

Science, Technology and Innovation Indicators Report 2020



Urgent steps need to be taken for South Africa to realise its economic growth and human development targets, and to place the country where it ought to be among the world's nations. This sentiment emerged during the release of the 2020 South African Science, Technology and Innovation (STI) Indicators Report, which reveals that the current state of STI in South Africa is less than ideal.

The online launch of the report on 28 August 2020 was accompanied by a policy forum on the state of innovation in the country. This included a presentation on the reviews of the National Research and Development Strategy (NRDS) and the Ten-Year Innovation Plan (TYIP), as well as a presentation on the Agricultural Business Innovation Survey 2016–2018.

The gaps identified in the STI Indicators Report provide a starting point for roleplayers to take South Africa's national system of innovation forward to meet the country's STI and development targets.

In producing the annual report, the National Advisory Council on Innovation (NACI) reviews the state of STI in South Africa over time and in a global context. This year's report reflects progress on some indicators, while pointing to areas of concern. Although South Africa's research institutions, such as universities and science councils, have steadily increased scientific publications over the past few decades, more recent performance indicates a decline. South Africa's publications per million of the population decreased from 371 in 2017 to 360 in 2018.

Most of the doctoral degrees produced in South Africa are in the field of the natural and agricultural sciences, with 1 051 doctorates produced in 2018. Only 7% of doctoral degrees produced are in the field of engineering.

Increased funding of universities contributed to an increase in the number of postgraduate students. The number of master's degrees increased from 6 460 in 2013 to 8 610 in 2018, while the number of doctoral graduates increased

from 2 051 in 2013 to 3 307 in 2018. The report suggests that, if the underlying forces during the past period remain intact, the number of doctoral graduates will reach the target of 5 000 per annum by 2030, with partnerships between science councils and universities contributing to the significant enrolment and graduation of both master's and doctoral candidates.

Although unemployment is lower among those with higher levels of education, unemployment of those with master's and doctoral degrees increased from 2.4% in 2018 to 2.8% in 2019.

"We are now looking at a point in this country where we have never had so many highly skilled people unemployed. It is a travesty, and the youth dividend is definitely at risk," said NACI Council Member and CEO of the Water Research Commission, Mr Dhesigen Naidoo. He added that, given South Africa's current structural socio-economic challenges, the country could not afford to have even a single unemployed graduate.

Discussing the reviews of the NRDS and TYIP, Prof. Johann Mouton, Director of the Centre for Research on Evaluation, Science and Technology at Stellenbosch University, said the original objectives of the technology-related strategies – to contribute towards the transition to a knowledge-based economy, to improve the sector's competitiveness through advanced manufacturing and innovation, and to leverage resource-based industries – were still valid. What had changed over time, he said, was the introduction of new technological initiatives in areas such as fluoride-based electrolytes, additive manufacturing and advanced materials.

"Technology changes are fast-moving and are often linked to new challenges resulting from fundamental shifts in social dynamics. It would thus be prudent for the Department of Science and Innovation (DSI) to revisit its current portfolio of technology programmes, in light of recent global developments as well as the recommendations of the Research Foresight Exercise."

He also urged the DSI to undertake an in-depth review of existing funding instruments targeting business and innovation in order to achieve optimal coordination and efficiency.

The full STI Indicators report can be downloaded from: <http://www.naci.org.za/index.php/south-african-science-technology-and-innovation-indicators-report-2019-2/>

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