

## CONCERTED INTERVENTION NEEDED TO ESCALATE PHD NUMBERS: A COMMENT

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The Academy of Science of South Africa (ASSAf), mandated to provide evidence-based advice to the government on scientific matters, has released a report<sup>1</sup> exploring the current state of affairs regarding South Africa's potential to produce doctoral graduates. The authors of the report did a sterling job, performing thorough and elaborate research, amassing lots of facts and finally making ten recommendations. However, I object to the very first recommendation, which states 'Escalate the numbers of doctoral graduates through external intervention programmes, for which there is successful precedent in recent South African history'. This recommendation advocates that in order to rapidly increase the numbers of doctoral graduates, the government must focus on funding doctoral candidates *en masse* to study abroad. As policy advice I find this recommendation absurd and unacceptable.

I am working under the assumption that this recommendation is listed first because, in the view of the report's authors, it should be the top priority. In other words, it is the 'take home message' of the report. Perusal of newspaper articles that covered the launch of the report, confirms this assumption, as they have headlines that read 'Send doctoral students abroad - says the report'. I cannot overestimate the damage caused by such a message, as it feeds directly into the stereotype that this report uncovered: a view of PhD studies as 'just for personal gain', or for the elite, but not in the collective interest of society. If the recommendation of sending doctoral students abroad were to be adopted, it would make it very difficult then to realise the other recommendations. For example, how would the other recommendation calling for closer cooperation between universities and industries be realised?

The foundational question to this discourse is why does South Africa want to escalate the number of doctoral graduates it produces? If the reason is merely to boast about the numbers of doctoral graduates per million people, then this recommendation could be an expedient way to achieve this aim. By contrast, if the reason is connected to using scientific knowledge for economic, social and ecological development,<sup>2,3</sup> then this recommendation would be counter-productive. It is fitting at this point to mention that doctoral students are the lifeblood of research and innovation, providing the country where the research is conducted with a competitive edge. Worth noting is the fact that benefits of research are not gained by the country of origin of the PhDs, but the country where the research is conducted. Therefore, in terms of the link between doctoral graduates and economy,<sup>3</sup> the issue is not about how many PhD students South Africa can export to other countries – or how many South African passport holders have doctoral degrees – but how many doctoral graduates South Africa does (or can) produce. South African passport holders undertaking doctoral studies abroad do not necessarily contribute to South Africa's economy and knowledge development. In addition, the intellectual property of the research that a PhD student conducts resides with the country where the PhD degree is registered. In other words, if South Africa makes a strategic decision to finance most of its PhD students to study abroad, it is inadvertently improving the competitive advantages of those countries. To sum up, sending PhD students abroad would not only remove the economic stimulus which South Africa could potentially enjoy, but also the intellectual property (both in terms of the brightest minds and also the hard-earned product of those four years or so of research).

The report's reference to South Africa's recent past – when a selected number of PhD students were recruited by international institutions to earn doctorates abroad – as a motivation for this policy recommendation is unfortunate and warrants a separate comment altogether. The interventions that were done at that time were at a small (or individual) scale and were not strategic policies by the South African government. I doubt the feasibility of extrapolating from such a small scale to national level. But more important, during the apartheid era, educating some of South Africa's best brains abroad was a strategy to bring about political change. As a democratic country, South Africa's government now has to devise its own policies to achieve economic development. Investment in training a large pool of PhD students is an expensive, long-term endeavour that South Africa needs to make one of its top priorities, because failure to do so will hinder its competitive ability and ultimately its economic sustainability.

I was glad to learn – though no data were provided – that more than 90% of those who earned their PhD degrees abroad during that period returned to South Africa to contribute their newfound skills to the development of the country. However, things have changed much since those days and I doubt if such commendable fidelity would be seen today. Interestingly, the report found that more than 40% of non-South African PhDs studying in South Africa intends to stay in the country after completion of their studies. This is significant considering that non-South Africans accounted for 45% of the total headcount of PhDs in South Africa institutions.

The report's lack of reference or coherence with the other strategic national frameworks is regrettable. For example, the National Research Foundation together with the Department of Science and Technology recently launched an initiative entitled the SA PhD project<sup>4</sup> with a stated aim to achieve a five-fold increase in the annual production of PhDs from ~1200 to 6000 by 2025. Discussing the recommendation of this report in the context of this initiative would have given it more impetus.

South Africa is richly endowed with unique resources (cultural and ecological<sup>5</sup>) that urgently need to be researched and understood. In fact, South Africa is busy inviting the world to come study our systems (e.g. the bid to host the Square Kilometre Array<sup>6</sup>). Therefore it would be unseemly to send our PhD students abroad to study foreign systems. Although many theories and principles that we use

to make sense of the world are universal, most were developed from western viewpoints. That is why there is an increasing number of scholars<sup>5,7</sup> calling for a better appreciation of African knowledge.

Given the ever-increasing bureaucratic and administrative duties, not to mention teaching loads, academics are left with little time to actively conduct research on their own. That is why they supervise PhD students to do the laboratory work, or fieldwork, and write up the results. As shown by the report, PhD students spend on average 4.6 years to fulfil the requirements of PhD degrees. Taking away these invaluable contributions that PhDs currently make would disadvantage South African academics.

I presume that the recommendation to send PhDs abroad is a temporary measure – although it was not explicitly stated so in the report – because otherwise it would not be sustainable. Nevertheless, before this recommendation can be implemented, we need to first ask ourselves some difficult questions. What is the plan for the period starting from the year we send our first cohort of PhDs until they come back (if they do come back)? Armed with new skills and eager to start research careers but without connections with local industries, where is this cohort going to find students with whom to work? Will it not then be entrenched in the minds of everyone that in order to get a PhD you must study abroad? And how will this generation that was funded by the government to study abroad be able to convince the next generation to stay in South Africa and work under its supervision? ■

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