

# South Africa: Are we making any progress?

*Tsepo Majake from the Academy of Science of South Africa considers whether we are on track as a country to meet education goals and our National Development Plan.*

There are 17 Sustainable Development Goals (SDG) that one might argue can only be attained through the support of science (Figure 1).

The first two SDGs are to alleviate poverty and remove hunger. A country needs a sound plan that is supported by research and strongly embedded in the available resources of that particular country to achieve these SDGs.

The African continent, for instance, would need a strong agrarian (or agriculture), energy and mineral research plan and system to achieve these first two SDGs.

Let's consider how these two SDGs show how science can support and assist in achieving them.

In the South African context, the SDGs are interpreted through the National Development Plan (known as the NDP), which is the blueprint of the economy. **Figure 2** shows the National Development Plan and how it is packaged as goals to be achieved at the national level.

Meeting the NDP goals require a strong scientific approach if they are to be achieved in the next few years. For example, to alleviate poverty, create jobs, ensure



**Figure 1: Sustainable Development Goals**

spatial development, fight crime and so on, we need data, information and the adoption of evidence-based approaches to problem solving.

Are we as a country making headway to ensure that we are well prepared for the attainment of these goals at national (NDP) and global (SGD) levels?



**Fig 2: National Development Plan 2030**

Focussing on basic education, we can use high school results as a yard stick.

The national Grade 12 results have been steadily improving over the last six years from 2015 to 2021.

**Table 1** shows an improvement in Grade 12 pass percentages from 2016 to 2021.

The discourse around the South African Grade 12 results has often been problematic with calls to increase the pass mark, force certain subject choices and subject combinations. There have also been resource and infrastructure challenges (like not enough textbooks) and concerns about the number of learners registered from grade 1 making it through grade 12.

If we focus on the number of university entrants, we can see that it has been steadily increasing for the last six years (**Table 2**).

If we look closely at learner percentage passes in the science subjects from 2016 to 2021, there is a downward trend in some subjects. This is an area for improvement.

**Table 3** below shows learner attainment in key science subject at 30% from 2016 to 2021.

There are other yardsticks that can be used to measure if we are making headway to prepare for the attainment of the NDP and SDGs in the education sector, like the 'Trends in International Mathematics and Science Study (TIMMs) and The Southern and Eastern Africa Consortium for Monitoring Educational Quality (SAQMEQ) standardised tests.

Here, we focus on the national examination results that decide whether learners will enter higher education institutions and go on to help a South Africa that can meet the SDGs.

**Table 4:** Number and percentage of distinctions in the five key science subjects (Source: 2020 examination report 2019, 2020, 2021)

In conclusion, as a country we need to bring our resources together to improve our national Grade 12 results. While the achievement of learners at school is the responsibility of the Basic Education Department, all sectors of society (and especially the sciences) can assist to ensure a better and greater output.

The question to ask is 'how can we cooperate in improving our high school results, and consequently bolstering our ability to achieve our NDP and SDG targets?

**Table 1: Grade 12 pass percentages from 2016 to 2021 (Source: 2020 examination report 2019, 2020, 2021)**

| Year            | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|-----------------|------|------|------|------|------|------|
| National pass % | 72.5 | 75.1 | 78.2 | 81.3 | 76.2 | 76.4 |

**Table 2: Grade 12 bachelor pass percentages from 2016 to 2021 (Source: 2020 examination report 2019, 2020, 2021)**

| Year              | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------|------|------|------|------|------|------|
| Bachelor % passes | 26.6 | 28.7 | 33.6 | 36.9 | 36.4 | 36.4 |

**Table 3: Grade 12 subject percentage passes at 30% from 2016 to 2021 (Source: 2020 examination report 2019, 2020, 2021)**

|                      | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------------|------|------|------|------|------|------|
| Agricultural science | 75.4 | 70.4 | 69.9 | 74.6 | 72.7 | 75.4 |
| Geography            | 76.5 | 76.9 | 74.2 | 80.5 | 75.3 | 74.3 |
| Life Sciences        | 70.5 | 74.4 | 76.3 | 72.3 | 71.0 | 71.5 |
| Mathematics          | 51.1 | 51.9 | 58.0 | 54.6 | 53.8 | 57.6 |
| Physical Sciences    | 62.0 | 65.1 | 74.2 | 75.5 | 65.8 | 69.0 |

**Table 4 shows how learners are performing in the five-science subject with distinction (marks of 80 - 100%) in the last two years.**

| Subject               | 2020    |                     |        | 2021    |                     |        |
|-----------------------|---------|---------------------|--------|---------|---------------------|--------|
|                       | Wrote   | Achieved at 80-100% | % Pass | Wrote   | Achieved at 80-100% | % Pass |
| Agricultural Sciences | 96 155  | 786                 | 0.8    | 123 990 | 1469                | 1.2    |
| Geography             | 287 629 | 2755                | 1.0    | 358 655 | 1911                | 0.5    |
| Life Sciences         | 319 228 | 7 317               | 2.3    | 384 216 | 14 310              | 3.7    |
| Mathematics           | 233 315 | 7 424               | 3.2    | 259 143 | 7 725               | 3.0    |
| Physical Sciences     | 174 310 | 6 368               | 3.7    | 196 968 | 6 771               | 3.4    |

**Academy of Science of South Africa (ASSAf)**

**ASSAf Research Repository**

**<http://research.assaf.org.za/>**

---

A. Academy of Science of South Africa (ASSAf) Publications

D. Quest: Science for South Africa

---

2022-06

# Quest Volume 18 Number 2 2022

**Academy of Science of South Africa (ASSAf)**

Academy of Science of South Africa (ASSAf)

---

Academy of Science of South Africa (ASSAf) (2022) Quest: Science for South Africa, 18(2).

Available at: <http://hdl.handle.net/20.500.11911/241>

<http://hdl.handle.net/20.500.11911/241>

*Downloaded from ASSAf Research Repository, Academy of Science of South Africa (ASSAf)*