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| MEMORANDUM FROM THE PARLIAMENTARY OFFICE |

**NATIONAL ASSEMBLY**

**FOR WRITTEN REPLY**

**QUESTION 1016**

**DATE OF PUBLICATION OF INTERNAL QUESTION PAPER: 29/05/2020**

**INTERNAL QUESTION PAPER NO 18 OF 2020**

**Prof B Bozzoli (DA) to ask the Minister of Higher Education, Science and Technology:**

(1) Given that the Vision of the Technology Innovation Agency (TIA) is to be a leading technology innovation agency that stimulates and supports technological innovation to improve the quality of life for all South Africans, what (a) are the details of five examples of technological innovation that have taken place in the small, medium and micro enterprises (SMMEs) that have been funded to provide them with science, engineering and technology support and (b) was the cost of funding for each SMME in the 2018-19 financial year;

(2) which three products of developing indigenous knowledge into technologically innovative products does the TIA intend to develop;

(3) whether the aim of TIA to invest in the translation and commercialisation of innovations is based upon a concrete plan; if not, why not; if so, by what date will the plan be made available;

(4) whether the plan accords with international best practice; if not, why not; if so, what are the comparative examples that were used to develop the plan;

(5) whether he will provide Prof B Bozzoli with the plan; if not, why not; if so, on what date? **NW1305E**

**REPLY:**

(1) Examples of five SMME projects that TIA funded in the 2018/19 financial year through its various funding instruments (including the Seed Fund, Technology Stations Programme and Technology Development Fund) are:

i. **RIOT Network –** RIOT has developed a wireless communications network technology that makes it easy for anyone to setup, operate and monetize public wireless broadband networks by agglomerating private network access devices of individuals (i.e. households) and very small businesses. The technology is useful for extending broadband coverage to underserviced areas, and it enables SMME to operate as local internet service providers (ISPs). The project is currently completing its technology development and received financial support of R3 451 700 in 2018/19.

The technology has been successfully tested and deployed in Olievenhoutbosch (an area plagues with break-ins), where a subset of the local community is using the technology to monitor theft in the area. This is achieved through artificial intelligence enabled IP cameras, that detects and alert residences of suspicious behaviour in the region. The cameras are interconnected and access through RIOT’s network infrastructure.

Currently the organisation employs ten people in high value engineering jobs. At full commercialisation the company will enable thousands of jobs as SMEs leverage the technology to set up and monetise local networks. The company has also attracted private investment that enables it to continue improving its technology and in preparation for scale. The company is 100% youth owned, 41% black owned and 18% female owned.

ii. **SAMEC Engineering** - TIA provided the company with an amount of R1 700 959.00 in the 2018/19 financial year out of an approved amount of R7 799 775.00 for the development of an air condition system using thermal storage to cool buildings (industrial and commercial) or temporary structures (e.g. a marquee). Thermal storage happens during off-peak periods when electricity is cheap and that energy is used to cool buildings during high peak periods when electricity is expensive. This will lead to cost savings and load reduction during peak periods.

The first tranche enabled the project to develop a demonstration unit which has been installed at Durban University of Technology and it serves as a data collection point to demonstrate the performance of the unit.

iii. **AgriProtein Technologies (Pty) Ltd** is a technology start-up company that successfully developed and piloted a nutrient recycling technology (converting organic waste to animal feed protein) to commercialise an insect-based protein feed in the animal feed industry. TIA, through its Bioeconomy Programme extended a loan of R11 968 573 to AgriProtein to carry out phase one of the project known as “Magmeal” as a low cost and environmentally sustainable animal feed.

To-date, AgriProtein has successfully developed an operational Generation 1 (G1) Production Facility employing a total of 141 employees, in Philippi an economically depressed area in Cape Town and has expanded to attract the international market. They secured about $105 million investment in 2018 to fund global expansion.

In a region characterised by low youth employment a total of 57% of permanent employees were under the age of 35. Over R 44 million was spent on local payroll in 2018 and directly supported a total of 139 permanently, decent jobs as December 2018, with a gender split of 30% females and 70 % males.

**iv. Mkazi Concepts**

TIA funded Mkazi Concepts (Pty) Ltd through the Technology Stations Programme for R502 000 towards development of a Hand-Hygiene Monitor with a RFID (radio frequency identification) badges or wrist bands that track and record on the number of times in-between user-wash per control area. The project falls within the Internet of Things (IoT); and Data Monitoring and Controls in decision making (i.e. Machine Learning) in the primary healthcare environment and other markets such hospitals, mobile health clinics, schools, food industry, etc.

The grant funding subsidised the Technology Station in Electronics hosted at Tshwane University of Technology and the Product Development Technology Station at Central University of Technology for engineering and technology support to assist the client from concept development, first-type prototype to Minimum Viable Product (MVP) with additional financial to conduct a demonstration in an open environment. This was done at a clinic in Windsor East in Gauteng, Johannesburg.

The project provided at least for job opportunities with a locally available intelligent product for the fourth industrial revolution (FIR).

The product intends to increase level of effectiveness of hand hygiene compliance which are currently at 40% nationally due to manual based hand-washing systems and lack of surveillance. In light of COVID 19 the product becomes more important for the implementation and controls of hand-hygiene intervention that are regarded by the World Health Organisation (WHO) as the lowest-costs with highest-impact for effectively preventing infections.

v. **Smart Blade** - SmartBlade Video 

Laryngoscope is a medical device *that*

*harnesses smartphone technology* to provide

guided and more cost-effective method for

examining or inserting a tube through the

larynx. The process of inserting the tube

is called endotracheal intubation. SmartBlade

will thus enable single operators of varied skill

levels to intubate difficult airways in a cost-effective way. Currently the cost of video laryngoscopy is prohibitive to the individual clinician, small clinics and ambulance services.

TIA funded SmartBlade [http://smartblade.co.za] to the tune of R484 275 through its Seed Fund Programme for prototype development, premarket sample manufacturing and testing, market research, regulatory compliance research. This resulted in the filing of two (2) provisional patents and a design registration. Prototypes were manufactured and pre-clinical trials conducted using the SmartBlade technology and generated good results. The android app was developed and tested. The SMME managed to secure follow-on funding of R9,5 million from Savant Venture Fund in May 2019 for technology optimisation and commercialisation. In response to COVID 19 they have optimised the Video laryngoscopy technology to incorporate a disposable laryngoscope as a recommended intervention for COVID-19 patients.

(2) In line with its approved Strategic Plan 2020-2025 TIA, through its Bio-economy Programme, aims to support indigenous knowledge-based innovation in targeted areas. These include African Traditional Medicines, neutraceuticals, cosmeceuticals and health infusions. In respect of specific products, these will be solicited through TIA’s Call for Proposals during the financial year, from which specific products will be selected for funding.

(3) Yes. The plan will be made available by 15 July 2020.

 (4) The current models accord with international best practice in some respects, specifically, the Technology Acquisition and Deployment Fund which was adapted from the Indian model that uses a similar approach to commercialisation. Secondly, the ecosystem approach has been widely used by Innosuisse, the Swiss Innovation Agency responsible for supporting technology innovation together with other like-minded entities around the world, especially in Europe. Thirdly, the SBRI is a model that originates from the USA, subsequently adopted and successfully used by countries such as the UK, Netherlands, India, Australia, and now broadly adopted by the European Union.

The plan nevertheless is largely home-grown, based on TIA’s own understanding and knowledge of the RSA ecosystem, and specific dynamics that are peculiar to a developmental state and a maturing ecosystem.

(5) The Plan, once finalised, will be released publicly.