MARCH 2025

FACT SHEET

ARE WE PRODUCING ENOUGH DOCTORAL GRADUATES IN SOUTH AFRICA?

BACKGROUND

Doctoral graduates play a crucial role in shaping a country's economic and social landscape. They contribute to the advancement of knowledge, drive innovation, and enhance national competitiveness by fostering research excellence. A well-educated doctoral workforce strengthens industries, supports evidence-based policymaking, and enhances the overall skill level of the population. Nations with a high proportion of doctoral graduates tend to exhibit stronger Research and Development (R&D) capabilities, fuelling economic resilience and long-term growth.

In South Africa, the National Development Plan (NDP) 2030 acknowledges the vital role of higher education in fostering a knowledge-based economy. It sets ambitious targets to increase the number of doctoral graduates as part of the broader goal to strengthen the country's research and innovation capacity. Two key targets outlined in the NDP are to:

- increase the percentage of academic staff in the higher education sector with a doctoral degree from the current share of 34% to more than 75%; and
- produce more than 100 doctoral graduates per million of population per year.

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Achieving these targets is key to enhancing South Africa's global research standing, improving the quality of academic instruction, and addressing socio-economic challenges through evidence-based policy development. However, challenges such as financial constraints, limited supervisory capacity, and declining postgraduate enrolments pose significant barriers to reaching these objectives.

Within this context, this Fact Sheet examines the progress made towards the goal of increasing the number of doctoral graduates in South Africa.

TERMS AND DEFINITIONS

2.1 NUMBER OF DOCTORAL GRADUATES PER MILLION OF POPULATION PER YEAR

The number of doctoral graduates per million of the population per year is calculated by dividing the total number of doctoral degree graduates in a given year by the number of persons in the population in the same year and multiplying the result by 1 000 000.

The number of doctoral graduates per million of population in 2023 was 58. This is a huge improvement from the 36 doctoral graduates produced in 2013.

58

2.2 POSTGRADUATE STUDENTS

Postgraduate students include all students in universities enrolled for postgraduate study at below master's level, at master's level, and at doctoral level.

2.3 DOCTORAL GRADUATE

A person who has completed a doctoral degree.

SUMMARY OF FINDINGS

This section presents a summary of the key findings on South Africa's progress towards achieving the targets set out in the NDP 2030.

Figure 1 illustrates a steady increase in the number of doctoral graduates per million of the population over the past decade, peaking at 61 in 2022 before experiencing a slight decline to 58 in 2023. While this trend indicates overall progress, it suggests that South Africa is unlikely to meet the NDP target of 100 graduates per million by 2030 without significant acceleration. The recent decline could be attributed to funding constraints, socio-economic challenges, and shifts in higher education policy. Addressing these challenges requires targeted investments in postgraduate funding and institutional support for research training.

FIGURE 1: Number of doctoral degree graduates per million of population per year, 2013–2023

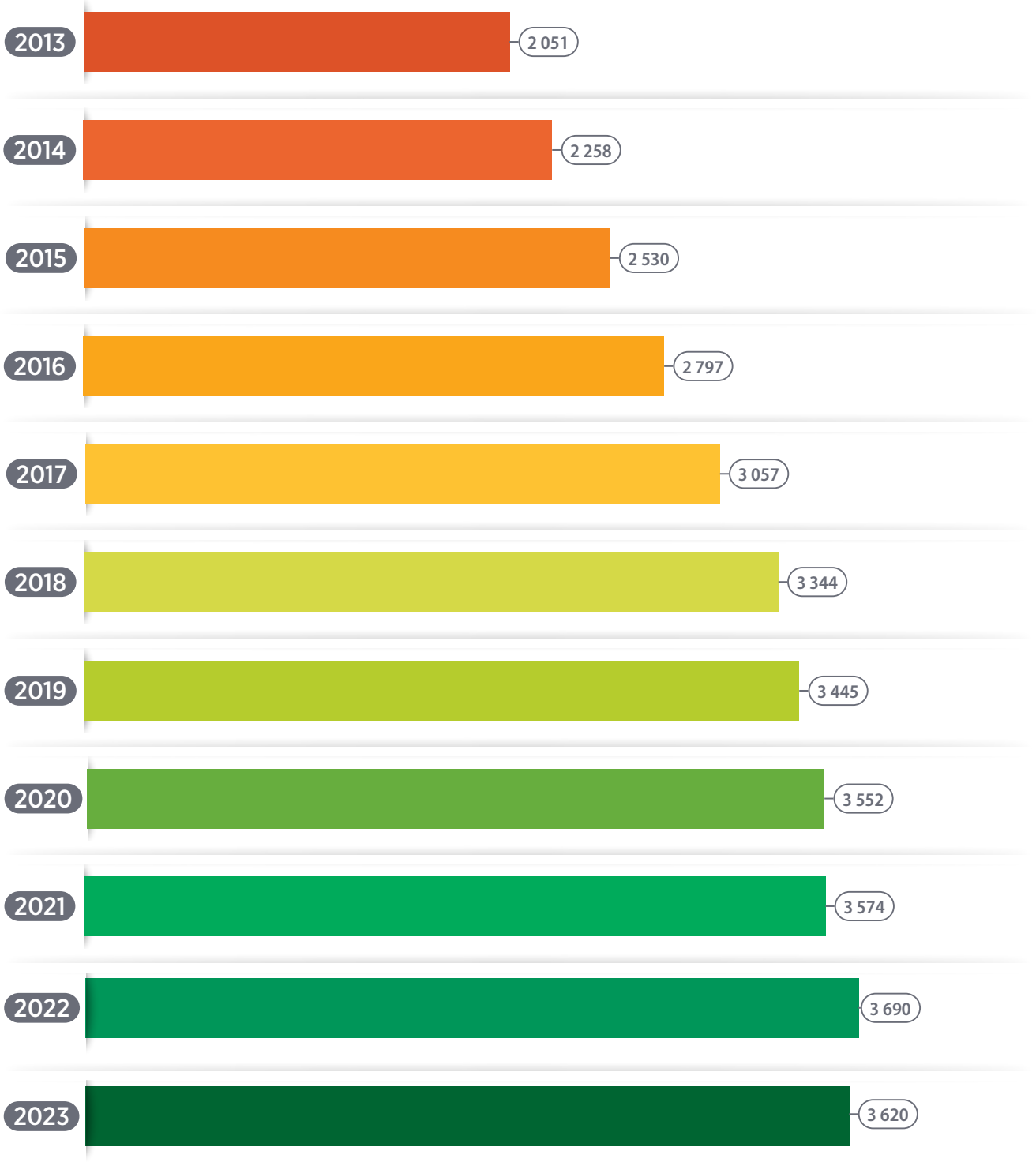
Sources: Own calculations based on Department of Higher Education and Training (DHET) (2022). Statistics on Post-school education and training in South Africa: 2022. DHET, Pretoria; 2023 HEMIS database, data extracted in November 2024; Statistics South Africa (2024). Country projection by population group, sex and age (2002–2024).

Note 1: The data on doctoral graduates reported above covers only public Higher Education Institutions (HEIs), or universities. Doctoral graduates from private HEIs are not included.

Note 2: The number of doctoral graduates per million of population per year is calculated by dividing the total number of doctoral degree graduates in a given year by the number the persons in the population in the same year and multiplying the result by 1 000 000.

Figure 2 shows that despite the growth in doctoral graduates, the 2023 figure of 3 620 remains well below the estimated 5 000 needed annually to meet the NDP target. This gap highlights the need for increased funding, expanded supervisory capacity, and policy interventions to support doctoral students.

FIGURE 2: Number of doctoral degree graduates in universities, 2013–2023



Source: DHET (2022). Statistics on Post-school education and training in South Africa: 2022. DHET, Pretoria; 2023 HEMIS database, data extracted in November 2024.

Note 1: The data on doctoral graduates reported above covers only public HEIs (universities). Doctoral graduates from private HEIs are not included.
Note 2: There were 56 doctoral graduates from private HEIs in 2023.

Figure 3 shows that, in 2023, postgraduate enrolments accounted for only 15% of all university enrolments, marking a decline from earlier years. This trend signals a weakening pipeline for future doctoral candidates, which could further hinder efforts to meet the NDP targets. The slight increase observed from 2022 to 2023 suggests potential recovery, but long-term strategies are required to attract and retain postgraduate students. One major factor contributing to this decline is the lack of financial incentives and career rewards for further studies. Many students perceive limited economic benefits to pursuing a PhD, making them reluctant to invest additional years in academia. Enhanced financial aid, mentorship programmes, and improved research opportunities could help reverse the decline.

FIGURE 3: Share of postgraduate students enrolled in universities, 2013–2023

Source: Own calculations based on DHET (2022). Statistics on Post-school education and training in South Africa: 2022. DHET, Pretoria; 2023 HEMIS database, data extracted in November 2024.

Note 1: The data reported above covers only postgraduate students at public HEIs (universities). Postgraduate students from private HEIs are not included.
Note 2: Postgraduate students include all students in universities enrolled for postgraduate study at below master's level, at master's level, and at doctoral level.
Note 3: The share is calculated by dividing the number of postgraduate students enrolled in universities by the total number of students enrolled in universities.

The Science, Engineering, and Technology (SET) fields have historically produced the largest share of doctoral graduates, which is consistent with the NDP's emphasis on enhancing South Africa's innovation capacity. However, recent fluctuations indicate that other fields are gaining prominence.

Figure 4 shows that in 2013, SET fields accounted for 52% of doctoral graduates, peaking at 53% in 2019 before declining to 48% in 2023. While diversity in research is beneficial, maintaining strong SET outputs is critical for driving technological progress and economic competitiveness. Aligning funding mechanisms with national innovation goals can help sustain SET doctoral graduate production.

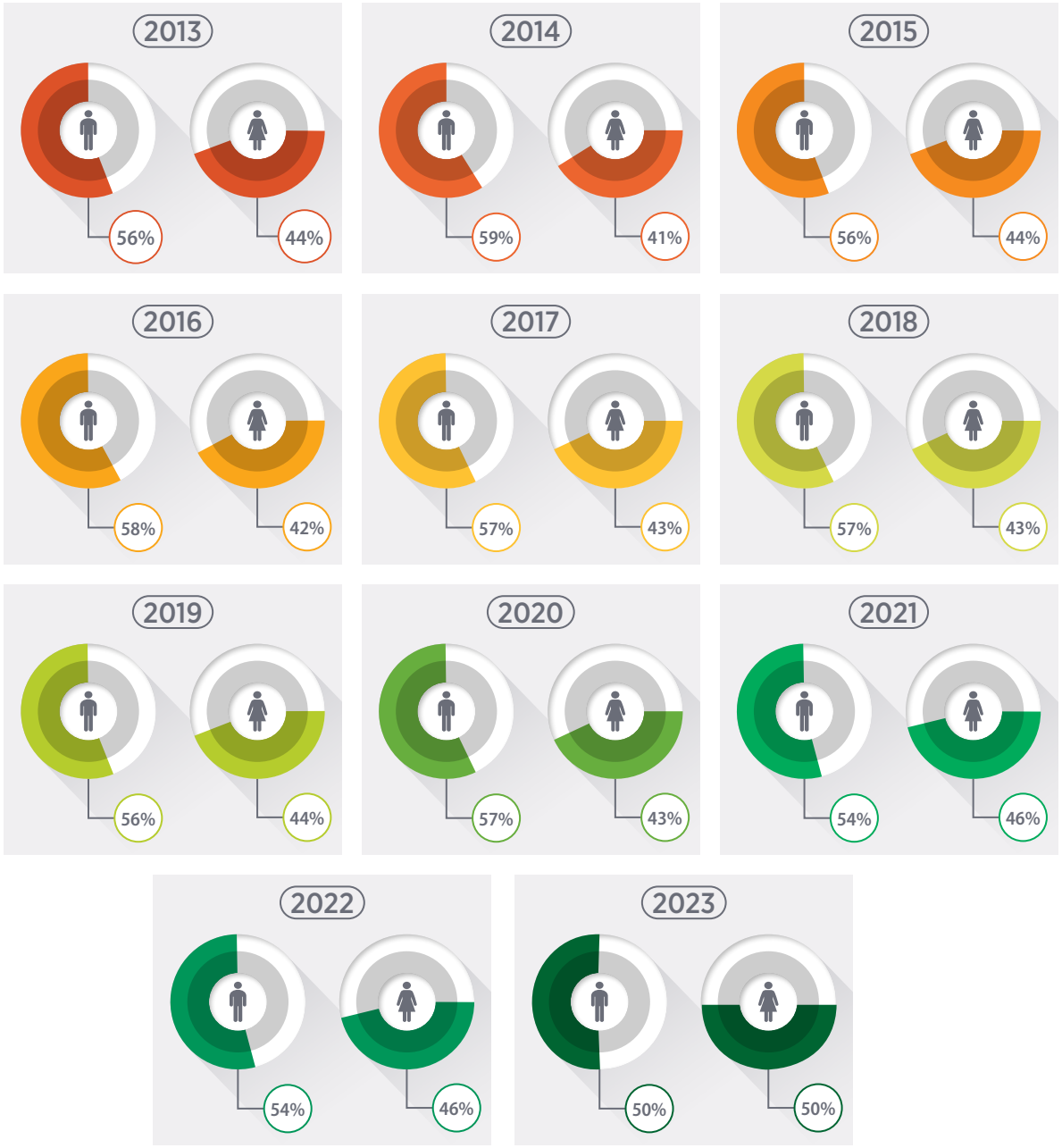
FIGURE 4: Share of doctoral degree graduates by major field, 2013–2023

Sources: *DHET; HEMIS database 2013–2023*

Note: The data on doctoral graduates reported above covers only public HEIs (universities). Doctoral graduates from private HEIs are not included.

Figure 5 shows that a milestone was reached in 2023 when gender equality was achieved in doctoral graduation rates (50% male, 50% female). This shift reflects progress toward inclusivity and the effectiveness of policies aimed at increasing female participation in advanced studies. However, continued efforts are needed to ensure gender balance across all disciplines, particularly in historically male-dominated fields such as engineering and computer science.

FIGURE 5: Share of doctoral degree graduates by gender per year, 2013–2023

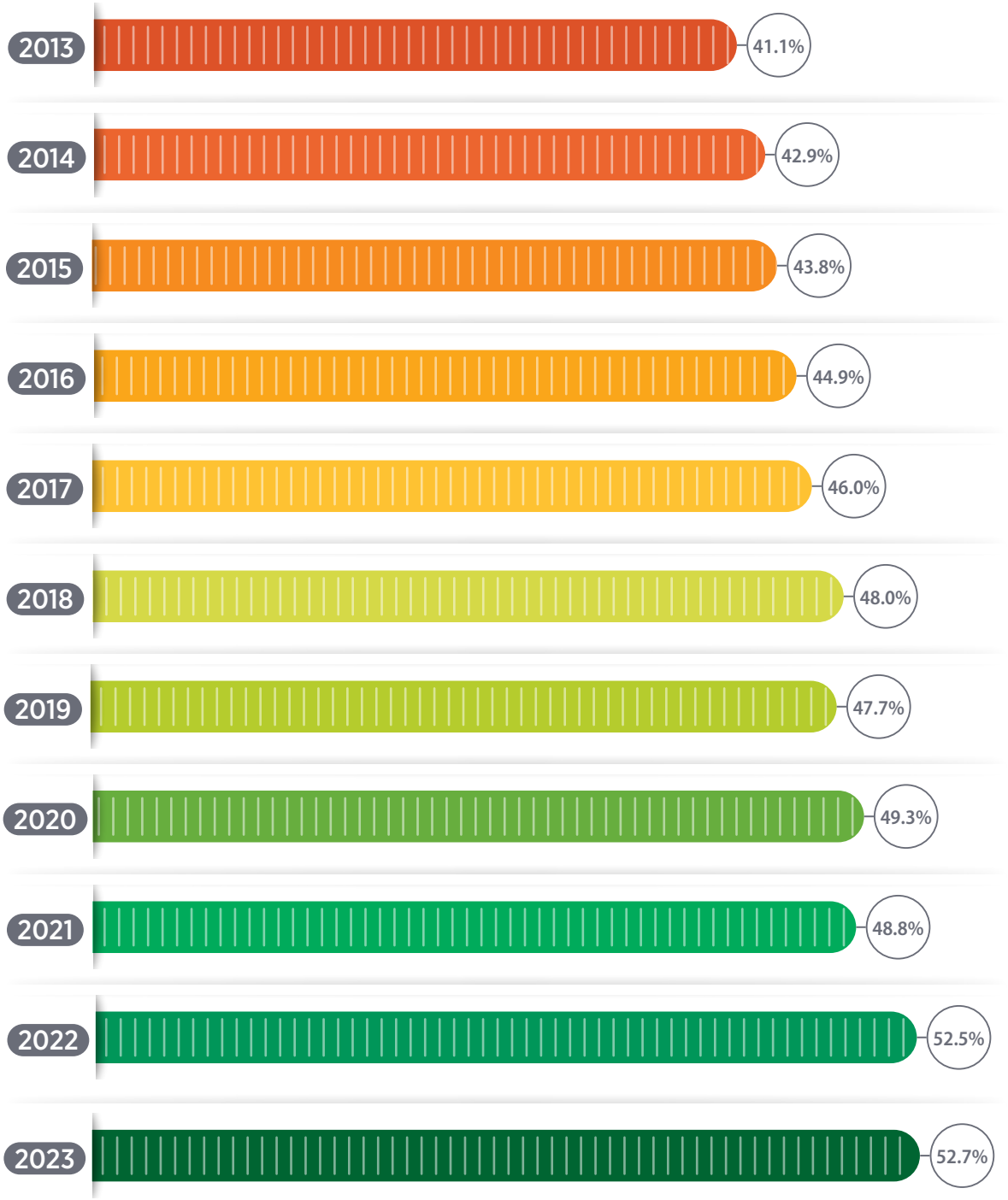


Source: *DHET; HEMIS database (2013-2023) (own calculations)*

Note: The data on doctoral graduates reported above only covers public HEIs (universities). Doctoral graduates from private HEIs are not included.

Figure 6 shows that the proportion of academic staff holding a doctoral degree has risen steadily, reaching 52.7% in 2023. While this indicates progress, the current trajectory suggests that meeting the 75% target by 2030 will require accelerated efforts. Expanding and strengthening initiatives such as the University Staff Doctorate Programme and incentivising doctoral studies for academic staff can help close this gap.

FIGURE 6: Share of academic staff with a doctoral degree in universities, 2013–2023

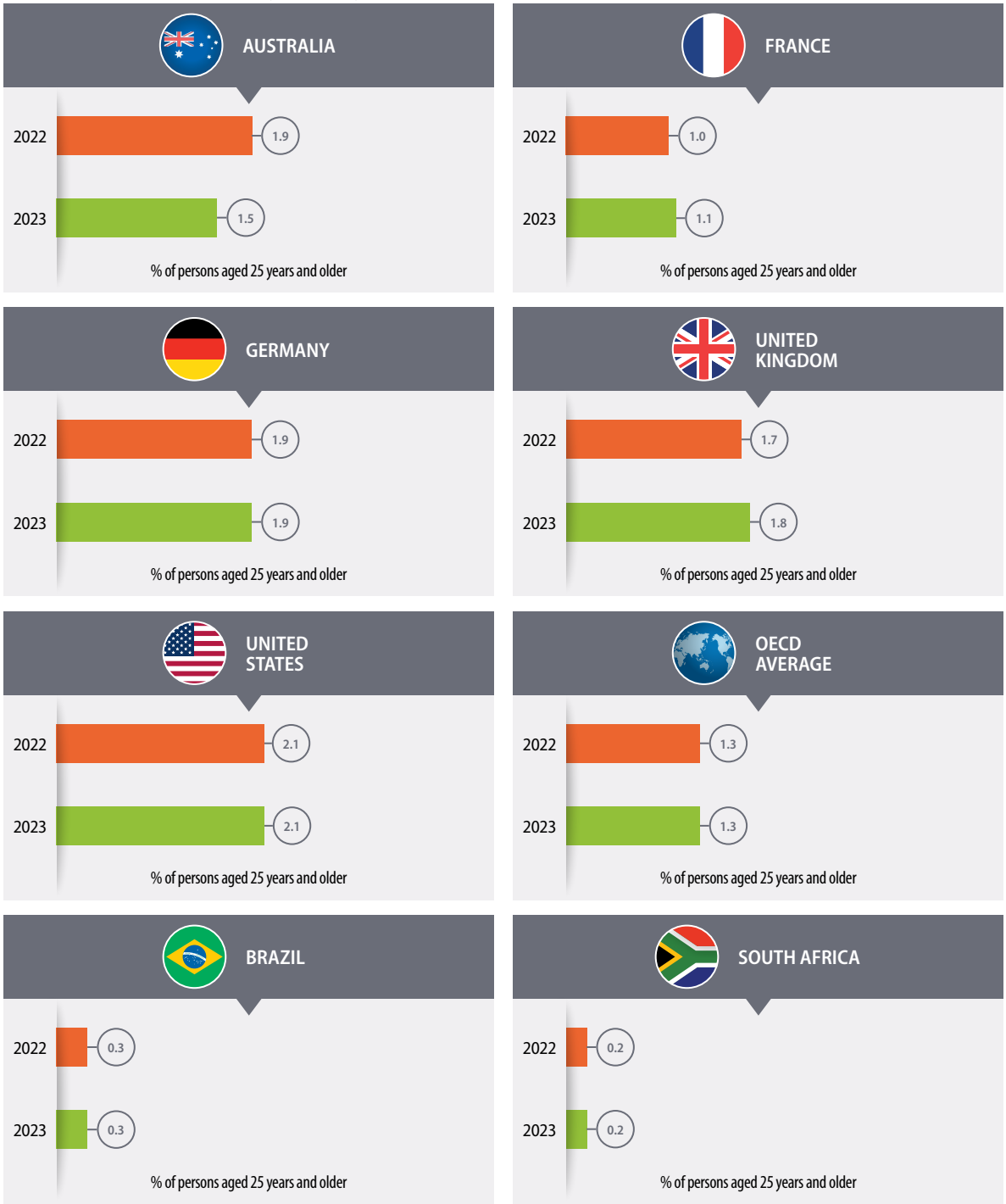


Sources: DHET; HEMIS database (2013-2023) (own calculations)

Note: The data on academic staff with a doctoral degree reported above covers only public HEIs (universities). Academic staff with a doctoral degree from private HEIs are not included.

Figure 7 shows that at just 0.2%, South Africa's proportion of individuals aged 25 and older with a doctoral qualification remains significantly lower than global counterparts. For example, the United States (2.1%), United Kingdom (1.8%), and OECD average (1.3%) all far exceed South Africa's figure. This disparity underscores the need for a stronger higher education sector to enhance the country's research capacity and global competitiveness. Addressing barriers to doctoral study, including financial constraints and employment prospects for PhD holders, is crucial to improving this metric.

FIGURE 7: Share of population aged 25 years and older that attained doctoral degrees or equivalent (ISCED 8) (%) by country, 2022–2023



Sources: Statistics South Africa General Household Surveys (2022; 2023); Education at a Glance (OECD) (2022; 2023)

Note 1: The proportions for all other countries are obtained from the OECD, while proportions for South Africa are calculated using data from Statistics South Africa.
Note 2: Countries are included in this figure based on the availability of data.

Despite the progress made in increasing doctral graduates, the country is still far from meeting the NDP targets.

South Africa has made progress in increasing doctoral graduates and promoting gender equity, significant challenges remain.

Increasing financial support, expanding research supervision capacity, creating incentives for doctoral study, and employment opportunities can improve the number of doctoral graduates produced.

CONCLUSION

While South Africa has made progress in increasing doctoral graduates and promoting gender equity, significant challenges remain. The country is still far from meeting the NDP targets, with declining postgraduate enrolments and a slow increase in doctoral attainment among academic staff posing substantial obstacles to them. Addressing these issues requires a multi-faceted approach that includes increasing financial support for doctoral students, expanding research supervision capacity, and creating incentives for doctoral study and employment opportunities. By making strategic investments in research and education, South Africa can develop a highly skilled workforce, foster innovation, and enhance its global competitiveness in the knowledge economy.

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This Fact Sheet is available on the Department of Higher Education and Training website at www.dhet.gov.za and the Labour Market Intelligence website at lmi-research.org.za

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