 ⇨ 4a.1 ⇦ 6.2.1	The achievement of access to safely managed water and sanitation as well as hygiene facilities would directly **reinforce** the commitment to have education facilities that were inclusive and effective learning environments for all.
6.1.1 & 6.2.1 ⇨ 5.1.1 ⇦ 6.5.1	The pursuit of access to safely managed water and sanitation as well as hygiene facilities and the implementation IWRM dimensions would **reinforce** the commitment to end all forms of discrimination against all women and girls everywhere.
7.1 & 7b ⇨ 6.1.1, 6.2.1 & 6.3.1	Access to affordable, reliable and modern energy services would **enable** the achievement of safely managed water and sanitation as well as the treatment of waste.
6.4.1 & 6.3.2 ⇨ 8.4 ⇦ 6.6.1D(1)	Commitment to improve water-use efficiency, the proportion of water bodies with ambient water quality levels,and protect freshwater resources would **reinforce** the ideal to improve global resource efficiency with regards to consumption in order to production and decouple economic growth from environmental degradation.
6.4.1 ⇔ 9.4	The commitment to increase water-use efficiency would be **consistent** with and contributed to the objective of upgrading infrastructure and retrofitting industries to make them, *inter alia*, efficient in their consumption of resources.

SDG Interlinkages	Possible outcomes of interlinkages
6.1.1 & 6.2.1 ⇨ 10.2.1 & 10.3.1 ⇦ 6.5.1	The pursuit of access to safely managed water and sanitation as well as hygiene facilities and the implementation of IWRM components would **enable** the commitment to empower and promote inclusion of all, as well as ensure equal opportunity.
6.1.1 ⇨ 11.1.1 ⇦ 6.2.1	The achievement of 100% access to safely managed water and sanitation as well as hygiene facilities directly would **enable** the commitment to ensure basic service delivery in cities.
6.4.1 & 6.4.2 ⇔ 12.2 ⇔ 6.5.1 & 6.6	Commitment to improve water-use efficiency, reduce water stress, improve water quality by reducing pollution, implement IWRM, and protect freshwater resources would **reinforce** the ideal to achieve the sustainable management and efficient use of natural resources.
6.3.1D ⇨ 12.4	Safely treating and lawfully discharging waste would **enable** the commitment to achieve the environmentally sound management of chemicals and all wastes.
13.3.2 ⇨ 6.6	Strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions would **reinforce** efforts aimed at protecting freshwater ecosystems.
6.3.1D ⇨14.1.1	Ensuring waste is safely treated and lawfully discharged would **support** the achievement of 14.1.1 aimed at reducing coastal eutrophication and marine pollution from land.
6.6.1D ⇔ 15.2.1 ⇔ 15.1.2	Commitment to protect and restore freshwater sources would **reinforce** commitment to declare important freshwater sites in line with obligations under international agreements.
6.B ⇨ 16.6	The development of Water Management Institutions (WMIs) at catchment level and the presence of a Water Services Authority's community engagement platforms at local level would **support** the existence of properly functioning, effective, accountable and transparent institutions at all levels.
17.2.1 & 17.3 ⇨ 6.A	Disbursements of water and sanitation official development assistance funding from developed countries would **enable** investment in water and sanitation activities.

The mapping exercise revealed that greater collaboration was needed between government, the private sector, CSOs and development agencies. Existing platforms enabling collaboration needed to be strengthened, and it was essential for responsible organisations to ensure that practical action took place. Systematic reporting on interactions was necessary to ensure resource efficiency. To this end, centralised systems and platforms were needed and had to be resourced.

The WRC would be convening a workshop in October 2019 to present the interim findings from the mapping of SDG 6 interlinkages with other SDGs. This would be an opportunity for stakeholders to review and validate the findings and to make inputs to the draft framework. The workshop would prioritise

SDG 6 interlinkages with other SDGs and explore opportunities for the localisation and domestication of interlinked indicators.

Overview of the Coordination of SDG 6: Structure, Activities, Challenges and Lessons Learnt – Mr Mark Bannister, Chief Engineer, Department of Water and Sanitation

Mr Bannister gave a brief overview of the 17 SDGs and their key targets (Table 4). The DWS was responsible for delivering on SDG 6.

Table 4: The SDGs and their key targets

No.	Goal	Key targets to be achieved by 2030
1	No poverty	Eradicate extreme poverty for all people everywhere
2	Zero hunger	End hunger and achieve food security and improved nutrition
3	Health and wellbeing	Ensure healthy lives and promote wellbeing for all at all ages
4	Quality education	Ensure that all girls and boys complete free, equitable and quality primary and secondary education
5	Gender equality	Achieve gender equality and empower all women and girls
6	Clean water and sanitation	Ensure availability and sustainable management of water and sanitation for all
7	Affordable and clean energy	Ensure access to affordable, reliable, sustainable and modern energy for all
8	Decent work and economic growth	Promote sustained, inclusive and sustainable economic growth
9	Industry, innovation and infrastructure	Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation
10	Reduced inequality	Reduce inequality within and among countries
11	Sustainable cities and communities	Make cities and human settlements inclusive, safe, resilient and sustainable
12	Responsible consumption and production	Ensure sustainable consumption and production patterns
13	Climate action	Take urgent action to combat climate change and its impacts
14	Life below water	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15	Life on land	Protect, restore and promote sustainable use of terrestrial ecosystems, combat desertification and halt biodiversity loss
16	Peace, justice and strong institutions	Promote peaceful and inclusive societies for sustainable development; provide access to justice for all
17	Partnerships for the goals	Strengthen the means of implementation and revitalise the global partnership for sustainable development

The presentation focused on SDG 6 which had eight targets and 11 global indicators provided by the UN. The DWS was responsible for reporting to the UN on each of the eight targets. This could take place annually, bi-annually or on a five-yearly basis. In addition, all the other 16 SDGs had a water and sanitation component.

The DWS was currently reviewing the 11 global indicators (Table 5) in order to customise them within the South African context. These indicators might be amended and new ones might be added to make the reporting process more relevant. This process was called domestication of the global indicators and would enable the DWS to report more realistically to the UN on South Africa's progress.

Table 5: The eleven global indicators for SDG 6

Number	Global Indicator	Custodians
6.1.1	Proportion of population using safely managed drinking water services	WHO, UNICEF
6.2.1	Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water	WHO, UNICEF
6.3.1	Proportion of wastewater safely treated	WHO, UN-Habitat, UNSD
6.3.2	Proportion of bodies of water with good ambient water quality	UNEP
6.4.1	Change in water-use efficiency over time	FAO
6.4.2	Level of water stress: freshwater withdrawal as a proportion of available freshwater resources	FAO
6.5.1	Degree of integrated water resource management implementation (0-100)	UNEP
6.5.2	Proportion of transboundary basin area with an operational arrangement for water cooperation	UNESCO, UNECE
6.6.1	Change in the extent of water-related ecosystems over time	UNEP
6.A.1	Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan	WHO, UNEP, OECD
6.B.1	Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management	WHO, UNEP, OECD

Stats SA was responsible to the UN for coordinating South Africa's contribution to achieving the SDGs. The DWS had been mandated to address SDG 6 and had thus developed a structure to facilitate integrated planning, implementation, monitoring and evaluation, and reporting on SDG 6. A task team had been established to focus on each of the eight targets. Each team consisted of four or five experts, who could co-opt additional experts as required. The task teams were responsible for identifying gaps within their target and delivering on reports to the UN.

Three cross-cutting task teams provided support to the target-focused task teams:

- The **Sector Support and Communication Task Team** was responsible for awareness-raising, developing communication tools and processes, and managing the website.
- The **Research and Innovation Task Team** was responsible for ensuring the success of each of the solutions generated by the task teams.

- The **Water and Sanitation Sector Leadership Group Task Team** comprised representatives of the government, private sector, research groups and NGOs that met on a quarterly basis to consider how the sector might assist.

The SDG Working Group (SDGWG) consisted of the task team leaders and met every two months to discuss progress, challenges and actions going forward.

The SDGWG operates within the DWS, which in turn reports to Stats SA, which coordinated all the SDGs and ultimately reported to the UN. The DWS had regional offices in the provinces, which were responsible for advocating all the outputs of the task teams per target to ensure that the provinces were aware, mobilised, and could translate gaps into actions.

Each task team contributed to the Stats SA SDG Country Report and VNR during 2019. This includes the submission of 8 target reports to Stats SA in terms of contribution towards the SDG 6 Goal Report. On an annual basis, each task team will contribute to an annual SDG 6 Gap Report compiled by the DWS and a biennial progress report. Gaps identified would then be translated into policies, plans and projects, through vehicles such as the National Water and Sanitation Master Plan (NWSMP), the National Water Services Regulation Strategy (NWSRS), and operational plans generated by Water Services Development Planning.

The targets for SDG 6 coincided with the objectives of many other initiatives for which DWS was responsible. There was a need to align these programmes and their respective objectives. These initiatives included Vision 2030 of the NDP, the NWSMP, the High-level Panel on Water, the MSTF 2014–2019, the Annual Performance Plan of the DWS, the NWSRS, the African Ministers' Council on Water (AMCOW), and the AU Agenda 2063.

The DWS had made steady progress with SDG 6. The UN had acknowledged the DWS delivery structure as one of the best worldwide and had used it as an example for others to emulate. Similarly, Stats SA are encouraging other SDG leaders to use the DWS structure as a basis for developing their own and to maximise consistency.

With reference to this structure, the SDGWG was operational, all 11 task teams had been established and were operational, and terms of reference and action plans had been approved for each task team and the majority of the regions. The DWS regions were essential to closing the gaps through their programmes, role players and initiatives. These regions were becoming progressively operational. To date, five reports had been submitted to the UN via Stats SA as required. The UN had commended South Africa's reports for their professional and detailed content. Finally, the DWS SDG 6 web page was operational and was to be updated.

The NWSMP was one of many 'vehicles of change' that translated SDG gaps into activities to be implemented by the sector. The DWS SDG programme identified the gaps, informed implementers and monitored progress.

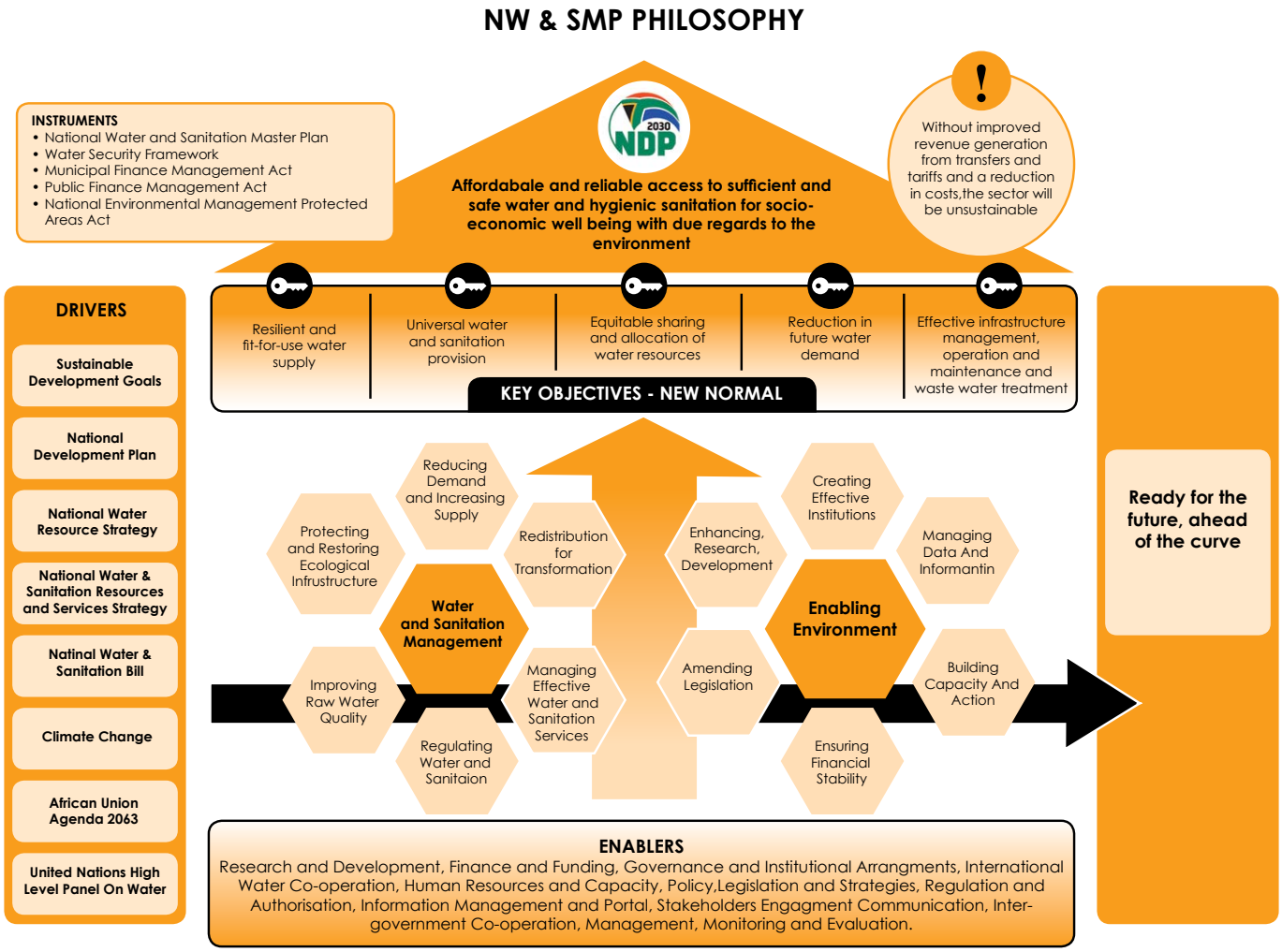

Figure 2: A diagram illustrating the philosophy informing the National Water and Sanitation Master Plan (NWSMP)

Figure 2 illustrates the philosophy of the NWSMP and the process that was followed to ensure that the gaps identified by the SDG programme were translated into projects on the ground. The plan comprised two major components, namely water and sanitation management, and the enabling environment. The drivers (including the SDGs) informed the development of projects, and the enablers were the sources of support. All stakeholders in South Africa had to align themselves with this master plan to ensure an integrated response to SDG 6.

The 11 task teams pursued their various activities and reported on them to Stats SA and the UN. The 11 gap reports are to be consolidated into a single report in December each year. In January the key gaps are translated into action plans by the SDGWG. Proposed actions may then be incorporated within the vehicles of changes, such as the NW&SMP.

In order for the DWS to support the water and sanitation components of the other 16 SDGs, leaders of the other SDG groups would approach the team to request action to address their gaps. These submissions also became part of the annual Gap Report.

DWS was developing an M&E system in three phases:

- **Phase 1:** Measure work, impact and progress towards the 8 SDG 6 targets
- **Phase 2:** Assess the work required in support of the other 16 SDGs and monitor progress / impact thereof
- **Phase 3:** Determine how South Africa compared with other countries in relation to achieving SDG 6.

The DWS website was being redeveloped to accommodate the new M&E system.

The word 'strategy' came from the Greek word 'στρατηγική' meaning the 'art of war'. When engaged in an environmental battle of such massive proportions, it was essential to be strategic. The approach to implementation needed to be simple and logical rather than over-complicated. It was also important to align with and complement existing initiatives and plans, rather than duplicate efforts.

The SDG programme was a whole-country programme and it would be won or lost together. A team approach that encouraged the sharing of ideas was therefore essential within the DWS, with other SDG leaders and with external stakeholders.

Nelson Mandela said that, "A plan without implementation is just a dream." The implementation approach must be clear, all involved must 'walk the talk', and an M&E programme must measure progress.

Discussion

Prof Soodyall, ASSAf, congratulated Mr Bannister on the plans put forward by government and asked what role academia might play and what opportunities there were for collaboration.

> **Mr Bannister, DWS,** replied that SDG 6 was a country programme, not a DWS programme, and all the experts, knowledge and resources available were needed. The science community was a critical role player that could provide support in the form of research and innovation, planning and implementation to achieve appropriate solutions to problems. The ideas contributed by academia could be discussed with other stakeholders in the Water and Sanitation Sector Leadership Group (WSSLG) and turned into practical actions, projects and programmes that made a difference.

Dr Siyavuya Bulani, ASSAf, asked whether the DWS had ever quantified the financial loss and the time lost due to corruption and destruction related to water and sanitation. He also asked how long it would take to achieve the goals.

> **Mr Bannister, DWS,** replied that he personally was not aware of the magnitude of costs associated with protest action and corruption. However, the SDG 6 programme hopes to squash some of these issues. He focused on identifying and closing the SDG gaps rather than on the impacts of unrest. The SDG process would continue until 2030. The DWS was setting interim goals to ensure progress and would continue working on closing the gaps after 2030.

Mr Mike Ward, Association for Water and Rural Development (AWARD), observed that there was a fundamental contradiction in relation to work done on SDG 6. The NDP referred to a social compact;

DPME had made a commitment to citizen-based M&E; and target SDG 6.B focused on participation. In the NWSMP, however, the only reference to 'citizens' was in relation to citizens paying for water, and the only reference to 'community' was to the business community or the international community. Faced with a weak government department, and a business community intent on profiting from public–private partnerships, what opportunity was there for civil society to express its experiences around water in South Africa?

> **Mr Bannister, DWS,** commented that he had worked for the Mvula Trust and was passionate about community involvement and the contributions of communities to the sustainability of water systems. Community involvement was the key indicator of target SDG 6.B. The NGO sector was a critical role player that could help communities to have a greater impact. The DWS was taking this target seriously. In terms of how the indicator had been described, the UN requirements of the target had already been fully reached in South Africa, however there was a serious gap in the target in that it does not measure the performance and impact of community involvement. A new M&E indicator was being designed to measure, besides many other indicators, the impact of community and civil society involvement in decision-making, planning, design and implementation, and the operation and maintenance of systems.

Ms Mariette Liefferink, Federation for a Sustainable Environment, thanked Mr Bannister but, as a member of the Advisory Committee of the South African Human Rights Commission (SAHRC), she asked if consideration had been given in the Gap Report to alignment with the SAHRC report on the underlying socioeconomic challenges of mining-affected communities in South Africa. The DWS had been directed to provide information on the current state of water use monitoring. The report therefore had to include the mechanisms in place to conduct regular determinations of the water reserve. The DWS had been directed to conduct an audit of all water use licences to ensure that they were adequate to protect the water reserve, including basic needs and ecological requirements. The department had also been directed to take steps to monitor compliance with water use licences and their impacts, especially in mining areas, and the impact of mining on the water reserve. Ms Liefferink asked if consideration had been given to these gaps identified by the SAHRC, and if the directives would be implemented. It had to be remembered that water is a basic human right.

> **Mr Bannister, DWS,** acknowledged the role of the NGO sector in the WSSLG. The issues mentioned were recognised and taken seriously. These issues had already beenraised in the WSSLG, of which Ms Liefferink is a member. These issues will continue to be pursued within the WSSLG, with her support, to overcome challenges that exist. It was the responsibility of the SDGWG to ensure that recommendations and agreed actions are taken forward. The points were acknowledged and would be considered in the delivery of SDG 6 by 2030.

Dr Chris Dickens, International Water Management Institute (IWMI), commended Mr Bannister on superb organisation and the efforts of his team. However good their future plans were, water quality monitoring, which did not require strategies or plans for implementation, had almost completely collapsed. He asked if things would actually change following planning and gaps being attended to, as there were no evident improvements in water quality monitoring.

Mr Bannister, DWS, agreed that planning without implementation was pointless. His presentation had focused on planning for SDG 6. The DWS was already implementing projects and programmes throughout the country related to SDG 6. There were critical things that the DWS needed to do, and these were hopefully being addressed through annual performance plans and operational plans within directorates and branches, in alignment with the SDG 6 programme. The panel later in the day would address progress made so far.

Prof Driss Ouazar, Hassan II Academy of Science and Technology, Morocco, observed that a focus on the issue of data was missing from the programme but was central to any vision. Analysis was relatively easy once good data were available, but in Africa data were often lacking, had high levels of uncertainty, and were highly stochastic. Prof Ouazar invited comment on this observation. He also drew attention to the distinction between water as a 'good' and water as a 'risk' as in the case of sanitation.

Mr Bannister, DWS, agreed that data were key to the success of the programme. The monitoring and evaluation system that was being developed relied heavily on sufficient quality data, which was needed countrywide. Without data it was not possible to identify the gaps, decide where to allocate resources, or determine where progress was being made. The DWS had embarked on a project exercise to identify the data management gaps related to each target and to put requirements in place to address these. The DWS regional offices would be involved in closing the data gaps. A new data management system called the Integrated Regulatory Information System (IRIS) had been initiated within DWS which addressed a lot of the data requirements, however there were still gaps. The M&E system would link with various databases and extract relevant information as required. Any gaps would be pursued through the task team leaders.

In relation to risks, the DWS was constantly looking at risks and putting mitigation measures in place to address them. This was an ongoing process of risk analysis.

Presentations: National Targets and Indicators for SDG 6

Landscaping the Coordination of National Role Players and Activities in Achieving the SDGs: A Focus on SDG 6 – Ms Nadia Algera, Programme Officer, ASSAf

Ms Algera described the work that ASSAf had undertaken in support of the water sector. From the outset, ASSAf had undertaken to assist the DWS with the coordination of the water sector. Having discovered the degree to which the DWS had already been planning and undertaking coordination activities, ASSAf offered to broaden the stakeholder database that had already been compiled, and to add several levels of information that could benefit coordination efforts.

The work was carried out by Dr Daniel Murgor from the University of Eldoret in Kenya. Dr Murgor had been accepted into the Young Scientists Policy Fellowship programme, which was conceptualised and hosted by the IAP. This had enabled him to experience the practical aspects of the science–policy interface at ASSAf by undertaking a four-week desktop study. Using a database provided by the DWS, he contacted each stakeholder and role player and added to the database.

The result of the desktop study was an expanded database of 70 entities, listing names and contact details; services typically undertaken; SDG targets focused on; collaborations with other organisations on SDG 6; and other SDGs worked on. This database would be formally handed over to DWS after the workshop.

A selection of the graphical data analyses was presented.

Only 16 entities provided comprehensive lists of collaborators, and some gave broad groupings rather than the names of entities. Figure 3 thus did not represent the complete sample.

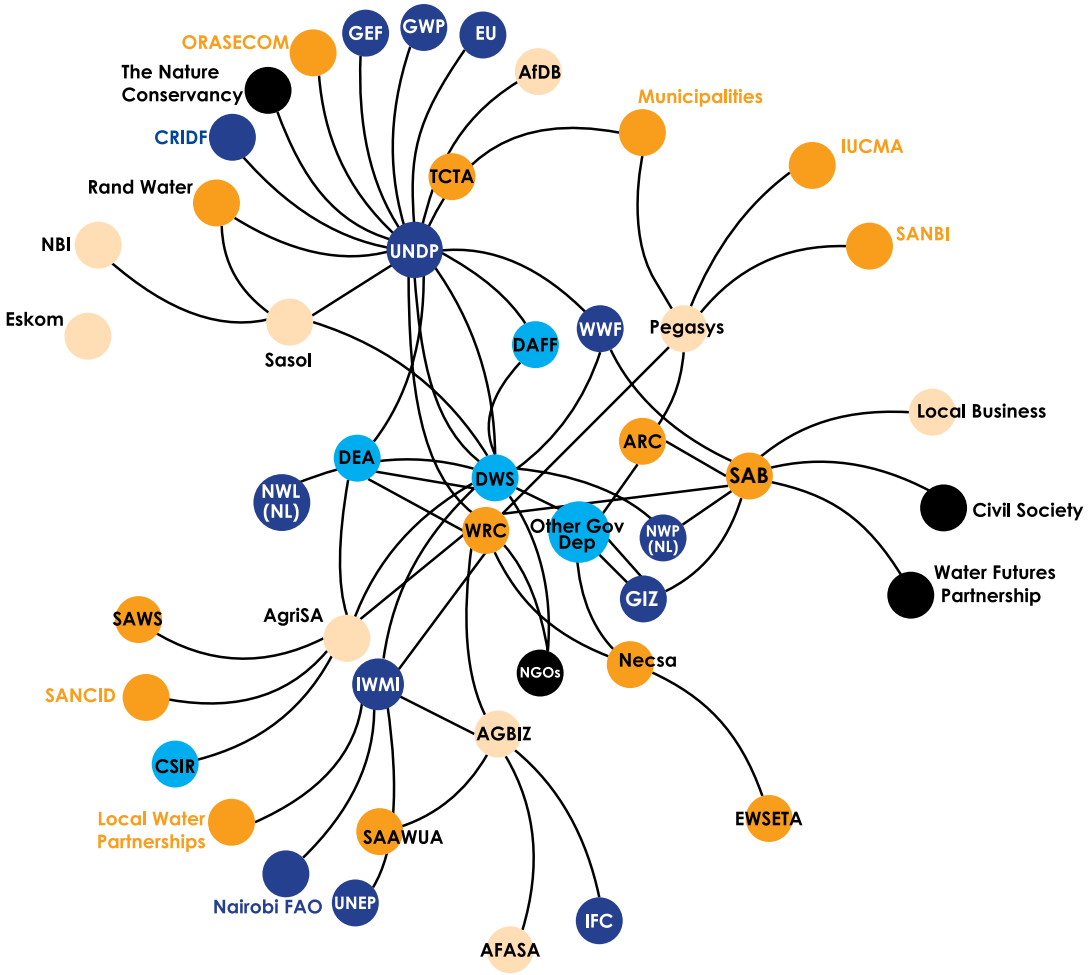

Figure 3: A plot representing stakeholder collaboration within SDG 6

Figure 3 reveals central hubs, such as the DWS, WRC, DEA and other government departments. Enhancing these existing hubs would be an opportunity to improve coordination towards achieving the targets of SDG 6.

Surprisingly, academic-based research institutions were not among the identified hubs. This might have been a result of which stakeholders had responded, but this aspect required further investigation. The relationship between research institutions and stakeholders might need to be strengthened to support

the activities. The SDG 6 workshop would be an opportunity to learn from academics who were active in this area in order to expand the framework.

Figure 4 was a graphical representation of the number of stakeholders focusing on each of the SDG 6 targets. The size of the circles represents the number of stakeholders working on each target. Most stakeholders focused on target 6.1: Providing safe drinking water, while very few reported that they were involved in international or local community cooperation and engagement (targets 6.A and 6.B). This diagram shows the relative number of stakeholders working on each target, but this should

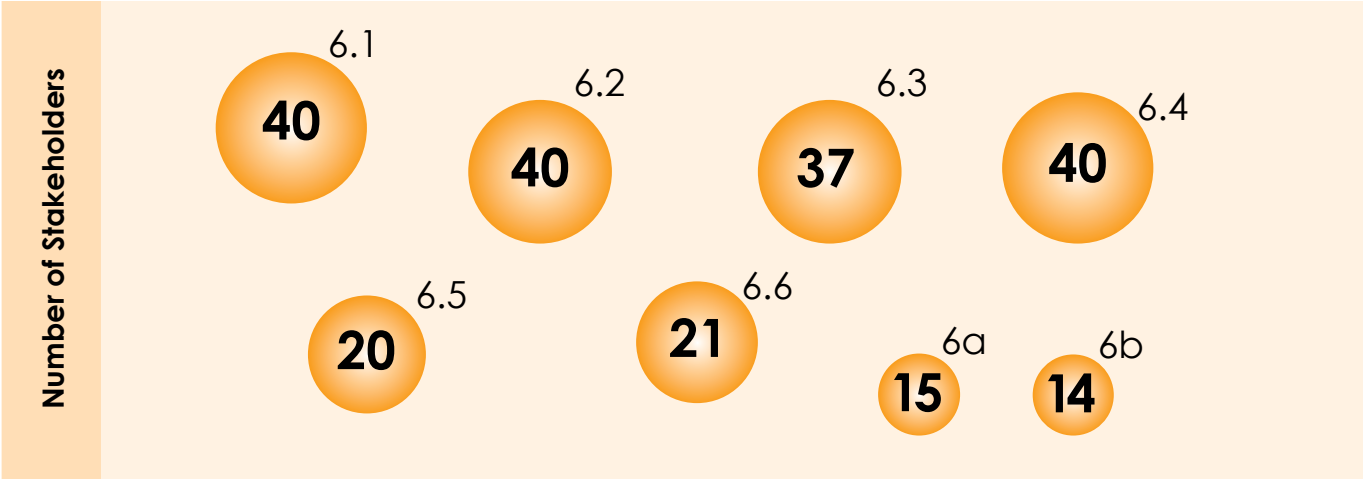

Figure 4: Number of stakeholders focusing on each of the SDG 6 targets

not be confused with effort or progress. A deeper and more robust level of analysis aligned with the SDG reporting process was needed to better understand levels of effort towards each target.

The closer the alignment between SDG targets, the greater the chance of streamlining efforts to achieve the SDGs. Figure 5 illustrates the extent to which SDG 6 stakeholders also worked on other

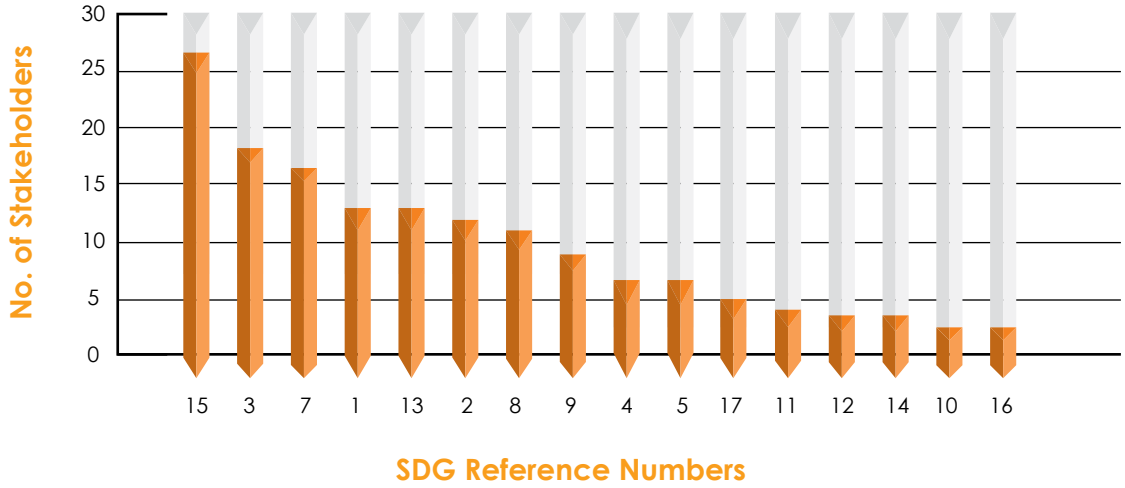

Figure 5: Extent to which SDG 6 stakeholders work on other SDGs

SDGs, either directly or indirectly. Therefore, the graph suggested those SDGs that aligned most naturally with SDG 6.

The graph shows that in this survey SDG 6 (Clean water and sanitation) aligned most closely with SDG 15 (Life on land), SDG 3 (Health and wellbeing) and SDG 7 (Affordable and clean energy). There were also synergies with SDG 1 (No poverty), SDG 13 (Climate action) and SDG 2 (Zero hunger).

There was very little alignment in this sample with SDG 10 (Reduced inequality) or SDG 16 (Peace, justice and strong institutions). Surprisingly, the alignment with SDG 11 (Sustainable cities and communities), SDG 12 (Responsible consumption and production) and SDG 14 (Life below water) was also very low.

More depth and detail might reveal further synergies and opportunities.

Ms Algera thanked the stakeholders and role players who had responded comprehensively to the survey. All responses would be made available to the DWS. The DWS was thanked for their collaboration and assistance. Dr Murgor was acknowledged for conducting the research, and the IAP for their funding and support.

Response

Mr Mark Bannister, DWS, commented that ASSAf had made a positive beginning by building the platform and starting to map the terrain in terms of stakeholders. A great deal needed to be done to respond to the 232 SDG indicators and all role players needed to play their part in building on this foundation. This platform enabled stakeholders to see who was involved and identify opportunities to cooperate.

Within the new Ministry of Human Settlements, Water and Sanitation, the Department of Human Settlements was responsible for SDG 11 and had good information systems. Integration between the two departments was essential.

Mr Bannister extended an invitation to delegates to participate in the Research and Innovation Task Team workshop in October 2019, which would present an opportunity to develop the stakeholder platform further. He believed that through word of mouth, SDG 6 could become a household term.

Discussion

Dr Bongani Ncube, CPUT, expressed surprise at the lack of academic institutions on the map, since all the universities in the Western Cape had water-related research activities.

Dr John Ngoni Zvimba, WRC, commented that the WRC was represented on the stakeholder map. As 90% of the WRC's partners were academic institutions, most of their water-related research would have been accounted for.

Mr Lenka Thamae, Orange-Senqu River Commission (ORASECOM), requested a simple explanation of the linkages diagram in Ms Algera's presentation.

Ms Nadia Algera, ASSAf, replied that the map represented explicit collaborations reported on by entities. Only 16 of the 70 organisations surveyed had specifically reported on collaborations with other organisations. Academic entities and research institutes that had not responded to that particular question would not have been included on the map.

Dr Bongani Ncube, CPUT, noted that the catchment management agencies (CMAs) had collected data from smallholder farmers in the Western Cape, especially on target 6.B. CMAs had many linkages at grassroots level that might have been overlooked. Further analysis of the data was needed.

Ms Algera, ASSAf, agreed that it would be worth looking in more detail for micro-connections in order to avoid discounting organisations that were not represented on the database.

Mr Mark Bannister, DWS, commented that the WSSLG, which met once a year, had established a task team that provided cross-cutting support for the eight SDG 6 targets. Involvement in the task team was voluntary, and a number of academic institutions, CMAs, water utilities, professional bodies and municipal structures had participated in the last meeting in September 2018.

Overview of SDG 6 targets by the DWS: Indicators, methods, data sources, results and targets: progress and challenges – Mr Mark Bannister and DWS panel

Mr Bannister introduced the report-back with an overview of progress across the eight targets of SDG 6. This was summarised in Figure 6 below:

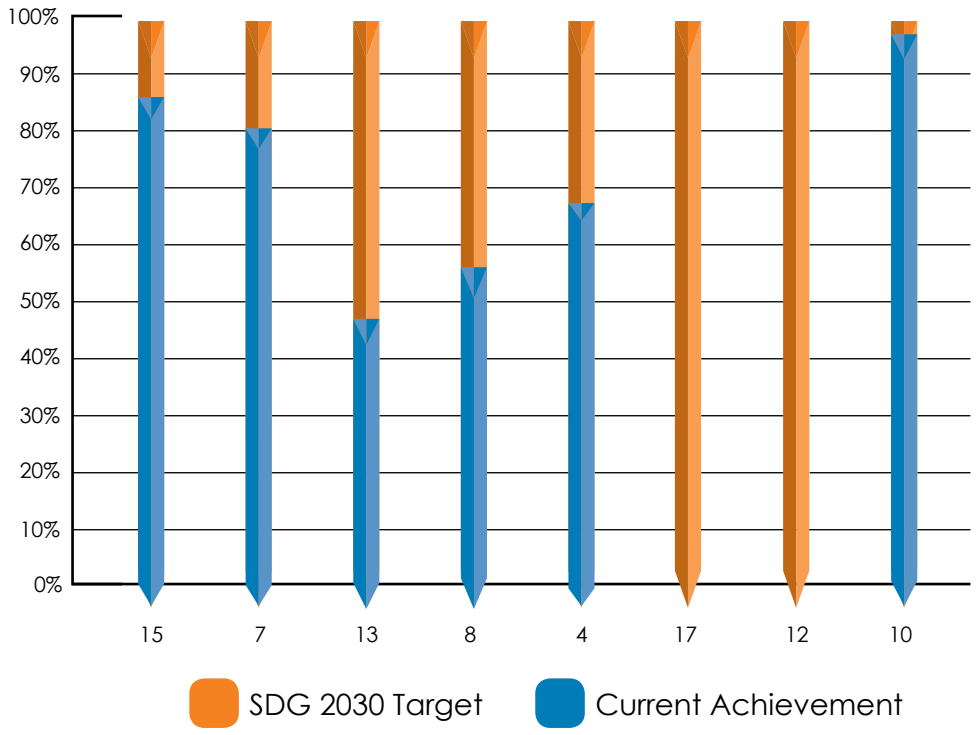

Figure 6: Progress towards achieving the SDG 6 targets

The best performance to date had been in relation to targets 6.B (Support local engagement in water and sanitation management) (100% achieved), 6.1 (Provision of safe and affordable drinking water) (86%), 6.2 (End open defaecation and provide access to sanitation and hygiene) (82%) and 6.5 (Implement integrated water resources management) (70%).

The following targets showed average levels of achievement: 6.3 (Improve water quality, wastewater treatment and safe refuse) (50%) and 6.4 (Increase water use efficiency and ensure freshwater supplies) (59%).

Target 6.6 (Protect and restore water-related ecosystems) had not yet been established; collaboration and discussions with the Department of Environmental Affairs (DEA) and others were required.

Target 6.A (Expand water and sanitation support to developing countries) was challenging as it relied on attracting international support.

Targets 6.3 and 6.6 covered a wide range of systems, from groundwater to estuaries, which were managed by different entities. The relevant task teams therefore had specialist sub-groups to help them develop monitoring methods and report on sub-indicators. There were also advisors that supported more than one team.

Achievements and challenges

Targets 6.1 (Drinking water) and 6.2 (Sanitation and hygiene)

On a national basis, 93% of people had access to water supply services. However, no estimate of safely managed drinking water was available for rural areas, and in urban areas only 82% of drinking water was safely managed.

In both rural and urban areas, 75 – 76% of the population had access to basic sanitation. Nationally, only 44% of the population had access to basic hygiene services, which included 53% of the urban population but only 27% of the rural population. Monitoring basic hygiene was challenging because it was difficult to measure hand-washing performance.

Target 6.3 (Water quality and wastewater treatment)

Poor water quality was a serious challenge in South Africa. In terms of target 6.3, only 59% of surface water bodies had good quality water, and only 52% of effluent discharged through wastewater treatment works (WWTW) was safely discharged.

National water quality monitoring programmes had not been functioning optimally due to a lack of capacity and resource constraints. There was also a lack of coordination and alignment in processes between monitoring water quality monitoring and data collection. The resulting lack of data compromised South Africa's ability to report on target 6.3.

Furthermore, the lack of asset management, effective operations and maintenance, and allocation of resources had resulted in poorly functioning WWTWs.

The achievements included the development of a method by Dr Mike Silberbauer on SDG 6.3.2 that had enabled South Africa to aggregate its data and report at a national scale. This method had been showcased in international reports.

A comprehensive Water Quality Management Strategy and a draft water quality management policy had been developed. The strategy had been integrated into the NWSMP.

IRIS had been launched in October 2018. This web-based platform allowed data on wastewater to be captured and easily accessed by the public.

Target 6.6 (Water-related ecosystems)

The infrequency with which data was produced for wetlands, lakes and dams (in terms of spatial extent) and rivers and estuaries (in terms of their hydrology), made trend analysis very difficult. The DWS lacked the capacity and financial resources to conduct frequent monitoring. Furthermore, data on freshwater ecosystems was dispersed among various role players. It was a priority for the various actors to align their programmes and processes.

There had been positive developments, however. Cooperative inter-governmental platforms and agreements had been established to facilitate coordinated monitoring and reporting on wetland ecosystems. The National Wetland Map 5 developed by the South African National Biodiversity Institute (SANBI) had identified a large number of additional wetlands since the previous map had been published in 2011. The National Wetland Monitoring Programme had been launched and would contribute information on the extent of wetlands, threats to wetlands, change in the present ecological state, and ecosystem services provided by wetlands.

A national estuary portal for South Africa had been developed by the Council for Scientific and Industrial Research (CSIR) with funding from the WRC; the DWS had initiated a project to consolidate the various spatial layers for dams into a single layer; and South Africa was a global leader in developing methods for reporting on the groundwater aspects of SDG 6.6.

Target 6.5 (Integrated water resources management)

Target 6.5 comprised two sub-targets, namely:

- 6.5.1: The degree of IWRM implementation, which required an enabling environment, institutions and participation, management instruments, and financing
- 6.5.2: The proportion of transboundary basin area with an operational arrangement for water cooperation, which required agreements with other countries sharing a catchment area with South Africa.

This target had a three-year reporting cycle. The first indicator workshop had taken place in November 2018. A detailed questionnaire had been populated, generating considerable information. South Africa scored 70% for this indicator.

Sixty per cent of South Africa was covered by transboundary basins. While the country scored 100% for transboundary arrangements, these could be improved.

Target 6.A (International cooperation and capacity-building)

One of the indicators for this target was the amount of water and sanitation-related official development assistance that was part of a government-coordinated spending plan. In the past when South Africa had been classified as a developing country, it had been relatively easy to secure foreign funding; however, since being classified as a middle-income country this had become more challenging as South Africa was expected to support itself.

Donor countries that had funded initiatives included:

- **Japan:** The Japan International Cooperation Agency (JICA) had contributed to strengthening the training capacity of the Infrastructure Branch Training Centre on non-revenue water.
- **Netherlands:** The Blue Deal and Orange Knowledge Programme had provided scholarships for water management programmes.
- **USA:** The Resilience in the Limpopo Basin (RESILIM) programme had strengthened wastewater initiatives in Limpopo province.
- **Denmark:** Grants in kind had been secured from the Danish Strategic Sector Cooperation on Water, with which South Africa had previously signed a memorandum of understanding
- **Cuba:** There had been an agreement to strengthen geohydrology and engineering services.
- **Belgium:** Funds had been disbursed from the Belgian Development Agency through the Tirelo Bosha Public Service Improvement Facility.

On World Water Day 2019, the Minister of Water and Sanitation had launched the Development Cooperation of Partners Platform to enable the DWS to engage with its development partners and share priorities, challenges and progress towards achieving SDG 6.

South Africa had continued to influence the international agenda through engagement in the HLPF 2019, which also supported continental priorities to achieve sustainable development in Africa as envisaged in the AU's Agenda 2063 and the SADC-RISDP.

Target 6.B (Support for local engagement in water and sanitation management)

In terms of the current SDG targets, South Africa had already fully achieved this target. Policies and platforms were in place for engaging and ensuring the participation of local communities in relation to water services. However, the policies were often not effective, and communities were generally not involved in decision-making. A new indicator was needed that measured actual community involvement and its impact on the entire project cycle.

Key messages related to the improvement of SDG 6 reporting and delivery

South Africa was performing well in relation to SDG 6 and received international acknowledgement for progress made in developing the planning foundations and implementation structure to achieve the SGDs, but planning alone was insufficient.

Translating a dream into reality required committed and regimented funding (amounting to R10 billion over the next ten years); proficient implementation of programmes and projects; outstanding management systems that accounted for work done and money spent, measured performance and monitored progress; skilled individuals responsible for operations and maintenance; and fully functional infrastructure including sustainable asset management and appropriate technology (at present 30% was dysfunctional and 10% completely dysfunctional). Above all, it required loyalty and dedication from all sector stakeholders.

DWS panel discussion

Mr Bannister, DWS, convened a panel of DWS officials and SDG 6 task team leaders to give feedback on progress with the SDG 6 targets.

Ms Nadia Algera, ASSAf, asked the panel to comment on obstacles to data gathering and what had been done to overcome these.

Mr Patrick Mlilo, (Target 6.5: Implement integrated water resources management) stated that in relation to output 6.5.1 (Integrated Water Resources Management), a major issue had been to get stakeholders to attend the initial workshop facilitated by the Global Water Partnership (GWP) in 2017. There had also been issues with interpretation of the questionnaire that had been used to gather data. Another workshop was scheduled for October 2019 for reporting purposes, because responsiveness to policies and legislation took time to evolve.

In relation to 6.5.2 (Transboundary collaboration), there had been some problems in identifying stakeholders, but it had been possible to draw on information compiled by the Water Resources Research Center (WRRC) on international treaties and agreements.

Ms Lebogang Matlala, (Target 6.6: Protect and restore water-related ecosystems) said that Mr Elijah Mogakabe was working on establishing a wetland monitoring programme. DWS relies heavily on SANBI for the wetland data. To provide the UN with information on wetlands and estuaries in the first report, the DWS had relied on the National Biodiversity Assessment Report produced by SANBI.

For hydrology figures, the DWS used the outcome of the WR2012 study on water resources conducted by the WRC. This analysis was done only once in five years. In order to report for the next round, there is a need to update the WR2012 information.

Ms Refiloe Moloi-Owoyomi, (Target 6.A: Expand water and sanitation support to developing countries) reported that the DWS was required to monitor official development assistance received from international agencies in relation to the target set by National Treasury and review the relevant international agreements. The only country listed in National Treasury systems was Belgium; but in fact, South Africa had a number of bilateral agreements with other countries.

The DWS had reviewed all the SDG 6 targets to identify which countries had provided support. The Netherlands had supported capacity building and provided funding for IWRM. Denmark had provided

funding to support groundwater management, water-use efficiency and urban water management. Since donor countries had also interacted with other government departments on water-related activities, the DWS had engaged with the departments of Science and Technology, Energy, and Trade and Industry to understand the scope of this support. The DWS had decided not to rely on National Treasury's data but to also reflect support provided to other SDGs.

In addition, funding had been received from the USA for the RESILIM project; and Cuba had provided technical support for maintenance and operations.

The DWS had also investigated funding initiatives within Africa and found that significant funding had come from the European Union (EU) desk, the GWP and the UN desk. They had analysed the kind of funding that had been attracted and what still needed to be solicited. In terms of engagements with other African countries, the DWS had signed only one bilateral agreement, namely with the Democratic Republic of the Congo.

Mr Bheki Mbentse, (Target 6.B: Support local engagement in water and sanitation management) reported that there had not been any problems in collecting water services data as this was done by municipalities. The main challenge was the slow pace of establishment of CMAs, which would be involved in community participation around water resources. Funding was needed in order to accelerate the establishment of CMAs and shift target 6.B from a score of 2 to 9.

Mr Dennis Behrmann, (Target 6.1: Provision of safe and affordable drinking water) reported on data issues related to targets 6.1 and 6.2. Some data sets were patchy, while others were very strong. The good data came from the Stats SA General Household Surveys. The DWS had a long and close relationship with Stats SA and had actively placed questions in the census and the General Household Survey.

Service ladders for access to water and sanitation had been set up for monitoring the MDGs through the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene. When the SDGs had been introduced, the same service ladders were used as had been used for the MDGs, except that the term 'safely managed' was now applied to water and sanitation targets. DWS was the source of these data, and the data sets were very patchy.

Ms Thembi Mthombeni, (Target 6.3: Improve water quality, wastewater treatment and safe refuse) During the past few years, water quality monitoring had declined due to resource constraints. The DWS had aligned their actions in relation to target 6.3 with the NWSMP. The Minister of Human Settlements, Water and Sanitation had issued a directive to establish a national anti-pollution task team to conduct a nation-wide assessment of the status of water quality and to establish real-time information systems to monitor water quality. The DWS was implementing water quality monitoring.

In terms of data management, in October 2018 the DWS had launched the Integrated Regulatory Information System (IRIS) on which privately owned and municipal wastewater treatment works could capture data on treated effluent.

A five-year Water Quality Monitoring Strategy was being developed to regulate and enforce the polluter-pays principle as there was a water quality crisis because WWTWs were failing. Collaboration with key stakeholders was critical in order to improve water quality by 2030.

Ms Thabita Napakade, (Target 6.2: End open defaecation and provide access to sanitation and hygiene) Mr Behrmann had reported on data issues related to target 6.2. An issue that had not been mentioned was that the data from Stats SA had become available only after the start of the government planning cycle, which made it difficult to set meaningful targets.

The major issue facing the National Sanitation Task Team was that key technical staff had retired. The DWS lacked skilled data analysts and hoped to find technical assistance by collaborating with the sector.

Discussion

Ms Mariette Liefferink, Federation for a Sustainable Environment, observed that civil society perceived that the situation as being worse than had been presented by the DWS. During the Minister's budget vote, it had been strongly emphasised that the DWS was dysfunctional. With regard to water-related ecosystems, according to the NWSMP 57% of river ecosystem types were threatened; 65% of major rivers were threatened, including 46% that were critically endangered; 65% of wetland ecosystems were threatened, and 71% were not protected at all. Ms Liefferink asked what plans the DWS had to achieve the SDG targets. She also asked how the profound and irreversible impacts on ecosystems caused by mining would be addressed; and when the Green Drop and Blue Drop reports would be published again, as they had not been produced since 2014.

> **Ms Lebogang Matlala, DWS,** replied that, in terms of plans to address the deterioration of water-related ecosystems, and despite financial constraints, the DWS was developing a wetland monitoring programme costing an estimated R11 million.
>
> The department was also determining resource quality objectives for wetlands; however, due to a lack of reliable data, most of the resource quality objectives had not been gazetted. The information was reported on internally to guide management at regional level.
>
> On Day 2 of the workshop, DWS hoped to discuss with other stakeholders the setting of targets to improve the state of water-related ecosystems.
>
> **Mr Patrick Mlilo, DWS,** responded to the question about collaboration between the DWS and other departments such as the DEA, noting that the One Environmental System had been instituted in 2014. When any authorisation was undertaken, there was a requirement for consultation and alignment between departments. There was a concerted effort to respond to water-related issues in licence conditions. This was work in progress, and improvements were being made in terms of monitoring and compliance.

Mr Oluropo Benjamin Ayeni, University of KwaZulu-Natal (UKZN), asked which provinces were most affected by acute water shortages. He also expressed concern that students on the UKZN campus appeared to waste water and asked if there had been any efforts to engage with students regarding water conservation.

Mr Patrick Mlilo, DWS, replied that rainfall and runoff decreased from east to west across South Africa, with the Northern Cape being the driest region. Water shortages also depended on the population of an area and withdrawals from the system, so even in areas with high rainfall there could be water scarcity.

Ms Thabita Napakade, DWS, challenged delegates to be ambassadors for water conservation in their own location and context.

Prof James Phiri, Zambia National Academy of Sciences, commended the DWS for the way in which they were tackling the SDGs. In relation to target 6.B, he asked how the DWS managed to encourage rural communities to participate.

Mr Bheki Mbentshe, DWS, responded that the existing indicator of effective participation focused on the number of administrative units such as municipalities with policies and procedures in place; it did not refer to communities. Since all government institutions had policies in place, the DWS had achieved a high score for target 6.B (Support local engagement in water and sanitation management) in the previous reporting round. In order to include community participation, this target required domestication.

Ms Jackie Olang-Kado, NASAC, asked Mr Mbentshe how the DWS dealt with illegal water vendors.

Mr Bheki Mbentshe, DWS, replied that the three spheres of government had different responsibilities. National government developed policies and procedures, but it was the responsibility of local government to provide water and ensure that it was not stolen by enforcing their bylaws.

Dr John Ngoni Zvimba, WRC, referred to the DWS report that had estimated that 70% of the 824 wastewater treatment works were functional and that 52% of effluent was currently being treated. The UN World Water Development Report *Wastewater: the untapped resource* launched in Durban in 2017 had estimated that globally 80% of wastewater was released untreated, and in developing countries this could be as high as 95%. The challenges associated with untreated wastewater were well documented. In 2019, in an audit of 252 municipalities, only 18 had received clean audits. In municipalities with financial issues, wastewater management was seldom prioritised. Furthermore, water quality monitoring programmes such as Green Drop and Blue Drop had collapsed.

A WRC project was investigating the challenges and opportunities presented by wastewater in support of target 6.3 over the next ten years. Credible data would be required to achieve this. In the face of poor maintenance of wastewater treatment works and the lack of water quality monitoring, Dr Zvimba asked how reliable the available data were.

Ms Thembi Mthombeni, DWS, responded that in relation to compliance of wastewater treatment works, what Mr Bannister had presented was based on data collected by the Green Drop system during the 2016/17 year. About 45% of the WWTWs had provided data. In other words, the 52% of effluent being treated was from only 45% of the WWTWs. On Day 2 of the workshop, the information technology team would give a presentation on IRIS, on which stakeholders would be able to capture data.

Closure – Refiloe Moloi-Owoyomi, DWS

Ms Moloi-Owoyomi thanked ASSAf for their invitation to DWS to participate in the workshop, and Mr Mark Bannister for steering the process in DWS. She reflected that the session had highlighted the need for everyone involved to contribute to achieving SDG 6. A common understanding of the current situation, gaps and targets was needed. Everyone was invited to continue the journey together with a common purpose.

DAY 2: WEDNESDAY 24 JULY 2019

Welcome and Introduction – Ms Nadia Algera, Programme Officer, ASSAf

Ms Algera welcomed participants to Day 2 of the workshop.

Overview of Day 1 and Objectives for Day 2 – Ms Nwabisa Fundzo, DWS

Ms Fundzo stated that the reason for the workshop was to enable all concerned to put their heads together to protect South Africa's precious water resources. She gave a brief overview of Day 1 of the workshop and presented the objectives for Day 2.

Brief Overview of Day 1

- The presentation from UNEP had introduced the 2019 SDG report and highlighted the key findings for the country parties on the environment in advance of the 2019 UN HLPF on Sustainable Development.
- Delegates had been reminded of the statements by the Secretary-General of the UN: "We cannot continue to take water for granted and expect to achieve the SDGs." and "It is time to change how we value and manage water."
- The DPME had presented an overview of the SDGs in the South African context and described the National Coordination Mechanism model, the structure that would coordinate the achievement of Agenda 2063. The National Coordination Mechanism was the responsibility of the DPME and involved various stakeholders.
- NASAC had shared insights into the policymakers' booklet *Grand challenge of water security in Africa*.
- Pegasys had introduced a WRC project that focused on interlinkages between SDG 6 indicators and between indicators of SDG 6 and other SDGs.
- The DWS had provided an overview of national targets, indicators and coordination of SDG 6, and ASSAf had reported on a project to map the landscape of role players involved in SDG 6 and their collaborations.

The key messages from Day 1 were:

- UNEP reports had highlighted a lack of data and evidence and the slow rate of implementation as challenges that could prevent the SDGs from being achieved by 2030.
- The NDP, AU Agenda 2063 and SDGs had similar goals, which were informing policy development in South Africa.

- To ensure coordination parliament, government departments, civil society and business needed to work together in partnership to monitor the implementation of the SDGs. The silo mentality must be overcome.
- More speed and an inclusive approach were required in implementing the SDGs.
- There was a strong need to identify how the SDGs were linked to ensure collaboration.
- The extent to which water-related SDGs could be domesticated should be investigated.
- The timeous sharing of information and data in relation to the SDGs at all levels was essential for planning.
- Improved stakeholder relations and sector collaborations were essential to achieving the SDGs.
- Linkages between interlinked indicators should be assessed and research needs identified.
- Clear and measurable targets relevant to the South African context needed to be developed.
- Implementation that produced tangible results and practical change was urgently required.
- Implementation needed to be directed by targets, and progress needed to be efficiently monitored and evaluated.
- It was important to know what the country was aiming to achieve, what the current state was, and to map progress in order to plan effectively.

The objectives for Day 2 included parallel sessions that would be an opportunity for DWS as leaders of SDG 6 to:

- Engage with stakeholders interested in specific targets
- Identify areas of support and collaboration between stakeholders
- Establish a way forward for future engagements.

The Role of African Academies in Achieving the SDGs – Prof Robin Crewe, University of Pretoria

Referring to Day 1, Prof Crewe reflected that a discussion on innovation, both technical and social, had been missing. While this might not fit neatly into the target indicators for the SDGs, the topic needed to be discussed. Mr Bannister had mentioned the Research and Innovation Task Team but had not specified what they were doing.

Prof Crewe stated that he would share a brief insight into the complexities of working with stakeholders, especially at a range of scales, from national to global. He drew attention to the report, *Harnessing science, engineering and medicine (SEM) to address Africa's challenges: the role of African national academies,* which aimed to identify the role of African academies in helping to localise and institutionalise the SDGs in particular contexts. The report had been produced by the IAP and funded by the Carnegie Corporation of New York.

The InterAcademy Partnership (IAP) was a global network of over 140 national and regional merit-based academies of SEM, together with its four regional networks in Africa, the Americas, Asia and Europe. Over 30,000 of the best scientific minds in the world were represented. The IAP could therefore provide a wealth of expertise and knowledge to inform policy-relevant research, policy advice, policy design, implementation and review. A number of policy briefs with local relevance had been produced.

The strategic priorities of the IAP were to:

- Build capacity and empower regional networks of academies and their national members
- Provide independent, authoritative advice on global, regional and national issues
- Communicate the importance of SEM in terms of research, education, literacy, public discourse and outreach.

Close cooperation between senior and young academies had allowed the IAP to draw on their respective strengths. The Global Young Academy (GYA), which had become a member of the IAP in 2019, aimed to give a voice to young scientists around the world. The GYA had been an important partner of the IAP, providing a direct conduit to its 200 members and over 200 alumni, as well as an indirect conduit to the fast-growing number of national young academies around the world, especially in Africa. There were 26 members in Africa, and 42 African alumni, which was almost 20% of global alumni. There were 15 national young academies in Africa, representing 39% of young academies in the world.

Scientists supported robust evidence-informed policymaking that could identify knowledge gaps and initiate interdisciplinary research to solve policy questions. They could help others to understand the complex interactions between SDGs, including their interdependencies, synergies and trade-offs. They could also assist in developing monitoring and evaluation processes, and indicators and metrics for assessing where things were working well and where more needed to be done.

The academies synthesised scientific information and helped interpret complex and big data. They were a conduit for identifying expertise in academia and could convene meetings to bring knowledge users and knowledge providers together.

More than any other region in the world, Africa faced substantial challenges in implementing socioeconomic and development policies. Reviews and evaluations of AU frameworks were still being developed, but a review of the SDGs revealed that Africa's performance was low by international standards.

The *2019 SDG index and dashboards report,* produced by the Sustainable Development Solutions Network and updated in July 2019, presented an assessment of current progress of African countries and trends in achieving the SDGs using a traffic-light system. It was estimated that the greatest challenges related to good health and wellbeing (SDG 3); industry, innovation and infrastructure (SDG 9); and peace, justice and strong institutions (SDG 16), with more than 80% of countries scoring red. No African country had reached green status (SDG achievement) for 13 of the 17 goals.

To date, only 35% of Africa countries (19 out of 54) had reported on their progress formally to the UN, with a further 16 countries expected to report for the first time in July 2019. Significant progress still had to be made, and the academies wanted to be involved as they had significant expertise to offer.

The report *Africa 2030: SDG three-year reality check* released by the SDG Center for Africa in June 2019 had revealed that Africa faced serious data constraints, with only 40% of the SDG indicators having adequate data available. Two-thirds of African countries were in the 'low human development' category and continued to struggle with education and healthcare. Progress with the SDGs was stagnating as population growth outstripped delivery. The lack of clarity on accountability and enforcement mechanisms for the SDGs continued, and there was a lack of implementation at all levels of government. The national academies could make a significant contribution in this area. Clearly there was also a financing gap, which was estimated at between US$500 billion and 1.2 trillion annually.

The IAP had produced two reports of relevance to the SDGs, namely: *Improving scientific input to global policymaking* released in May 2019, which focused specifically on the SDGs; and *Harnessing science, engineering and medicine to address Africa's challenges,* which had been released in July 2019 after a three-year study.

There were two major policy frameworks across Africa, namely the UN Agenda 2030 and the AU Agenda 2063. In the South African context, there was a relationship between the SDGs and the NDP. The NDP could also be seen in the context of the AU Agenda 2063 and the Science, Technology and Innovation Strategy for Africa 2024 (STISA 2024), which was an AU strategy that was very seldom mentioned. The priorities of STISA included food security, disease prevention, communication, environmental protection, effective governance and wealth creation. There was little time left to complete the activities of the STISA programme.

Running in parallel with a global project exploring the UN SDGs, a key element of the IAP project was to raise awareness of Agenda 2063 and STISA 2024 among the African science community, particularly members of national academies; to improve their understanding of how these agendas were being implemented; to improve understanding of some of the key UN and AU processes; and to encourage scientists and academies to support implementation more effectively.

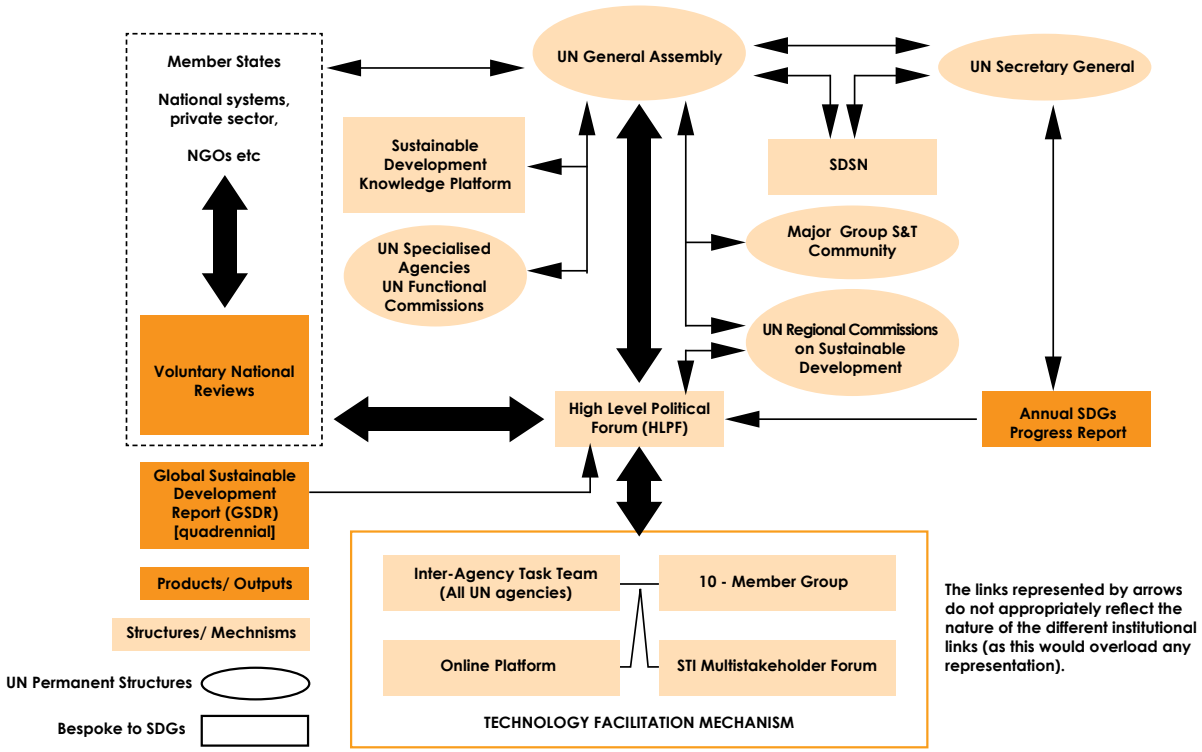

Figure 7: A simplified schematic of the UN pathways for feeding science into the SDGs

It was a challenge for countries to negotiate their way through the many organisations involved in producing these complicated agenda documents and to address the expectations of the programmes. The IAP working group had therefore attempted to map the pathways for science in the UN (Figure 7). The oval entries in Figure 7 represent UN permanent structures that were important for the SDGs, and the rectangular entries represent those that had been set up specifically for the implementation and review of the SDGs. The grey-blue boxes represent structures, and the green boxes represent products.

The schematic had been used by other agencies such as the Organisation for Economic Cooperation and Development (OECD) and the UN InterAgency Task Team. It was important that scientists understood this framework in order to identify opportunities for the academies to engage with organisations such as the UN at global, regional and national levels.

The AU had a set of agencies and instruments that were related to the UN bodies, such as the Assembly of Heads of State and Government; the Committee on Education, Science and Technology; and the AU Commission. The IAP report provided an overview of these drawn from the AU handbook.

The African Scientific Research and Innovation Council had been established in 2018. The academies could help this council define the scope of its activities and consider how it could impact on other organisations and on science, technology and education in Africa.

There were a number of opportunities for the academies and the wider science community to engage, including:

- **Continental level** by supporting the African Scientific Research and Innovation Council (ASRIC); engaging with the Specialised Technical Committee on Education, Science and Technology (STC-EST) and the Human Resources, Science and Technology Department (HRST) of the AU; working with the African Academy of Sciences (AAS) in its formal role as strategic partner to the AU, and International Science Council Regional Office for Africa (ISC-ROA) in its formal role as strategic partner to the UN; and engaging with the UN Economic Commission for Africa (UNECA)
- **Regional level** by engaging with the AU Regional Economic Communities and the World Academy of Sciences (TWAS) regional offices
- **National level** by engaging with national governments and local policymakers.

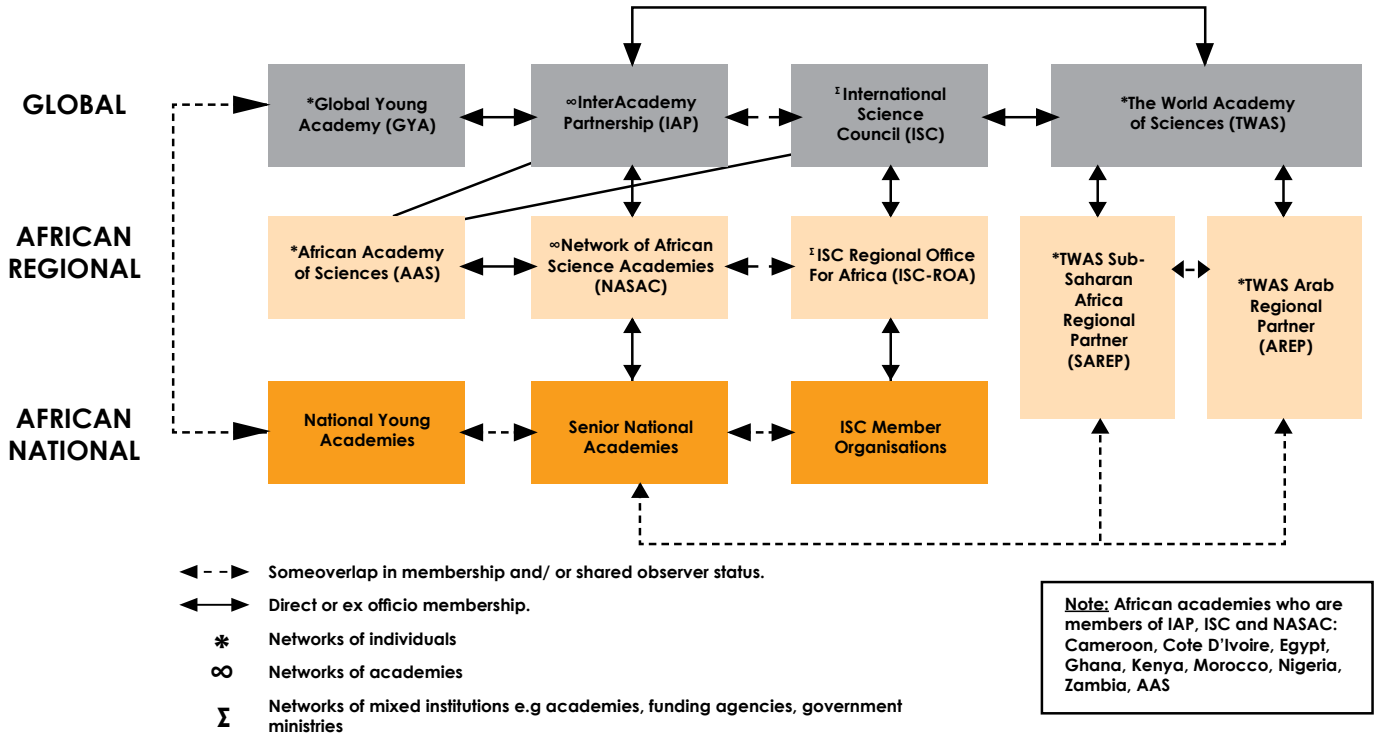

Figure 8: The landscape of science academies in Africa, including major global science networks

The IAP had mapped the landscape of science academies and identified three levels of organisations, namely global, regional (Africa) and national. Figure 8 could assist with the identification of potential role players with whom to collaborate.

A key aspect of the IAP project's work had been to understand the policy landscape in Africa and identify natural entry points or pathways for science into the UN and AU policymaking infrastructures. The governmental and non-governmental organisations active at different levels, from local to global, are summarised in Table 6.

Table 6: The landscape of science policy in Africa

Government affiliated	Non-government
Local government	Academic institutions
• National government • Development agencies country offices	• National academies, universities, policy institutions • Civil society, NGOs, private sector
• Regional economic commissions • AU • UNECA • African Development Bank • International development ministries	• Informal consortia of academies • NASAC • AAS • ISC-ROA • TWAS sub-Saharan Africa Regional Partner (SAREP) and Arab Regional Partner (AREP) • Civil society, NGOs, private sector
• UN • World Bank	• IAP • GYA • ISC • Civil society, NGOs, private sector

In response to concerns raised in the workshop about the involvement of academia, Prof Crewe made the point that, although members of science academies were also members of academic institutions, the roles of the two sectors were different. Academies of science were policy-focused, while academic institutions focused on developing human capital by providing higher education. It was important to recognise these different but interrelated functions.

It was important to engage with people who could provide guidance with respect to complex policy processes. The IAP working group had been building relationships at all levels in order to mobilise expertise to assist with projects that the academies would like to undertake. During the three-year project, the IAP had engaged with a number of institutions including the UN, NASAC, IAP, GYA, ISC, International Network for Government Science Advice, AU and AAS.

The key findings were as follows:

- There were opportunities for academies and policymakers to work together at all levels.
- The African science community had to be more proactive in seeking to support policy formulation, implementation and review.

- There was an urgent need to identify and capitalise on synergies between the SDGs and STISA priorities in order to multiply the value of specific actions, to plug data gaps and strengthen data integration and to strengthen weak indicators and M&E frameworks.
- Academies and policymakers were useful mutual resources:
    - Academies could help to devise evidence-informed solutions and address the dearth of data on the continent.
    - Policymakers could provide insight into policy questions perplexing governments, and the complexity of policymaking.
- Cooperation was most effective when academy and policymaking communities treated each other as full and equal partners, co-designing and co-framing questions, and not simply as audiences for their respective messaging.

In conclusion, the IAP report was the culmination of a set of pilot projects and insights from all of these different elements of the three-year project.

Country Reporting on the SDGs and National Data Criteria – Ms Aluwani Makuya, Stats SA

Stats SA considered itself to be a coordinator of national data related to the SDGs, recognising that the process belonged to everyone and that all stakeholders and data providers needed to collaborate. Ms Makuya acted as Secretariat for the SDG report-writing process in Stats SA.

The eight MDGs were related to the 17 SDGs. Both focused on themes of dignity, people, planet and partnership; in addition, the SDGs focused on justice and prosperity. Compared to the MDGs, the number of goals had more than doubled, targets had increased from 20 to 169, and indicators from 60 to 232. The SDGs had presented Stats SA with a significant reporting challenge. This called for a data revolution, and big data presented an exciting opportunity for the future.

In terms of development planning, the NDP was central. An integrated indicator framework was being developed that would align the indicators of various agendas and to the NDP. Integrating these indicators would enable Stats SA to reduce the burden of reporting and make it a central hub from which data related to all the indicators could be accessed.

Stats SA aimed to link indicators at global, regional, national and local levels. Thus far, the SDGs, Agenda 2063 and the MTSF had been linked. There were plans to expand this to include district and provincial growth and development plans and integrated development plans.

The process of developing South Africa's SDG Country Report started with a consultative workshop in June 2018, followed by a methodology workshop in December 2018. Two validation workshops had been held, one focusing on the 17 goal reports in February 2019 and the other on the country report in May 2019. The National Coordinating Committee (NCC) would be meeting in August 2019 to ratify the report.

The Sectoral Working Groups (SWGs) dealt with data issues and the domestication of global indicators. Additional indicators could be developed to cover aspects of targets not covered by the global indicators. The report drafting team consisted of the authors of the report; the expanded report drafting team included both the authors and the SWG. Once the goal report authors were appointed, the expanded report drafting team worked with the SWGs and other stakeholders to ensure that the report was relevant to the needs of the country. In situations where a number of data sets existed and the SWG was unable to determine which should be used, the Statistician-General could appoint a technical working group to identify which data to use and why.

The SDG reporting structures included the NCC and SWGs, which were divided into four themes, namely Social; Economic; Environmental (including SDG 6); and Peace, Safety and Governance. Sub-structures of the SWGs could be created if the workload required it.

The SWGs were a key component in resolving issues relating to data. They provided a pathway for various role players including the government, private sector, academia and civil society to significantly address data gaps. The SWGs discussed the indicators in detail and decided which ones the country would report on. They also ensured that, in the process of domesticating the indicators, data sources existed so that progress with these indicators could be tracked. They provided data for the indicators, and interrogated and validated the indicator values.

Data were available mainly at a national level and sometimes at provincial level, but the biggest challenge was at district and local levels. In some cases, the only available data were from the census. Other issues included sample sizes being too small for the data to be reliable, and data sets that could not be disaggregated as required by some of the SDGs. In some cases, data were unavailable and resources to collect the data were lacking.

To deal with cases in which multiple sources of data existed, the Statistician-General established the South African Statistical Quality Assessment Framework (SASQAF) to ensure that data were assessed for quality. This was done at product level rather than institution level. Data sets were assessed separately, including methods and standards, to ensure the quality of the information. The assessment criteria included accuracy, integrity, relevance, methodological soundness, accessibility, prerequisites, comparability and coherence, interpretability and timeliness.

There were 232 SDG indicators altogether. As of May 2019, 192 of these were categorised as Tier 1 indicators, which meant that they had agreed standards and methods of calculation and data were regularly produced. Tier 2 indicators had agreed standards and methods, but data were not regularly produced. Tier 3 indicators had no established standards or methods and could therefore be measured.

The SDG country report that would be released in September 2019 covered only 119 (62%) of the 192 Tier 1 indicators. All 11 indicators of SDG 6 would be reported on: eight of them could be reported on as they were, while three needed to be domesticated (6.3.1, 6.3.2, and 6.6.1), and no additional indicators were required.

Discussion

Dr Chris Dickens, IWMI, recognised that Stats SA would be managing the collection of data and reporting on the SDGs. He asked if Stats SA would get involved in numerical target-setting for indicators.

> **Ms Aluwani Makuya, Stats SA,** replied that in line with the Statistics Act (No. 6 of 1999), Stats SA was responsible for measuring, but left other roles to the implementers. Stats SA was trying to get the DPME to assist, as some of the indicators might already have targets in the MTSF that could be applied to the SDGs. Stats SA was currently measuring progress according to global targets, which were not necessarily relevant to South Africa.
>
> The Secretariat for the SDGs needed to approach government departments to request that they set targets for particular indicators. Stats SA had received a proposal from a UN agency requesting a monitoring framework for all the indicators, which would require target-setting. The Secretariat would follow this up.

Ms Mariette Liefferink, Federation for a Sustainable Environment, raised a concern of civil society, which had been highlighted by Prof Crewe, about collaboration between academia and policymakers. Academic research had been conducted in the Wonderfonteinspruit, for example, but none of the recommendations had been implemented. In order for science to serve society, it had to be implemented by policymakers.

Ms Liefferink encouraged academia to make use of local communities when conducting multidisciplinary and transdisciplinary research, since local and traditional knowledge were given the same weighting as scientific knowledge in South Africa's over-arching environmental legislation, the National Environmental Management Act (No. 107 of 1998).

Ms Nwabisa Fundzo, Chair, noted these concerns voiced by a representative of civil society.

Mr Mike Ward, AWARD, stated that the DPME had a strategy for citizen- and community-based M&E. Concerns had been raised about the difficulty of collecting data at local level, yet there were citizen-based water quality monitoring projects all over the country that were feeding data into web-based profiles. Communities were asking why they were doing this work as nobody was listening to them. They were becoming increasingly angry that they were collecting data but had no opportunity to collaborate. Calls for collaboration had to be translated into actual collaboration. The work being done by citizens should be taken seriously.

There had been a comment that SDG 6.B did not need further work in terms of domestication. On Day 1 of this workshop, however, concern had been expressed that the indicator for SDG 6.B only monitored whether or not policy was in place, but not how it was being implemented. More work was needed on this indicator.

Ms Refiloe Moloi-Owoyomi, DWS, requested that all presentations be made available to delegates. She also asked how practitioners could access information from academic institutions.

Dr Tracey Elliott, IAP, observed that academies do not necessarily hold all the knowledge required to meet the SDGs, but they were conduits into academia and can source the appropriate expertise and/or information. ASSAf is a strong academy and can assist this process. Further, academia can tend to present their information in an inaccessible format, but academies can help synthesise this information into more intelligible forms.

There were large gaps between knowledge providers and knowledge users. More platforms were needed to bring people with different knowledge traditions and perspectives together. ASSAf had grasped the opportunity to convene this group, and it was hoped that other academies would do the same.

Mr Elijah Mogakabe, DWS, noted that the DWS was required to report on target 6.6, which focused on earth observation. For this purpose, the DWS used information produced by a chief directorate within the Department of Rural Development and Land Reform (DRDLR) that was responsible for producing earth observation data. In the National Biodiversity Assessment Report produced by SANBI, 69% of the spatial data on wetlands had come from that directorate; however, the confidence level had been low and the integrity of the data questionable. Mr Mogakabe asked Stats SA about the extent of their engagement with that directorate and how they could help to improve the quality of data.

A decision had been taken that, because of the data gaps, member states should obtain data generated through the UN. However, the international and South African definitions of what constituted a wetland differed. Some of the water bodies classified as wetlands in South Africa would not be recognised as such by the UN. When the Chief Directorate of National Geospatial Information (within the DRDLR) maps wetlands, the definition of 'wetland' in the National Water Act (No. 36 of 1998) should be used rather than the international definition.

> **Ms Aluwani Makuya, Stats SA,** could not respond to the comment about questionable data, but undertook to contact a member of the environmental SWG to enquire about the involvement of the DRDLR. With regard to the different definitions of a wetland, she commented that this indicator should have been domesticated.

Ms Nonhlanhla Kalebaila, WRC, asked what Stats SA understood to be entailed by 'safely managed' in the indicators for drinking water and sanitation services.

> **Mr Dennis Behrmann, DWS,** replied that two indicator measures applied. Firstly, the stability of supply, and secondly the quality of the water in that it must be free from faecal contamination. The lower of the two indicator values was taken to describe the level of management; for example, if water quality in an area was measured at 90% but the stability of water supply was at 75%, the 'safely managed' level would be 75%.

Mr Kagiso Rammusi, DWS,enquired about the process and timelines for country reporting.

Ms Aluwani Makuya, Stats SA, reiterated the process that had been described in her presentation, which included an initial consultative meeting, discussions about indicators in the SWG, the appointment of authors, conducting additional research, and the writing up of the report. The process was lengthy as it needed to represent the country as a whole and not just the government. CSOs were represented in the SWGs, with each province identifying two representatives.

The current reporting process was nearing its end. The report had been completed and had to be ratified by the NCC. It would then be taken to Parliament and Cabinet, and finally submitted to the UN General Assembly in September 2019.

Ms Aimee Ginsburg, Benefits SE, asked when the integrated indicator framework would be available.

Ms Aluwani Makuya, Stats SA, replied that it was work in progress, and that consultation with data providers was needed. When the indicator framework was completed, it would be shared with ASSAf so that it could be distributed.

Breakaway Sessions: National Targets and Indicators for SDG 6

Feedback from Breakaway Groups

SDG Target 6.1 and 6.2 (Water services) – Ms Tabita Napakade, DWS

Target 6.1: *By 2030, achieve universal and equitable access to safe and affordable drinking water for all.*

Target 6.2: *By 2030, achieve access to adequate and equitable sanitation and hygiene for all, and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.*

The theme of the discussion had been to define what 'safely managed' water and sanitation meant, and how to collect the relevant data.

The following recommendations were made:

- The DWS, as sector leader, must develop a policy on the methodology for data collection to ensure that the methods were standardised.
- The definition of 'safely managed' drinking water and sanitation needed to be localised so that all parties agreed on what was meant.
- The Water Services Authorities should collect data and report to the DWS on safely managed water and sanitation.
- The DWS should collaborate and share data with other departments that were responsible for sanitation, such as the departments of Basic Education and Health, as well as public and private institutions.

- Efforts were needed to eradicate open defaecation; for example, municipalities should provide shelters for homeless people.
- Drinking water quality monitoring in rural areas should adapt the UN Children's Fund (UNICEF) approach of using test kits that allowed the rapid detection of faecal contamination of water and decide on a few indicators related to possible risks.
- Water quality standards for drinking water in rural areas should be regulated.
- Enforcement was needed to support the provision of safe sanitation and drinking water in rural areas.
- Collaboration with other stakeholders was needed, including research institutions and departments in other sectors.
- The National Sanitation Task Team should be revived in order to improve access to data.
- The DWS needed to participate in the National Sanitation Task Team.
- The WRC had developed a proposal on Brown Drop regulation, which the DWS needed to build on by strengthening the flow of data and deciding which indicators could be built on and strengthened.

SDG Target 6.3 (Wastewater and water quality) – Ms Anet Muir, DWS

Target 6.3: *By 2030, improve water quality by reducing pollution, eliminating dumping and minimising release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.*

There were two indicators associated with this target:

- 6.3.1 Proportion of wastewater safely treated;
- 6.3.2 Proportion of bodies of water with good ambient water quality.

There had been discussion about why it had been necessary to domesticate two indicators, and to propose additional indicators related to effluent and waste, as follows:

Water containing waste:

- Indicator 6.3.1 (Domesticated): Proportion of water containing waste safely treated and lawfully discharged.
- Indicator 6.3.3 (Additional): Proportion of water containing waste recycled or reused.

Waste:

- Indicator 6.3.4 (Additional): Proportion of waste lawfully disposed of.
- Indicator 6.3.5 (Additional): Proportion of waste recycled or reused.

Water quality of receiving water resources:

Indicator 6.3.2 (Domesticated): Proportion of water that complies with water quality objectives.

There were three sub-indicators for 6.3.1D:

- Proportion of water containing waste safely treated and lawfully discharged by economic activities via sewer systems to municipal WWTWs.
- Proportion of water containing waste safely treated and lawfully discharged by municipal WWTWs to water resources.
- Proportion of water containing waste safely treated and lawfully discharged by economic activities to water resources.

There had been presentations on the proposed methodology for the calculation of indicators 6.3.1 and 6.3.2, and on the Integrated Regulatory Information System (IRIS). IRIS provided a reliable information system that could capture data from a very large number of users and enable the DWS to report on SDG targets. IRIS catered for both potable water and effluent discharge and treatment water. This information was available online:

- For potable water, www.mywatersa.co.za provided information on the status of drinking water, including the registration of water treatment works (WTW) and process controllers; and compliance with the South African National Standard (SANS 241) for supply systems.
- For effluent discharge and treatment, www.myriversa.co.za provided information on the registration of WWTWs and process controllers, collection systems and discharge values and volumes, design and operational capacities, and monitored effluent quality at collection system, inflow, upstream and downstream.

The Green Drop system had monitored all the municipalities in terms of how they complied with standards. IRIS would make it possible to expand on this and upload other economic activities, such as industries, mines and private WTWs, on to the system to monitor compliance.

The aims of the discussion session were to:

- Invite inputs to the methodology, including the scope, how to collect and interpret the data, and agreement on definitions
- Determine whether there was agreement with respect to the additional indicators
- Discuss how participants managed their compliance or data requirements. (This final point was not discussed.)

The methodology was supported. Certain clarification was required, such as the definition of 'water containing waste' – for example, was this solid, suspended or dissolved materials? Although the focus seemed to be on municipal waste, this covered all discharges by water users, including mining, industry, agriculture and local authorities.

There was discussion of the Orange-Senqu River. A catchment management approach was necessary as the river originated in Lesotho where textile industries were located. If pollution in the upper reaches was not addressed before the river reached South Africa, there would be challenges of water pollution. There had been a recommendation that water authorities such as Rand Water be funded to intervene in upstream areas.

Dr Jennifer Molwantwa, IUCMA, commented that the key to achieving SDG 6.3 was lawfulness – the ability to monitor compliance against conditions – and not just the safety of discharge. A gap in the practice of IWRM is the need to ensure that water users are licensed. In the IUCMA catchment area, for example, only one of the nine municipal systems in the catchment has authorisation, namely Mbombela. Instruments are needed to measure and intervene in cases of non-compliance.

Other recommendations included that:

- There was a need to involve enforcement agencies to give effect to the SAHRC.
- Some data gaps arose because data belonged to other users and the DWS was not able to incorporate such data into its database management systems.
- It was necessary to look at the frequency of reporting or methods using real-time systems that would enable interventions.
- The administration of WWTWs should be removed from local government.
- The DWS would need to develop regulations that required users to provide and upload data on economic activities to IRIS. This would overcome a problem of the current system, namely that with most DWS authorisations the user was required to keep records for ten years and submit the data when requested by the DWS. The DWS had not had time to approach every user to request information, resulting in data gaps.
- Progress was needed with the establishment of CMAs. There were concerns that, despite the National Water Act having been in place for many years, only two CMAs had been established.
- Enforcement was necessary if this SDG was to be achieved.
- A more effective mechanism was needed to remediate pollution incidents. Section 19 of the National Water Act provided for the DWS to remediate pollution and recover the cost if the polluter was unable to do so. Within government departments, it was difficult to budget for emergencies, but it was essential to have a budget for emergency remediation.
- The National Prosecuting Authority must be capacitated, and there was a need for an environmental court.
- Data had been highlighted as a risk, and a strategy was needed to address this.
- Interventions were needed to establish credible and reliable baselines and then to achieve the set targets. The necessary knowledge and best practice needed to be put in place. There were great plans, tools and instruments but implementation was lacking, as in the case of the Green Drop system that had collapsed. The Deputy Minister of Water and Sanitation had announced that the Green Drop would be relaunched.
- Some of the funds raised through the Waste Discharge Charge System should be ring-fenced for catchment management.

Regarding the additional indicators related to waste, it was recommended that society move from a linear economy to a circular economy that focused on reuse and recycling. It was also important for the definitions to be clear, including 'waste' (i.e. whether this referred to municipal, industrial or mining waste); 'water containing waste' or 'effluent'; and 'safely treated'.

SDG Target 6.4 (Water stress and water use efficiency) – Mr Thabo Masike, DWS

Target 6.4: *By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity*.

This was a substantial and complicated target in a water-scarce country that was committed to ensuring universal access to water.

The session was attended by participants from the University of KwaZulu-Natal, Durban University of Technology, IWMI, the South African Sugar Association and Stats SA.

Key issues raised in the discussion included:

- The DWS had shared with the group the progress made with preliminary reporting. The academics had questioned the methodology in terms of the time factor, as it was important to know when water was being used.
- The issue of automation had been raised in relation to digitisation and the use of artificial intelligence.
- While there was a need to share data across all water use sectors, it had to be remembered that some sectors (e.g. the corporate sector) were reluctant to share business information.
- Data used for reporting purposes needed to be credible, so the authorisation of metering and measurement was important.

The following recommendations were made:

- The SDGs cut across all sectors and institutions, so it was necessary to piggyback on SDG activities undertaken by sector partners.
- It was important to involve universities, which had a mandate for community engagement in addition to their responsibilities for research and education. An example was discussed in which civil engineering students could help to tackle the problem of water losses in municipalities.
- Departments should collaborate with organisations that could help them to achieve the SDGs; for example, IWMI managed projects in rural areas and could help the DWS to reduce the number of people lacking access to water due to water scarcity.
- There was a problem with the way in which the DWS had structured its methods for computing

the indicators. Instead of dealing with an overall average, it would be better to disaggregate data per sub-sector or agricultural commodity so as to clarify the true economic contribution of a sub-sector or commodity.

- The DWS had been working with the agricultural processing sector for some time and had held two workshops on water resource efficiency. Access to data had been an issue, so there was a commitment in principle to explore opportunities to assist the DWS to access commodity data.
- Within the SDG programme the DWS needed to promote collaboration within and between the SDGs, because the parties involved in other SDGs might have vital information that could contribute to SDG 6.4.
- Measurement to achieve monitoring results, and ultimately the SDGs, needed to be improved.
- Limitations in terms of capital expenditure, skilled personnel, technology and data and information management systems needed to be stated in documentation.

SDG Target 6.5, 6.A and 6.B (Water resource planning and community participation) – Mr Patrick Mlilo, DWS

The objectives of the session included:

- Strengthening data acquisition and handling
- Ensuring that data collection instruments and reporting mechanisms were sufficiently objective to allow for progress to be measured and compared
- Creating awareness of methodologies
- Measuring effective community participation
- Further domestication of indicators.

A wide range of organisations and government entities were represented at the session, namely the DWS, DST, WRC, Council for Geoscience, ORASECOM, CPUT, University of Johannesburg, University of KwaZulu-Natal, AgriSA, AWARD, Royal Danish Embassy, and *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ).

Additional stakeholders were identified during the session.

The key issues included the need to:

- Collect data from stakeholders at all levels (the present workshop had enabled a wide range of stakeholders to meet and share information)
- Define community participation
- Involve the youth and other groups
- Improve collaboration
- Map stakeholder institutions
- Expand financial and data sources

- Enable regional standardisation to enhance cross-border collaborations
- Domesticate or remove some indicators that were not applicable to the South African situation. It was important, however, to remember that the SDGs needed to be assessed and compared globally, so there were limits to domestication.

Specific issues related to the three targets are summarised below.

Target 6.5: *By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.*

Indicator 6.5.1: *The degree of IWRM implementation included four elements that were measured for reporting purposes, namely the enabling environment; institutions and participation; management instruments; and financing. The key issue was to ensure that legislation was being implemented.*

Indicator 6.5.2: *The proportion of transboundary basin area with an operational arrangement for water cooperation required that reporting focused on groundwater interactions, as well as on surface water.*

Issues relating to Target 6.5 as a whole included:

- The need to keep the two indicators disaggregated rather than consolidating them, so as to avoid diminishing achievements
- The importance of sustainability
- The need to consider the level of implementation and compatibility with other countries
- The need for a regional framework for cooperation
- A concern regarding the financing of activities relating to SDG 6.5, in particular that if projects were driven by external funders, the country might score less than if it had financed the project itself.

Target 6.A: *By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies.*

The key issues raised included:

- A large number of programmes related to international cooperation were taking place, even though more stakeholders were needed.
- There was a question as to whether development assistance was being reflected beyond National Treasury and including other organisations that were benefiting from official development assistance. This would provide a better understanding of the scope of international cooperation and partnerships.

- It was important to identify sources of funding and find out how institutions obtained external funding for projects. A reliable database of externally funded projects was needed.
- It would be interesting to know how many proactive projects had been actively communicated or new partnerships forged.
- It was important to know which development finance institutions funds had been secured from; for example, the World Bank, African Development Bank or the Development Bank of Southern Africa.

Target 6.B: *Support and strengthen the participation of local communities in improving water and sanitation management.*

The key issues raised included:

- A key question raised in relation to community participation was how involved people had been in the development of SDG 6.B.
- The indicator had been reduced to policies and procedures at a high level and this needed to be corrected, hence the call for domestication.
- Service delivery protests could represent a measure of negative community participation.
- Enforcement processes needed to be considered.
- Disaggregation between rural and urban contexts was important as different approaches were necessary in these environments.
- There was a need for collaboration between academic institutions.
- The distinction was made between access to water *services* and water *resources*.

The recommendations included the need to:

- Collaborate
- Integrate data
- Identify and secure funding
- Standardise data capturing
- Break 'silos'
- Leverage all available resources
- Organise more consultations and platforms, especially regarding the domestication of indicators
- Infuse and enrich the country report with information from the platforms
- Domesticate some of the indicators
- Define community participation.

It was important to reflect on what had been achieved in terms of the indicators, and to set a baseline to which to refer as implementation progressed. Baseline scores had been as follows:

6.5.1 – 70%; 6.5.2 – 100% (a correct reflection); and 6.B – 100%. In the next reporting cycle, after the domestication process had been completed, the scores for 6.A and 6.B might be lower.

SDG Target 6.6 (Water-related Ecosystems) – Dr Chris Dickens, IWMI

Target 6.6: *By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.*

The SDGs were considerably broader than the MDGs and had introduced a number of new targets and indicators related to the natural environment. SDG target 6.6 aimed to ensure that water-related ecosystems (vegetated wetlands, lakes, estuaries, aquifers, rivers, artificial systems, mountains and forests) were protected and restored by 2020 and beyond. To determine progress in achieving this, countries were required to track changes in spatial extent, water quality and water quantity.

The session aimed to:

- Understand who was reporting on what with regard to water-related ecosystems and what the potential synergies and gaps were
- Identify additional indicators that should be reported on under SDG target 6.6
- Discuss and obtain recommendations on how to set numerical country-level targets for SDG target 6.6.

The session was attended by representatives from the DWS, DEA and SANBI.

The session included a workshop activity in which participants chose a colour card related to the indicator type: spatial extent (red); water quantity (blue); water quality (orange); condition (yellow); other, e.g. habitat (green); and gaps (purple).

Participants answered the following questions (example provided):

- Name of organisation: DEA
- Name of reporting framework: Aichi Biodiversity Targets, SDGs, Outcome 10
- Name of indicator: Extent of wetlands rehabilitated in hectares
- Description of indicator: Uses data from the Working for Wetlands programme; collected and quality-checked annually
- Frequency of reporting: Annually
- Have numerical targets been set? If so, what are they? 90,000 ha must be restored by 2030.

The following key questions were raised:

- How does SDG target 6.6 align with other SDG targets and their indicators?
- How do the SDGs link to other existing reporting programmes? Are there overlaps or gaps?
- Should South Africa report on any additional indicators? What should these indicators be, are there overlaps with existing programmes or gaps, and who should be reporting on them?
- The target for SDG target 6.6 is vague. Could targets be adopted from existing programmes? How should we go about developing numerical targets for SDG target 6.6?

Some of the existing programmes that report on water-related ecosystems include:

- SDGs 6, 14 and 15
- DWS: National Wetland Monitoring Programme
- DEA: Ramsar Convention, Aichi Biodiversity Targets
- DPME: Outcome 10 environment
- SANBI: National Biodiversity Assessment
- Stats SA and SANBI: Natural Capital Accounts.

The following key recommendations were made:

- While this workshop had been a good start, further collaboration and consultation were needed to identify all available programmes and data, prioritise and select those most appropriate for SDG reporting, set numerical targets, and agree on monitoring and reporting accountability.

- In setting targets, it was important to remember that they needed to fit within the context of resource management and sustainability according to the SDGs. This required stakeholder consultation.

Discussion

Ms Mariette Liefferink, Federation for a Sustainable Environment, addressed several questions to the SDG task team leaders:

- **SDG target 6.2:** There was a disconnect between the Department of Human Settlements (DHS) and the DWS, as significant development of formal and informal housing was taking place without the provision of adequate sanitation. This put tremendous stress on river systems.

  Mr Dennis Behrmann, DWS, replied that since the DWS and DHS had become part of the same Ministry, there had been a decision to include housing developments in the calculations and modelling had already been done. The DWS would be able to share what had been done after being discussed with colleagues in the DHS.

- **SDG target 6.3:** More clarity was required on the plans to conduct the Green Drop and Blue Drop assessments. At the National Assembly on 20 June 2019, the Minister had reported that the last Blue Drop assessment had been conducted in 2014, and the last Green Drop assessment in 2013. There was no intention to conduct these assessments in the current financial year due to capacity and financial constraints.

  Mr Solomon Makate, DWS, confirmed that there were no plans to conduct the assessments in the current financial year but stated that the DWS was assessing the human capital and financial capacity constraints.

- **SDG target 6.4:** There were concerns that water allocations were inequitable, with withdrawals from rivers by mining operations leaving communities downstream with insufficient water.

  Mr Dennis Behrmann, DWS, acknowledged that this was a difficult question. He did not know if the DWS had concluded the measurement methodology. He also did not know if the issue was related to water use licensing, or if downstream users were being taken into account. He appreciated that it would be a particular problem in areas affected by drought. While neither he nor his colleagues could provide answers, they had to apply their minds to this issue.

- **SDG target 6.6:** Communities depend on ecosystem goods and services for their livelihoods. Does the DWS consider risks to ecosystem services in the indicators?

  Ms Refiloe Moloi-Owoyomi, DWS, replied that the focus of SDG 6 was on improving the way in which water resources were managed, and it was important for communities to benefit from the goods and services that the ecosystem provided. The DWS did consider this and wanted to ensure that it was possible to measure the relevant parameters that would enable the sustainable provision of water-related goods and services.

Ms Nonhlanhla Kalebaila, WRC, stated in relation to the definition of 'water containing waste' (SDG target 6.3) that a WRC project had established a scientific method for estimating pollution load. She offered to arrange to meet with the DWS to discuss this further.

Mr Siboniso Ndlovu, DWS, noted that the policy unit had a cross-cutting function within the DWS. He invited Mr Mbentse to involve the unit in SDG-related processes. The SDG process needed to be aligned with South Africa's policy and legislative prescripts. With regard to 'safely managed' sanitation services, for example, policy and legislation refer to a 'basic level' of services. The SDG indicators should be aligned with definitions used in South African policy and legislation so that SDG reporting was consistent with government reporting systems.

Ms Nonhlanhla Kalebaila, WRC, asked, in relation to community participation (SDG target 6.B), if discussions about water resource planning focused on fresh water only, or included alternative sources such as desalinated and reused water. It would be problematic to define 'community participation' in water resource planning in the same way as in environmental impact assessment (EIA) processes.

Mr Bheki Mbentse, DWS, commented that, in the process of domesticating the indicators for SDG target 6.B, the DWS had been asked to be more explicit in terms of community participation and implementation at programme level. The discussion group had decided that research institutions should assist the DWS to clarify what was meant by public consultation and participation.

Mr Patrick Mlilo, DWS, stated that in all areas of water resource planning, stakeholders were consulted and invited to form a steering committee to direct the planning study. After the development of the strategy for a particular project, the committee evolved into a steering committee to guide the process of implementation.

Given that every scientific method had limitations, there was a question on whether the groups focusing on different targets were aware of limitations to the methods they were using to meet the targets, and how such limitations would be overcome.

Ms Jackie Jay, DWS, responded that this was an excellent question. She replied that the DWS was indeed aware of some of the limitations. While it was possible to foresee some limitations, the extent of any limitations could only be assessed after the methodologies had been tested; for example, it was not yet possible to establish trends for wetlands. Datasets existed for 2011 and

2018, but it was not possible to determine what proportion of wetlands had been lost or gained because different methodologies had been used. A limitation was the need to consider what would be most beneficial for South Africa. It was necessary to tailor the methodology to deal with the limitations. A possible approach might be to start by selecting ten priority wetlands to report on, and progressively improve the methodologies through experience.

Mr Molefi Mazibuko, DWS, stated that very little monitoring was being done in relation to SDG target 6.3. There were challenges with the collection of and reporting on data, and laboratories were not operational. It was hoped that funds would become available to allow monitoring to continue. The DWS regional offices had to ensure that they did the necessary monitoring and reported on findings.

Mr Dennis Behrmann, DWS, replied that at the AMCOW conference in 2015, the issue of handwashing had been raised. The DWS had submitted a question to Stats SA regarding hand-washing facilities in toilets. The first data were obtained in 2017. In order to obtain sufficient data to ensure that handwashing facilities were provided in toilets that were being built, Stats SA had been requested to include a question on this issue in Census 2021. At present it was not possible to analyse or establish any trends, as there was only one dataset.

Ms Refiloe Moloi-Owoyomi, DWS, asked ASSAf to indicate what had been learnt from the workshop process, and how they planned to take the process forward. ASSAf had indicated that they could assist with the compilation of concept norms, and with organising further engagements, as the sessions required follow-up meetings. She asked if ASSAf was willing to host and fund further SDG workshops.

Ms Nwabisa Fundzo, DWS, thanked delegates for their participation and encouraged everyone to continue collaborating.

Closing Remarks – Ms Nadia Algera, ASSAf

In response to Ms Moloi-Owoyomi's question about lessons learnt, ASSAf had realised that the DWS had been doing far more than anticipated. There was a great deal of coordination and activity that needed to be highlighted so that it could attract more collaboration.

In line with the Agenda 2030 pledge that 'no one will be left behind', it was encouraging that people were eager to be involved in achieving the SDGs. It was necessary to translate this great concept into action, and to raise awareness among other sectors, which would attract more collaboration and assistance. This would be a team effort.

There were many stakeholders playing a variety of roles. The workshop had been a valuable opportunity for ASSAf to work out what its role could be. ASSAf realised that it could act as the 'gel' by helping to bring many actors together, but it was up to the water sector leaders to drive the process. ASSAf would assist but, as Programme Officer, Ms Algera could not commit to any particular actions. She emphasised that ASSAf was also a government entity with limited funding and could therefore not fund future engagements. What ASSAf could offer the SDG community was access to a well-connected network of academies that were interested in the SDGs and operated at local, national, regional and international levels.

ASSAf could act as a neutral broker to bring stakeholders together and could help to determine a way forward. They could reflect on the process of the SDG 6 workshop and convene a workshop focusing on another SDG, in which SDG 6 representatives could also be involved, as water issues were relevant to all SDGs. Ms Algera was proud of the partnership forged between ASSAf and the DWS, which she greatly appreciated. She congratulated the DWS on their efforts and thanked representatives of the department for their role in the workshop.

Ms Algera thanked the IAP for the initial idea for the workshop and for providing funding for the workshop and for Dr Daniel Murgor's research visit. In particular, she thanked Dr Tracey Elliott for her support. She thanked the delegates, both local and international, noting that some had travelled great distances to attend. It had been heartening to experience their enthusiastic responses and participation. She also acknowledged the presenters, speakers and panellists, and the task team leaders, scribes and rapporteurs involved in the breakaway groups for their hard work. Finally, Ms Algera thanked staff of ASSAf and DWS who had been involved in planning and organising the workshop.

APPENDIX 1: LIST OF ACRONYMS

AAS	African Academy of Sciences
AFASA	African Farmers' Association of South Africa
AfDB	African Development Bank
AGBIZ	*Agricultural Business Chamber*
AgriSA	A federation of South African agricultural organisations
AMCOW	African Ministers' Council on Water
ARC	Agricultural Research Council
ASSAf	Academy of Science of South Africa
AU	African Union
AWARD	Association for Water and Rural Development
CMA	Catchment Management Agency
CPUT	Cape Peninsula University of Technology
CRIDF	Climate Resilient Infrastructure Development Facility
CSIR	Council for Scientific and Industrial Research
CSO	Civil Society Organisation
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DEFF	Department of Environment, Forestry and Fisheries
DHS	Department of Human Settlements
DPME	Department of Planning, Monitoring and Evaluation
DRDLR	Department of Rural Development and Land Reform
DST	Department of Science and Technology
DWS	Department of Water Affairs and Sanitation
EU	European Union
EWSETA	Energy and Water Sector Education and Training Authority
FAO	Food and Agriculture Organisation
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GWP	Global Water Partnership
GYA	Global Young Academy
HLPF	UN High-level Political Forum on Sustainable Development
IAP	Inter-Academy Partnership
IFC	International Finance Corporation
IRIS	Integrated Regulatory Information System
ISC-ROA	International Science Council Regional Office for Africa
IUCMA	Inkomati-Usuthu Catchment Management Agency
IWMI	International Water Management Institute
IWRM	Integrated Water Resources Management

M&E	Monitoring and evaluation
MAPS	Mainstreaming, Acceleration and Policy Support
MDG	Millennium Development Goal
MTSF	Medium-term Strategic Framework
NASAC	Network of African Science Academies
NBI	National Business Initiative
NCC	National Coordinating Committee
NDP	National Development Plan
NGO	Non-governmental organisation
NWP (NL)	Netherlands Water Partnership
NWSMP	National Water and Sanitation Master Plan
NWSRS	National Water Services Regulation Strategy
OECD	Organisation for Economic Cooperation and Development
ORASECOM	Orange-Senqu River Commission
RESILIM	Resilience in the Limpopo Basin
SAB	South African Breweries
SADC	Southern African Development Community
SADC-RISDP	SADC Regional Indicative Strategic Development Plan
SAHRC	South African Human Rights Commission
SANBI	South African National Biodiversity Institute
SAWS	South African Weather Service
SDG	Sustainable Development Goal
SDGWG	SDG Working Group
SEM	Science, engineering and medicine
Stats SA	Statistics South Africa
STI	Science, technology and innovation
STISA	Science, Technology and Innovation Strategy for Africa
SWG	Sectoral Working Groups
TCTA	Trans-Caledon Tunnel Authority
TWAS	The World Academy of Sciences
UKZN	University of KwaZulu-Natal
UN	United Nations
UNDP	United Nations Development Programme
UNECA	UN Economic Commission for Africa
UNECE	UN Economic Commission for Europe
UNEP	UN Environment Programme
UNESCO	UN Educational, Scientific and Cultural organisation
UN-Habitat	UN Human Settlements Programme
UNICEF	UN Children's Fund
UNSD	UN Statistics Division
VNR	Voluntary National Review

WHO	World Health Organisation
WMI	Water Management Institution
WRC	Water Research Commission
WSSLG	Water and Sanitation Sector Leadership Group
WTW	Water Treatment Works
WWF	Worldwide Fund for Nature
WWTW	Wastewater Treatment Works

APPENDIX 2: LIST OF DELEGATES

NameA	Surname	Title	Affiliation
Lusanda	Agbasi		DWS
Nadia	Algera	Ms	ASSAf
Hanief	Ally	Mr	Co-Exist Science
Lisette	Andreae	Dr	Embassy of the Federal Republic of Germany
Oluropo Benjamin	Ayeni	Mr	University of KwaZulu-Natal
Eni	Ayeni		University of KwaZulu-Natal
Mark	Bannister	Mr	DWS
Lusanda	Batala	Mr	DPME/NPC
Tim	Bauer		Embassy of the Federal Republic of Germany
Dennis	Behrmann	Mr	DWS
Theo	Boshoff	Mr	Agbiz
Hendrik	Brink	Dr	University of Pretoria
Walter	Brown	Mr	South African Knowledge Access Network
Siyavuya	Bulani	Dr	ASSAf
Rajaa	Cherkaoui El Moursli	Prof	University Mohammed V, Morocco
Robin	Crewe	Prof	University of Pretoria
Matlhatsi	Dibakwane		Pretoria News
Chris	Dickens	Dr	International Water Management Institute
Luvo	Dumse		DHSWS
Tracey	Elliott	Dr	IAP
Anita	Etale	Dr	University of the Witwatersrand
Joanna	Fatch		SANWATCE
Nwabisa	Fundzo	Ms	DWS
Lindiwe	Gama	Ms	DST
Nomasomi	Gasa	Ms	International Science Council Regional Office for Africa
Aimee	Ginsburg	Ms	Benefits SE
Rahab	Gitahi	Mr	Network of African Science Academies
Tertia	Grove		DWS
Vuyani	Gxagxama	Mr	South African Institution of Civil Engineering
Jabu	Hadebe	Mr	Royal Danish Embassy
Xolani	Hadebe	Mr	DWS
Jason	Hallowes	Mr	EkoSource
Bantu	Hanise		CGS
Mohamed	Hassan	Prof	Sudanese National Academy of Sciences
Duncan	Hay	Mr	Institute of Natural Resources
Yusuf	Isa	Dr	Durban University of Technology

NameA	Surname	Title	Affiliation
Jackie	Jay	Ms	DWS
Nonhlanhla	Kalebaila		WRC
Ilunga	Kamika	Dr	University of South Africa
Jorgen Erik	Larsen	Mr	Royal Danish Embassy
Mariette	Liefferink	Ms	Federation for a Sustainable Environment
Ntombovuyo	Madlokazi		DEFF
Dee	Maepa		DWS
Sipho	Mahlangu	Mr	DWS
Matome	Maila	Mr	DWS
Dineo	Maila		Prime Africa
Koleka	Makanda	Ms	DWS
solomon	Makate		DWS
Hlengiwe	Malatji	Ms	DWS
Sakhile	Mamba		DWS
Nkosinathi	Manana		DWS
Kennedy	Mandaza		DWS
Magamase	Mange	Ms	United Nations Environmental Programme
Stanley	Maphosa	Mr	ASSAf
Sam	Maphumulo	Miss	South African Sugar Association
Zanele	Maphumulo		
Motlatjo	Maputla	Mr	GIZ
Floyd	Masemola	Mr	ASSAf
Thabo	Masike	Mr	DWS
Eliphus	Mathibedi		DWS
Lebogang	Matlala	Ms	DWS
Yousuf	Maudarbocus	Prof	Mauritius Academy of Science and Technology
Aluwani	Makuya	Ms	Statistics South Africa
Molefi	Mazibuko	Mr	DWS
Bheki	Mbentse	Mr	DWS
Ratemo W.	Michieka	Ms	Kenya National Academy of Sciences
Nonhlanhla	Mkhize	Ms	DST
Patrick	Mlilo	Mr	DWS
Osmond	Mlonyeni	Dr	Future Africa
Samukelisiwe	Mncube	Ms	DEA
Jones	Mnisi	Mr	WISA
Mahadi	Mofokeng	Ms	DWS
Elijah	Mogakabe		DWS
Mpolokeng	Mokhoane		Private
Reitumetse	Molaoa		CSIR
Simon	Moloele		DWS

NameA	Surname	Title	Affiliation
Refiloe	Moloi-Owoyomi	Ms	DWS
Jennifer	Molwantwa	Dr	Inkomati-Usuthu Catchment Management Agency
Thato	Morokong	Ms	ASSAf
Ntuthuko	Mthabela	Mr	DWS
Nana	Mthethwa		DWS
Thobile	Mthiyane		DWS
Thembi	Mthombeni	Ms	DWS
Thabiso	Mudau		ARC Institute for Soil, Climate and Water
Anet	Muir	Ms	DWS
Fulu	Mukhadi		SANBI
Godfrey	Muneri		DEFF
Simbotwe	Mwiya		UNDP/ORASECOM
Sivashni	Naicker	Ms	DWS
Thabita	Napakade	Mr	DWS
Bongani	Ncube	Dr	Cape Peninsula University of Technology
Brown	Ndhlovu	Mr	International Water Management Institute
Siboniso	Ndlovu	Mr	DWS
Rendani	Ndou		DWS
Bultie	Nel	Mr	University of Johannesburg
Piet	Nell	Dr	ARC Institute for Soil, Climate and Water
Phathu	Nemaxwi		CGS
Tshifhiwa	Nenzhekie		NDHS
Khulekani	Ngcobo		DWS
Wandile	Nomquphu		WRC
Stephen	Nyende-Byakika	Dr	University of Johannesburg
Amanda	Nyingwa	Ms	Pegasys
Natasha	Odendaal		Creamer Media
Saheed	Oke	Dr	Central University of Technology
Philbert	Okello	Ms	Network of African Science Academies
Jackie	Olang-Kado	Ms	Network of African Science Academies
Mosto	Onuoha	Mr	Nigerian Academy of Science
Graeme	Ortlieb	Mr	EkoSource
Driss	Ouazar	Prof	Hassan II Academy of Science and Technology
Sean	Patrick	Dr	University of Pretoria
James S.	Phiri	Prof	Zambia National Academy of Sciences
Barney	Pityana	Prof	ASSAf
Carey	Rajah		DWS
Kagiso	Rammusi	Mr	DWS
Fhedzisani	Ramusiya	Mr	DWS
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