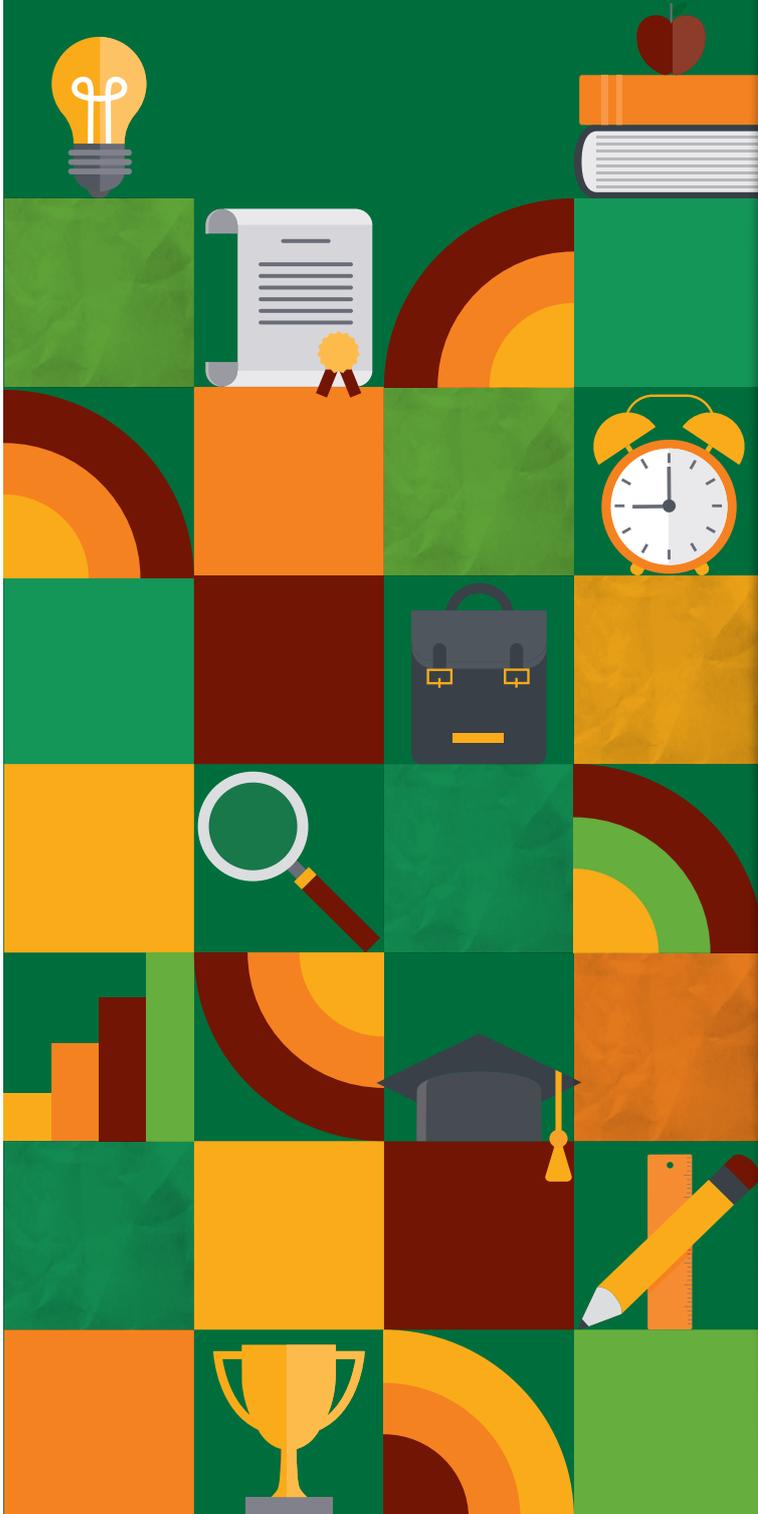


MARCH 2023

# FACT SHEET



# ARE WE PRODUCING ENOUGH DOCTORAL GRADUATES IN OUR UNIVERSITIES?



## BACKGROUND

The National Development Plan 2030 (NDP 2030) outlines the following targets to be met by the South African higher education sector by 2030:

- 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%.
- Produce more than 100 doctoral graduates per million of population per year by 2030.

Within the context of these targets, this Fact Sheet analyses the progress made towards the goal to increase the number of doctoral graduates in South Africa. It does so by answering the following research question: **Are we producing enough doctoral graduates in South Africa?**

The data presented in this Fact Sheet only represent public Higher Education Institutions (HEIs) or public universities, and does not include data from private HEIs. The period under review in this Fact Sheet is 2012 to 2021.



higher education  
& training

Department:  
Higher Education and Training  
REPUBLIC OF SOUTH AFRICA



## TERMS AND DEFINITIONS

### NUMBER OF DOCTORAL GRADUATES PER MILLION OF POPULATION PER YEAR

The number of doctoral graduates per million of population per year is calculated by dividing the total number of doctoral 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.

### POSTGRADUATE STUDENTS

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

### DOCTORAL GRADUATE

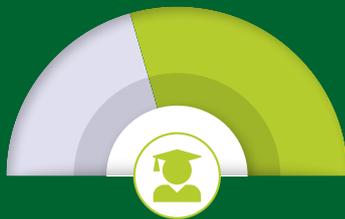
A person who has completed a doctoral degree.



## SUMMARY OF FINDINGS

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

The number of doctoral graduates per million of population in 2021 was 59. The number has remained stagnant at around 59 since 2018.



59

As indicated in Figure 1, the number of doctoral graduates per million of population in 2021 was 59. The number has remained stagnant at around 59 since 2018, which is far below the NDP 2030 target to produce more than 100 doctoral graduates per million of population per year by 2030.

**FIGURE 1:** Number of doctoral graduates per million of population per year, 2012–2021

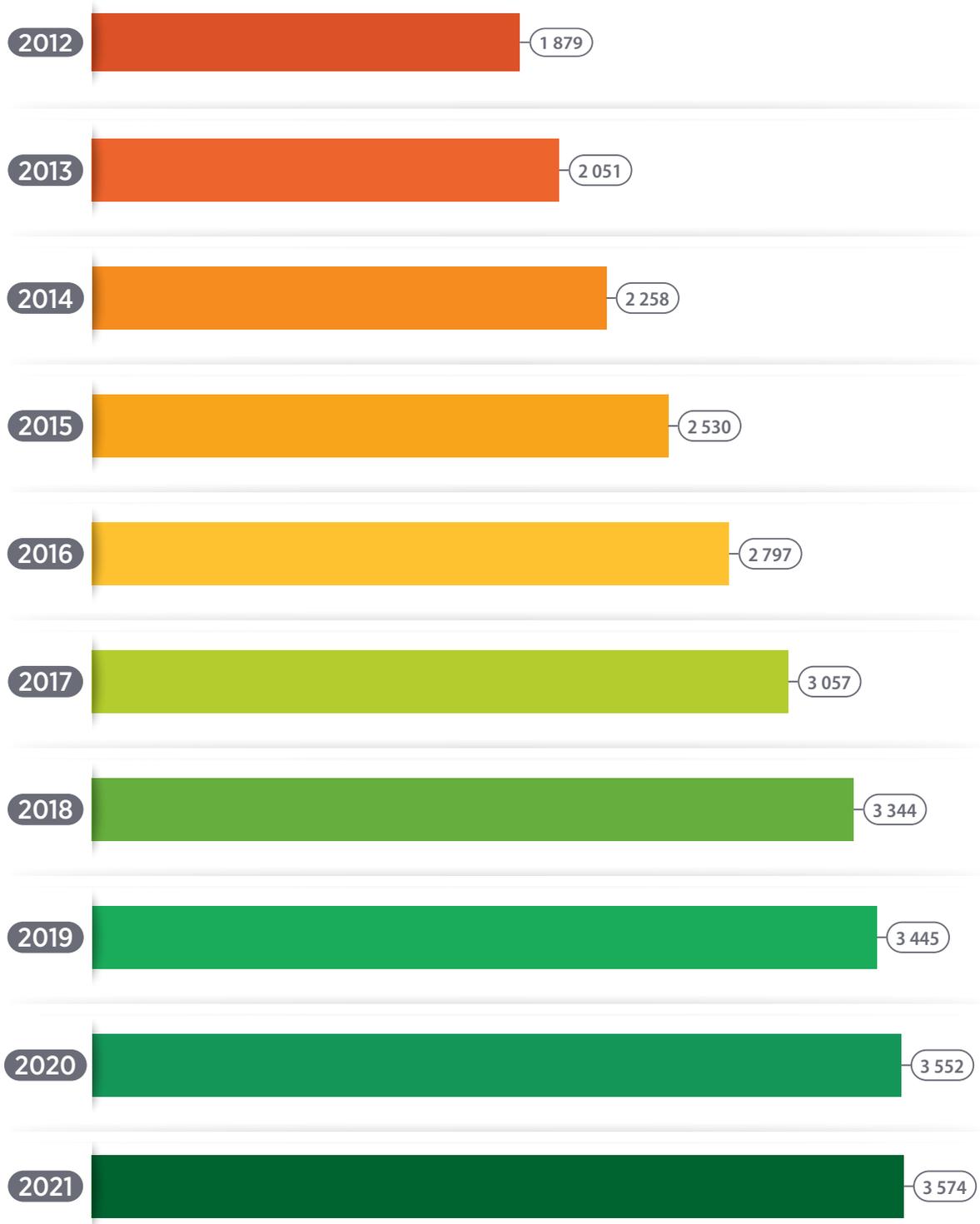


Sources: Own calculations, based on Statistics on Post-School Education and Training in South Africa: 2020 (DHET, 2022), the Higher Education Management Information System (HEMIS) database in 2022, and Mid-year population estimates (Statistics South Africa [Stats SA], 2021)

Note: The number of doctoral graduates per million of population per year is calculated by dividing the total number of doctoral 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.

In order to achieve the NDP 2030 target of 100 doctoral graduates per million of population per year by 2030, universities need to produce more than 5 000 doctoral graduates per year. However, as indicated in Figure 2, in 2021, universities produced only 3 574 graduates.

**FIGURE 2: Number of doctoral graduates in universities, 2012–2021**



Source: Statistics on Post-School Education and Training in South Africa: 2020 (DHET, 2022) and the HEMIS database in 2022.

Note: There were 43 doctoral graduates from private HEIs in 2021. These are not included in the numbers reported in Figures 1 and 2.

The NDP 2030 proposes that, by 2030, over 25% of students enrolled in universities should be at postgraduate level. Figure 3 shows that the share of postgraduate students enrolled in public universities was 14.5% in 2021.

**FIGURE 3: Share of postgraduate students enrolled in universities, 2012–2021**



Source: Own calculations, based on Statistics on Post-School Education and Training in South Africa: 2020 (DHET, 2022) and the HEMIS database in 2022.

Note 1: Postgraduate students include all students in universities enrolled for postgraduate qualifications below master's level, master's degrees and doctoral level.  
 Note 2: The share is calculated by dividing the number of postgraduate students enrolled in universities by the total number of students enrolled in universities.

It is worth noting that the share of postgraduate students enrolled in public universities has been on a downward trajectory since 2016, decreasing from 16.9% in 2016 to 14.5% in 2021. It is thus highly unlikely that this target will be met by 2030, if the share of postgraduate students enrolled at public universities decreases at the same pace in the remaining eight years. For this target to be realised, the share of postgraduate students enrolled in universities needs to increase by at least 1.2 percentage points per year in the remaining eight years.

With regards to fields of study, Figure 4 illustrates that the majority of doctoral graduates were in the science, engineering, and technology (SET) fields in the period under review, responding positively to the NDP 2030 target to make South Africa a leading innovator.

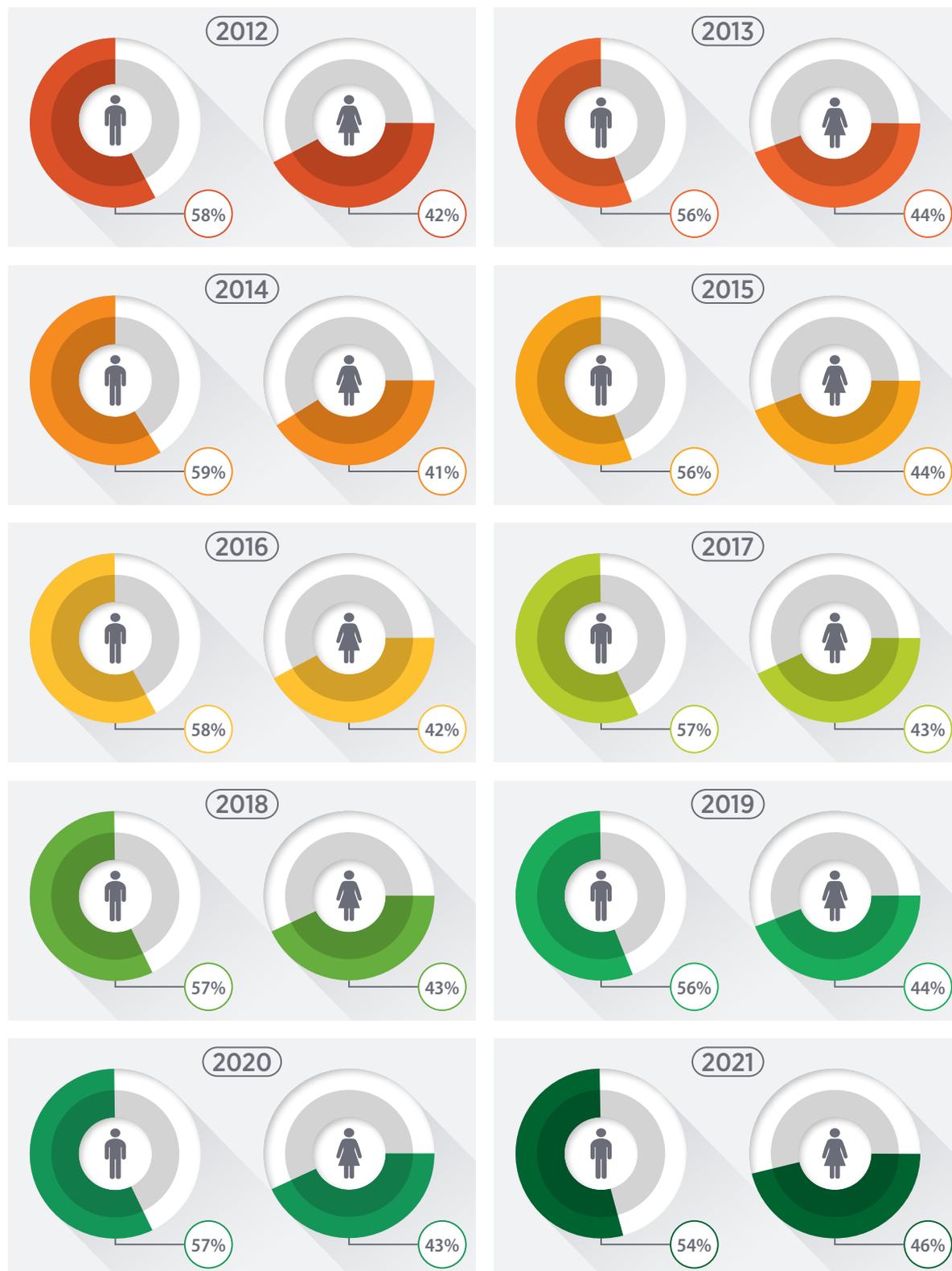
**FIGURE 4: Share of doctoral graduates by major field, 2012–2021**



Source: Own calculations, based on the HEMIS database (2012–2022).

In the period under review, most of the doctoral graduates were men, as shown in Figure 5. However, it is encouraging to note that the gender gap is closing, as 46% of the doctoral graduates in 2021 were women.

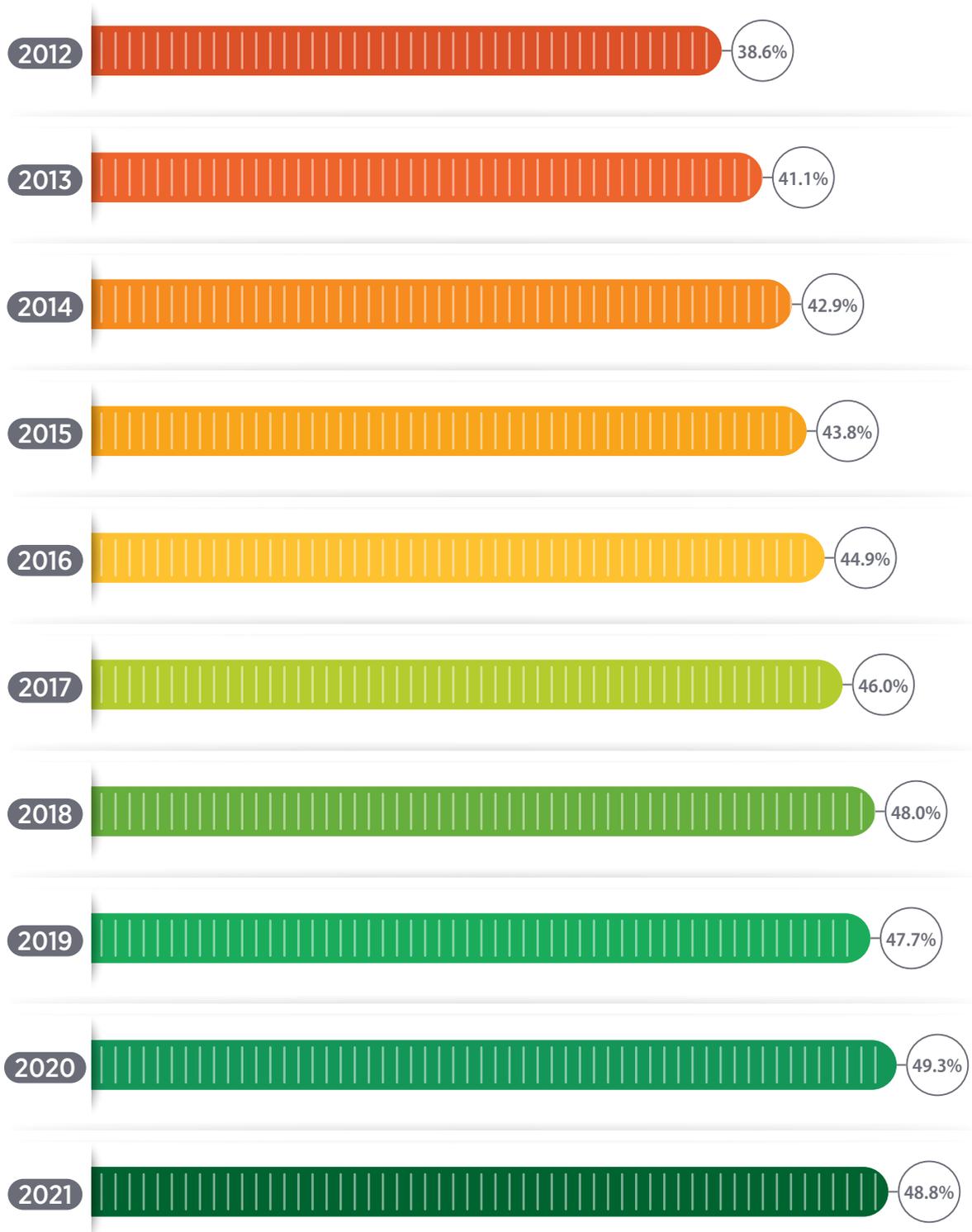
**FIGURE 5:** Share of doctoral graduates by gender per year, 2012–2021



Source: Own calculations, based on the HEMIS database (2012–2022).

The NDP 2030 proposes improving the qualifications of academic staff in higher education and increasing the percentage of staff with a doctoral degree to 75% by 2030. In 2021, 48.8% of academic staff had a doctoral degree, as shown in Figure 6. Given the current growth rates, it is highly unlikely that this target will be met; the percentage of staff with a doctoral degree needs to increase by at least 2.9 percentage points per year in the remaining eight years for this target to be met.

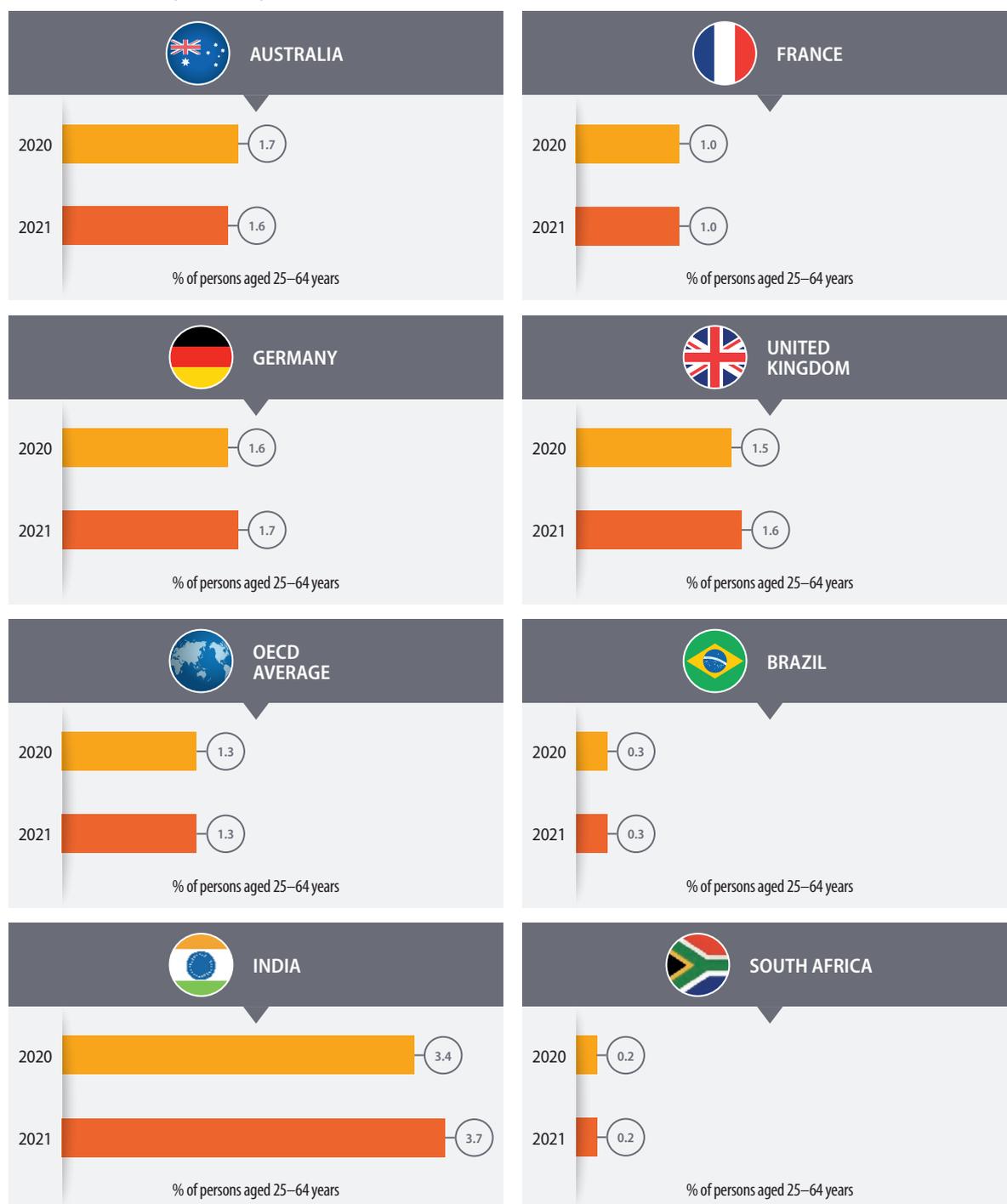
**FIGURE 6:** Share of academic staff with a doctoral degree in universities, 2012–2021



Source: Own calculations, based on the HEMIS database (2012–2022).

Lastly, in comparison with other countries, the share of the population aged 25–64 years in South Africa that attained a doctoral or equivalent qualification is significantly lower than that of countries such as India, Germany and Australia, as indicated in Figure 7.

**FIGURE 7:** Share of population aged 25–64 years that attained doctoral degrees or equivalent (ISCED 8) (%) by country, 2020–2021



Sources: General Household Survey (Stats SA : 2020, 2021) and Education at a Glance (Organisation for Economic Co-operation and Development [OECD]: 2020, 2021).

Note: The proportions for all other countries were obtained from the OECD, while proportions for South Africa are calculated using data from Stats SA.



Targets for doctoral graduates need to be reviewed and aligned with the projected population estimates by 2030



More needs to be done in terms of gender equity, as there were fewer women than men who graduated with a doctoral degree



There needs to be an increase in the capacity of institutions to absorb doctoral students



## CONCLUSION

Although there has been a substantial improvement in the number of doctoral graduates, both in terms of new graduates and academic staff, it is highly unlikely that the NDP 2030 targets will be met by 2030.

The number of doctoral graduates produced per year have more than doubled since the inception of the NDP 2030 but it is not enough to reach the target of 100 doctoral graduates per million of population by 2030, especially given that the population has grown over the years. It is therefore proposed that the targets for doctoral graduates be reviewed and aligned with the projected population estimates by 2030.

With regards to the field of study, South Africa has fared well in that most of its doctoral graduates were in the SET fields. However, more needs to be done in terms of gender equity, as there were fewer women than men who graduated with a doctoral degree. There should also be enhanced efforts to increase the pipeline of doctoral candidates, and therefore the share of postgraduate students enrolled at universities. The data shows that the share of postgraduate students enrolled at universities has been on a downward trajectory since 2016, and this needs to be reversed for the NDP 2030 target to be met.

In order to increase the number of students enrolled for doctoral degrees, there needs to be an increase in the capacity of institutions to absorb doctoral students, including, among other factors, an increase in the supervisory capacity. This means that, in turn, the number or share of academic staff with a doctoral degree needs to increase. As far as this is concerned, the findings of this Fact Sheet paint a bleak picture, as the share of academic staff with a doctoral degree increased at a slow pace in the period under review.



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This Fact Sheet is available on the DHET's website:



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