SOUTH AFRICAN
Journal of Science
November / December 2010 Volume 106 No 11/12

How could South Africa produce more PhDs?

The Academy of Science of South Africa's PhD report, released in October, provides an incisive analysis of why the country's doctoral production remains low. Most of its recommendations are sound, although that of large-scale training of South African doctorates overseas is probably a pipedream.

Last year, South Africa had 10 499 PhD candidates registered at its 23 universities, of whom only 1224 (12%) graduated, compared to the 3500 one should expect if the degree took the expected three years to complete. Despite the setting up of a PhD project by the Department of Science and Technology (DST) and the National Research Foundation (NRF) six years ago, the number of doctoral graduates, which grew to a peak of 1274 in 2007 after an initial injection of funds, has declined slightly since then. Unless large-scale interventions are made, the project's goal of graduating 6000 doctorates annually (half in the natural, health and engineering sciences) by 2025 – already an extension of the original target date of 2018 – seems increasingly unlikely.

So which interventions are likely to be successful? The report's (www.assaf.org.za/?p=2813) first recommendation, that large numbers of South Africans should be sent abroad for their PhDs, is impracticable (page 7; http://www.sajs.co.za/index.php/SAJS/article/view/498/488), the support of the NRF President notwithstanding (http://www.businessday.co.za/Articles/Content.aspx?id=123463). The NRF and its predecessors have funded a small number (currently 40) of doctoral students to study abroad since the mid-1980s, with the criteria being merit and a dearth of local supervisory capacity in the field which the candidate wishes to pursue. While overseas study remains an option for such students, as well as candidates who win scholarships, this is likely to remain confined to a relatively small number of students. No cost analysis for extending such a scheme on a large scale is presented in the report, and it is difficult to imagine how it could be more cost-effective for government than if such students were funded locally. Indeed, one of the report's interesting findings relates to the high proportion (18%) of doctoral graduates at South African universities who come from other African countries – presumably at least partly because it is cheaper to study here than overseas. It appears unlikely that foreign governments – even collectively – would fund the training of South African doctorates on a large scale.

Two of the report's other main recommendations are very sound. Unsurprisingly, one of these is to make more bursaries available for doctoral studies, with the specific aim of increasing the number of full-time candidates. The NRF is currently supporting only 1983 doctoral students, a number that is declining both in nominal terms and as a proportion (currently 19%) of candidates nationally (see page 5; http://www.sajs.co.za/index.php/SAJS/article/view/501/473). NRF bursaries are crucial as they are the mechanism through which the vast majority of full-time doctoral students are supported, and it is these candidates who are more likely to complete their degrees timeously. The report found that in the natural and agricultural sciences and in engineering (fields with more full-time students), 22% and 26% of candidates, respectively, completed their degrees before the age of 30, whereas for both humanities and social sciences, by comparison, only 3% of doctoral graduates fell into this age category. Most critically, the report identifies that almost 70% of doctoral candidates are not full-time students at the time of registration, with a third of the remainder entering employment before they complete their degree. Efforts to reduce both categories should be a priority, and the DST's recent allocation (see page 5; http://www.sajs.co.za/index.php/SAJS/article/view/501/473) for this purpose, though a drop in the ocean, is at least a step in the right direction. Presumably a large proportion of part-time doctoral students fall within the ranks of the two-thirds of South African academics who do not yet hold a doctoral degree, and enabling them to do so would be the quickest way to raise doctoral production in the short term.

The other important recommendations relate to what the report describes as the PhD 'pipeline'. Most striking, of course, is the fact that only 15% of those who pass the senior certificate qualify for university entrance. Of those who obtain a first degree, 42% go on to obtain an honours degree. This may seem relatively high, but examination of data from individual institutions shows that for Black students this level remains a bottleneck, whereas most White students proceed to honours degrees (sadly very few in either category register for teacher's diplomas instead). In this context, the NRF's decision to increase the number and value of honours bursaries next year is to be welcomed. Of honours graduates, just over a third go on to master's degrees, and again at the next level, a similar fraction proceeds to a PhD. But according to the report, the proportion of master's graduates progressing directly to a PhD differs greatly between fields, from three-quarters in the natural sciences and agriculture, to between 30% and 40% in all other areas. The report recommends that, in addition to funding an increased number of doctoral bursaries, the value of these bursaries be increased, and that, in line with the differentiation of higher education, specific institutions with track records in graduating PhDs should be prioritised (83% of doctoral graduates are currently produced by only nine institutions).

The report addresses the issue of supervisory capacity only cursorily – by noting that only 5191 (one third) of South African academics have doctoral degrees; and that of these potential supervisors, the average ratio of doctoral students to supervisors across institutions is 2:1. This figure tallies with the simple ratio of registered students to potential supervisors nationally – the more interesting question is how many of these potential supervisors are capable of providing adequate supervision? Here the upper limit will be set by the number of academics with doctorates; the lower limit may be considered the NRF's corps of 2140 'rated' researchers. But even within this corps, this journal has documented declining support over the past three years for those clearly competent to train more doctoral students (S Afr J Sci. 2009;105:83–84). Roger Southall of the University of the Witwatersrand is correct in identifying funding for supervisors (http://www.businessday.co.za/Articles/Content.aspx?id=123594) as the major constraint on the country producing the increased number of doctorates it badly needs. ■

How to cite this article: How could South Africa produce more PhDs? (Leader). S Afr J Sci. 2010;106(11/12), Art. #522, 1 page. DOI: 10.4102/sajs.v106i11/12.522

Article #522
South African Journal of Science