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TIA WELCOMES THE 2022 STATE OF THE NATION ADDRESS AND COMMITS TO SUPPORT EFFORTS TO DRIVE ECONOMIC GROWTH

18 Ferbruary 2022

President Cyril Ramaphosa delivered his fifth State of the Nation address on Thursday, 10 February. The Technology Innovation Agency (TIA) an entity of the Department of Science and Innovation (DSI), welcomes the 2022 SONA address. The President highlighted several priorities namely, to defeat COVID-19, accelerate the economic recovery, accelerate economic reform to drive inclusive growth and fight corruption, among others. There is a growing need to support economic growth and improving the quality of life for all South Africans.

The National Development Plan identifies science, technology and innovation as primary drivers of economic growth, job creation and socio-economic reform. Central to this identification is the emphasis of the 2019 White Paper on Science, Technology and Innovation on the themes of inclusivity, transformation and partnerships. Operating within the NSI, TIA partners and collaborates with various stakeholders, including higher education institutions, science councils, industry bodies and entrepreneurs to deliver on critical interventions necessary to support the state on the path of inclusive economic growth and social development.

TIA provides financial and non-financial support for innovations in various sectors of the economy including, the bioeconomy (health, agriculture, industrial biotechnology and indigenous knowledge systems), advanced manufacturing, energy, ICT, and natural resources (mining, water and waste management). Through supporting innovation and the development of local intellectual property, South Africa can transform from a resource-based economy to a knowledge economy.

Over the years, the agency has successfully supported the development and commercialisation of a range of technologies that address South Africa's socio-economic challenges and, most recently, enabled government to respond to the challenges of the COVID-19 pandemic. The discovery of new COVID-19 variants at a TIA platform, manufacturing of sanitisers and approval of locally manufactured vaccines is an affirmation of the pivotal role of science and innovation in building a capable state.

TIA has invested in Technology Platforms that have been at the forefront of South Africa's COVID-19 response. The Kwazulu-Natal Research and Innovation and Sequencing Platform (KRISP) is one such entity. KRISP has led a network of genomic surveillance laboratories in South Africa which has been globally recognised for its exceptional work in the tracking of the evolution of the Sars-Cov-2 virus and to understand the nature and impact of its variants. The Centre for Proteomic and Genomic Research is another TIA-funded Technology Platform that has used its genomics capabilities to provide testing throughout the pandemic.

TIA, in collaboration with the DSI and the South African Medical Research Council (SAMRC), awarded funding to develop test kits and reagents for use in the diagnosis of COVID-19. Products from two of the projects funded under this collaboration were approved by the South African Health Products Regulatory Authority (SAHPRA) for local manufacture.

The first was the co-development of a rapid polymerase chain reaction (PCR) Covid-19 test kit and reagents by CapeBio Technologies (Pty) Ltd and the CSIR. Through this project, the country recorded a milestone in the fight against Covid-19. CapeBio has already commenced industrial-scale manufacturing of the test kits at its Centurion facilities. At full operational capacity, the company will be able to produce up to 5 000 kits a day, with each kit providing for 1 000 tests.

The second was the approval of a locally- developed COVID-19 antigen detection kit. The MD SARS-nCoV-2 Antigen Device was developed by Medical Diagnostech (MD). Medical Diagnostech has already commenced industrial-scale manufacturing of the test kits at its Cape Town facilities. The test kit, which will be the first antigen test kit made in Africa, which will cost $3 (between R30 to R35).

The President acknowledged that the agriculture sector has significant potential for job creation. This includes the importance of small holder farmers and the informal market in ensuring food security.

TIA is implementing some projects through the Agriculture Bioeconomy Innovation Partnership Programme (ABIPP), a partnership programme led by the DSI and Industry.

The first is the Small-scale Farmer Development initiatives: The Ukhanyo Farmer Development (UFD) aims to assist smallholder maize farmers in the Eastern Cape province by providing mentorship, training and support to assist farmers to increase yields and to farm sustainably. The project addresses challenges of the safe storage of maize through a developed post-harvest technology transfer programme, and the process of Nixtamilization.

Technology and Innovation Diffusion Programme: the piloting and roll-out of Urban Agricultural Technologies in townships. This program is aimed at enabling access to and deployment of new technologies suited to growing or extending the agricultural production capacity in urban areas such densely populated townships or inner cities. This will be implemented through the District Development Model which brings all three spheres of government into collaboration with social partners in districts, to grow inclusive local economies. The target beneficiaries for this programme will be the youth, females, and disabled persons.

The President cited the effects of climate change on the country. The Industrial Biotechnology focus area of TIA supports the development of new technologies targeted at alleviating the impacts of Climate Change and Global Warming. To this end, a call for proposals was published to support the global and national move towards a circular plastics economy and the SA Plastics Pact by supporting innovations that address innovations from the biodegradability of plastics, to recycling to cost-effective production processes.

The Industrial Biotechnology focus area of TIA also supports innovations in biocatalysis, biorefinery and biomanufacturing. The portfolio and pipeline investees such as Biodx (Pty) Ltd, Enzyme Technologies (Pty) Ltd, Khepri Innovations, and Lignorganic (Pty) Ltd have developed processes that utilise vegetative waste by-products from the agricultural industry to produce high-value products with commercial application in various sectors including cosmetics, mining, as well as crop and animal health. The Industrial Biocatalysis Hub, a platform for the industrial assimilation of biocatalysis technologies through human capital development, applied research and development and technology transfer, and for participation with industry, was also funded by TIA and the Department of Science and Innovation, and promises to deliver high-end biocatalysis innovations for local production and export to global territories.

To drive technology development and commercialisation of API manufacturing in South Africa, an Active Pharmaceutical Ingredient (API) Cluster has been established to build on the strengths of South African academic research labs and to integrate forward and develop manufacturing capabilities in South Africa while addressing the supply of strategic molecules

To further enable this, TIA has funded the development of a pilot scale regulatory compliant API chemical laboratory to support the analytical testing required during the synthetic process of API molecule development whose equipment is now fully installed and operational.

The direct and indirect benefits of establishing local API manufacturing capabilities would include the reduction of the high reliance on imported APIs which would contribute towards reducing the national trade deficit in the pharmaceutical sector, job creation through the establishment of new manufacturing facilities, small, medium and micro-sized enterprise development and supporting the advancement of black entrepreneurship in the pharmaceutical manufacturing sector.

TIA has played the role of industry builder and has sought to increase its efforts to grow and enhance the role of Indigenous Knowledge Systems in inclusive development and transformation. The successful commercialisation of all indigenous knowledge-based projects which involve the use of indigenous plants, requires the capacity to cultivate the plants. TIA has funded the University of Pretoria in the GR Actives project to support the cultivation of the GR plant by communities in Mamelodi, Gauteng and Ndabakazi village in the Eastern Cape. TIA has also funded the African Traditional Medicines Platform at the University of the Free State, to ensure that the products of promising indigenous knowledge innovations are safe, effective and of consistently high quality.

In his address the President noted that an important pillar of our Economic Reconstruction and Recovery Plan is to revitalise our manufacturing base and create globally competitive export industries.

Technology innovation had also been identified as one of the main drivers in enhancing national manufacturing competitiveness. Innovations supported through Advanced Manufacturing are well placed to support the development of a knowledge economy in manufacturing, by accelerating both the manufacturing capability and the knowledge intensity of the industry.

Several projects in this sector have successfully crossed the technology development chasm and are at the pre-commercialisation phase. These have been prioritised for second round of funding and are being supported to enter into partnerships to ensure market uptake.

The “NovelQuip” project, whose innovation is to develop a fully mechanised planting solution for commercial forestry industry was approached by a global original equipment manufacturer to distribute the technology globally. TIA approved additional funding of R30m to support pre-commercialisation activities which would facilitate global uptake of the NovelQuip technology.

The “Cardioflow” project has developed a portable, hand-held, point of care screening device to identify patients at risk of cardiovascular disease, especially in the primary health care sector. The ease of use and rapid feedback process of the innovation will benefit marginalised communities with limited access to high tech facilities. The innovation is currently at clinical trial phase and will be marketed to primary health care clinics in South Africa.

The president highlighted the need to facilitate the rapid deployment of broadband infrastructure across all municipalities. The planned reforms will revolutionise the country's technological development, making faster broadband accessible to more people and reducing the costs of digital communications.

Innovative projects are being rolled out to achieve this through the ICT portfolio of TIA. One of these is FibrePoynt. The FibrePoynt technology allows marginalised areas to access the internet and has created job opportunities. The system provides an alternative or supplementary to fibre to the home (FTTH) underground or overhead cable technology in resource constrained areas. They can connect houses in low-income areas at a low cost for 10 megabytes per second unlimited internet. This is a massive step towards realising the improvement of the lives of South Africans, on various levels.

Transport is one of the critical drivers of economic activity, innovations to modernise this industry would create a more efficient and safe transportation system. The innovation, dubbed Commuter Counting Hardware (CCH), developed by Quicklo8 (Pty) Ltd, is aimed at advancing the taxi industry by using state of the art technology. The success of this innovation would modernise and transform the taxi industry which is a critical sector of the South African economy. The CCH solution will improve efficiency in the taxi industry, reducing revenue leakage and indirectly bring positive impact to the overall safety in the industry.

The president commented on the need for government to create conditions that will enable private sector - both big and small - to emerge, to grow, to access new markets, to create new products, and to hire more employees.
TIA will intensify efforts to increase the rate of translation of locally developed technologies; exploit intellectual property to ensure that these are commercialised in a manner that promotes economic growth and the competitiveness of industry. TIA will focus on leveraging local and global partnerships to support the translation of knowledge into commercialised innovations. An example of this is the Stone Three Digital investment by TIA.

Stone Three Digital an industrial IoT company, developed a real-time Process Advisory Dashboard that makes use of non-contact sensors, advanced analytics, big data and deep process knowledge for sectors such as the minerals processing, sugar and pharmaceutical industries. They have developed advanced diagnostics for the mining industry. Their ground-breaking technology has been taken up by mining giants such as Anglo-American. Stone Three has also obtained international partnerships with global giants such as Microsoft, FLSmidth, ABB, Bluecube Systems and General Electric Wabtec.

President Ramaphosa acknowledged that water is the country's most precious natural resource. It is vital to life, development and economic growth. Institutional reforms in this area have been prioritised to ensure future water security, investment in water resources and maintenance of existing assets. There's a need to ensure water security and reform associated institutions.

TIA seeks to support water security and supply, and our efforts are aligned with the Water RDI Roadmap and other public sector initiatives. With funding from TIA, Khanyisa Projects developed the Municipal Operations App to allow members of the public and Community Leak Inspectors to record details of leaks including positions and level of urgency required.
The technology solution provides managers of municipality departments with a fully integrated operational tool that enables the detection of water leaks by field workers. The system allows for measurement and recording of bulk meters, fault identification, repairs, verification, and customer satisfaction measurement. The system also allows for automatic management reporting using dashboards and mapping including the display of hot spots.
A critical aspect of this App system is that it integrates with existing water conservation, operations and demand management tools which are already being used by municipalities.

TIA supports government's efforts in addressing the energy challenge through financial and non-financial interventions that will enable the development of innovative energy technologies resulting in a competitive and sustainable energy industry while supporting the transition to a low carbon economy to improve the lives of South Africans.

Through its uYilo eMobility Programme, TIA will be enabling, facilitating and mobilising electric mobility in South Africa by enabling technology innovations and strategic collaborations with the aim of exploiting opportunities in the growing electric vehicle industry.

TIA's investments in energy storage will complement investments in renewables while simultaneously beneficiating minerals such as lithium, manganese and vanadium which are critical in revitalising the South African mining industry.

The role of small businesses in driving economic growth and creating employment opportunities was highlighted, and it is important to create an environment where SMMEs can thrive.
The Technology Stations Programme continues to be one of the main TIA platforms for providing technological support to firms, especially SMMEs. TIA repositioned the Technology Stations Programme to provide much-needed science, technology and engineering support to more than 10 000 small, medium and micro enterprises through access to high-end innovation infrastructure and expert technical advice.

There are 18 Technology Stations (TS) based at 11 Higher Education Institutions in South Africa that focus on a range of services from Agro-Processing, Chemicals, Clothing & Textile, Automotive Industry and Tooling Sector. The goal of the Technology Stations Programme is to contribute towards improving the competitiveness of industry through the application of specialised knowledge and technology by facilitating the interaction between industry and academia

Aligned to the creation of new products and growth of SMMEs is the Grassroots Innovation Programme (GIP) implemented by TIA on behalf of DSI. GIP focuses on increasing the participation of innovators and promoting their access to development, funding and innovation enabling initiatives nationally. The programme is aimed at commercialising local innovations from ordinary citizens using local resources and capabilities working outside the realm of formal innovation institutions. These innovations bring solutions that respond to crime, education, sanitation, disabilities, and much more

Grassroots innovators are individuals who undertake innovations to solve local challenges The innovators are linked to subject matter experts and advanced facilities, such as technology stations, where the innovations and inventions are developed towards commercialisation. Since inception, a total of R14 300 000 has been invested in the GIP supporting 55 innovators.

The president has made a call for collaboration between the public and private sector in all spheres of our economy. TIA stands ready as a willing and able collaborator to deliver on critical interventions necessary to support the state on the path of inclusive economic growth and social development. The agency is well placed to support the state in delivering on key mandates that will transform, not only the economy but the lives of ordinary South Africans for the better.

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