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Minister Naledi Pandor: 2016 Inter Academy Partnership conference

28 February 2016

Department of Science and Technology Minister Naledi Pandor's speech at the opening of the 2016 Inter Academy Partnership (IAP) conference, Arabella Hotel, Hermanus

Prof Daya Reddy, President of ASSAf&IAC Co-Chair,
Prof Volker ter Meulen and Prof Mohamed Hassan, IAP Co-Chairs,
Prof Detlev Ganten, IAMP Co-Chair,
Prof Lai Meng Looi, IAMP Co-Chair,
Prof Sir Peter Gluckman, Chief Science Advisor, New Zealand,
Prof Jacqueline McGlade, Chief Science Advisor, United Nations,
Prof Jos van der Meer, President, European Academies Science Advisory Council,
Other members of the Conference Committee,
Presidents or representatives of Academies,
Distinguished guests,
Prof Roseanne Diab and ASSAf staff members.

I'm pleased to welcome you to South Africa and to this conference.

Science advice is acknowledged as an area of science capacity development that has the potential to make a significant contribution to developing research and innovation in Africa. This conference is a welcome start in providing support to our efforts to strengthen our policy and institutional development initiatives.

We have devoted increasing attention to investment in science and innovation and have agreed that it is important for us to draw on international partnerships to succeed. The partnership that has given effect to this conference is due largely to the efforts of Professor Peter Gluckman, Professor Hassan Meulen as well as our team in the Academy of Sciences of South Africa. I thank them all for their hard work.

Many countries in Africa still have to determine presences with respect to advisory bodies or individual offices. I have a strong preference for building institutional capacity for advice and hope the conference will be able to provide suggestions on what works best.

In South Africa our science department relies on two institutions to provide scientific advice and science policy advice - the Academy of Science of South Africa and the National Advisory council on Innovation.

The Academy of Science of South Africa has played a stronger advisory role over the last ten years. Its evidence-based reports have addressed topics as diverse as the role of GMOs in African



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agriculture, the emerging threat of drug-resistant tuberculosis, as well as strategies for the development of low-carbon cities or the prevention of a tobacco epidemic in Africa.

The National Advisory Council on Innovation plays a policy role in coordinating our innovation system. It has standing committees and task teams comprising of experts drawn from universities, science councils, and business.

South Africa's publicly funded research institutes, such as the Council for Scientific and Industrial Research, the Human Sciences Research Council and the Medical Research Council also play a part in producing scientific evidence, which can guide policy-making. The Council for Scientific and Industrial Research's role is not dissimilar to that of the European Commission's Joint Research Centre.

The science councils, for example, shape policies in areas such as urban development, environmental management, education or public health. Other institutions, for example, our universities or non-governmental organisations, also contribute evidence, which informs policy-making.

Much of their work is now guided by the Sustainable Development Goals (SDGs). The SDGs are an unprecedented collective global push to tackle the root causes of poverty. They embrace the need for a global transformation that leaves no one behind and gives every child a fair chance of leading a decent life. And they showcase a commitment to protect future generations by limiting climate change and managing resources sustainably.

I want to outline ways in which science is central to sustainable development in Africa. Sustainable development implies devising responses to our challenges that are durable over time and change the development status of our communities fundamentally. Much of our technology history has been one of brilliant inventors working on their own and selling their inventions to companies. What we need to do now is to ensure that we build robust integrated innovation systems that support government business and civil society in crafting appropriate responses to the various problems that confront us.

Like many other countries South Africa is grappling with a range of complex socio-economic challenges that are a result of the problems posed by poverty, inequality and unemployment. We look to science to help us address them.

There are three areas of action that we seek to promote.

First, governments must take a leading role in the way innovation systems function.

Effective innovation systems depend on a smooth flow of knowledge and technology between enterprises, universities, and research institutions. The mechanisms that enable this smooth flow of knowledge include joint industry research, public private partnerships, technology diffusion,



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and movement of personnel. A focus on inter-discipline studies, entrepreneurship and strong business partnerships is essential for universities to play a role in constructing knowledge-based economies.

Flagship science programmes, such as our Square Kilometre Array radio telescope, are driving a concerted effort to train the next generation of African researchers. Training these scientists alone is insufficient. Schemes are designed, such as South Africa's research chair programme, to ensure researchers are reassured and encouraged by the availability of sustainable career paths. Improving the employment conditions of scientists must be a priority.

The SKA project is currently government funded but universities and industry are involved as well - Cisco, IBM, the Nelson Mandela Metropolitan University (NMMU), and the Council for Scientific and Industrial Research.

The SKA project has the potential to facilitate scientific breakthroughs that require dramatic technology advances in both high-speed data transmission and in data analytics, which makes skills development a top priority - especially in the areas of optical transport mechanisms, central signal processing and software defined networking.

The SKA project will also play a significant role in SA's transformation by providing network-based technologies that allow organisations to innovate, drive new business models, increase productivity and, ultimately, create new jobs.

We need to create better quality jobs as a key to achieving the objective of strong, sustainable and balanced growth. In this context, we need to position Africa to play a role in emerging global industries, where the entry barriers related to access to capital and others resources don't inhibit participation.

Second, we must invest in the health sciences because it's a direct investment in improving the quality of life.

Developing countries today are at the forefront of global scientific discovery, as highlighted for example by the pioneering work undertaken in South Africa in areas such microbicides to prevent HIV-Aids, as well as drug and vaccine development for malaria and tuberculosis. This is shown by the full participation, including as funding parties and equal partners, by South Africa and other African countries in the European Developing Countries Clinical Trials Partnership.

Much of the public health improvement over the last two centuries has been vaccine related - across the world, in both rich and poor countries, developed and undeveloped, north and south. Reaching children has been the aim of most campaigns to spread the impact of vaccines in poor countries. The barriers to vaccinating children are well known - the high prices of new vaccines, weak public health systems. But there is another barrier - low profit margins for vaccines and



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high profit margins for drugs. This leads to less research into vaccines and more research into drugs.

South Africa is committed to the establishment of the necessary initiatives and infrastructure that will assist in the development of the pharmaceutical value chain. This includes medicinal chemistry, high-throughput screening, preclinical testing facilities and capabilities and the manufacturing of active pharmaceutical ingredients (APIs).

Building on existing networks and creating new synergies, we also look to extend our collaborations in this regard with partners in both developed and developing countries, including research institutions, governments, pharmaceutical and biotech companies and international organisations.

We hope these initiatives will allow us to promote our pharmaceutical industry by contributing towards the development of essential vaccines and medicines for diseases that affect the majority of the people in Africa. The development of a strong and vibrant pharmaceutical industry is of enormous importance in Africa.

The development and provision of high quality medicines has saved lives, improved life expectancy and enhanced the quality of life for so many people. The debilitating effects of conditions such as asthma, diabetes, ulcers, cancer and mental illness have been alleviated by the tremendous advances which have been made in the area of medicines.

Third, we must improve African science collaboration.

African investment in science research is growing. Sub-Saharan Africa contributes about 2.3 per cent of world gross domestic product but is responsible for only 0.4 per cent of global expenditure in research and development (R&D). With 12 per cent of the world's population, it is home to only 1.1 per cent of the world's scientific researchers.

South African universities and public research institutes have been working together on African development issues for many years. There are a number of consortiums pursuing important work around science and maths training, climate change, water and bio-energy. Universities have long concluded bilateral and multilateral agreements.

More recently, we have seen the rise of multiple-partner networks. These are often organised around a jointly administered educational programme. Increased collaboration will not only raise the share of African scientific output, but help create "The Africa We Want" outlined by the AU in its Agenda 2063.

African countries have made a determined effort to increase research, development and innovation. The past fifteen years have seen interventions in higher education, in science councils, in academies and in universities.



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Many countries have begun to budget for science, technology and innovation and most of them have targeted 1% of GDP as their future contribution to research funding. In South Africa we are trying to increase R&D to 1.5% of GDP in the next five years.

There has been a positive shift in research, development and innovation, as the 2015 UNESCO science report reveals. This shows the success of our first Africa science technology and innovation Plan of Action. Recently we adopted our second African Plan. The new plan prioritises research to drive economic and social development across the continent. It commits signatory countries to six goals, including tackling hunger, disease and unemployment, and will set up structures to pursue them.

We know that breakthrough or frontier science takes a long time and that breakthroughs are immensely difficult to predict. It's all about getting the right balance between funding basic or frontier science and focusing on particular fields of science in which we know that we want to build new industries. That is why we have invested so strongly in astronomy.

That is why we have invested so strongly in space science. That is why we are going to invest more in biotechnology and nanotechnology. We can't do this without the best science advice. We can't do this without the SDGs clearly in our sight. And we can only do it with strong science academies to guide us.

In closing, a word about ASSAF. Building international friendship is what ASSAf does so well. It's what ASSAf has been doing over the last twenty years. This conference marks its twentieth anniversary. I would like to take this opportunity to recognise Professor Reddy and Professor Diab for their contribution to ASSAf.

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