

Building the next generation of South African scientists

Sir, — A recent issue carried a most interesting suite of articles, demonstrating the success of the Royal Society/National Research Foundation programme in helping to build a new generation of South African scientists, 'as ageing researchers retire and retention and new blood become increasingly important'. The NRF's overview of the programme ('Reaching out to the world¹') correctly points out that 'South Africa needs excellent science and far more scientists, drawing on the research potential of the entire population.'

These needs have prompted great change, transformation and restructuring in the scientific enterprise in the country. But, as our most recent history also demonstrates, restructuring needs to be approached with care, as it can have unintended and damaging consequences.

The restructuring of the CSIR² in the 1980s, for example, is now recognized as having been hugely detrimental, and attempts are afoot to rectify that. The demise or contraction of certain elements of South African science has been amply documented, such as that of marine pollution³ and Antarctic research,⁴ where the country's activity has during the last fifteen or so years been much reduced from what it was 30 years ago. Reviews of the fields of oceanography,⁵ meteorology⁶ and other disciplines also present worrying scenarios.

Solid scientometric research indicates,⁷ however, that the research output of the country as a whole has in fact remained relatively constant over the past decade but that, by contrast, that of most comparable countries has substantially increased over the same period. We are informed that this stagnation is due largely to an ageing cohort of publishing scientists,⁸ which is not being replaced successfully. Is all therefore darkness and gloom? By no means.

Any ageing South African scientist needing a boost to the spirits should have attended the project proposal colloquium of the honours class in the Department of Oceanography at the University of Cape

Town last year. Here was as fine a crop of enthusiastic, bright and perceptive young scientists as any tertiary establishment anywhere in the world could wish for. Drawn from the widest spectrum of the South African nation and also from abroad, these young men and women presented a variety of research projects with admirable clarity and perspicuity. Their polished and professional presentations underlined some serious and penetrating scientific thinking. If this was a representative group of the coming research generation, we in South African science have little about which to be overly concerned.

What's needed, as the commentary on the Royal Society/NRF programme rightly suggests, is encouragement, enthusiasm and commitment from all parties, the right institutional back-up, and the right funding and programme design. Then, in the wider context of serving the country's needs, numerous groups of young people can be helped to generate 'quality research' and to 'spearhead a new generation of South African researchers that can take its place confidently in the world of global science.'

Not all bright, committed young students in South Africa are lucky enough to qualify for such conditions, however. Most recently, applications for bursaries by these talented honours students have received the following reply from the Central Grants Administration of the National Research Foundation:

It is with regret that I inform you that the application for an honours bursary to ... has not been successful as these bursaries are awarded only to black South Africans.

Have the NRF decision-makers given any thought to what such a one-liner can do to the spirit of eager and promising young students? Or how it might affect their determination to continue in science? Or their loyalty to the scientific enterprise in South Africa? Have they considered the impact on the collegial relations within a group of students from different race groups?

As academics, we are duty bound to care for all our students, whatever their colour or background. Our role is to form, to guide, to mentor and to empower. All of us give more time to students who need help in areas where others do not. And, yes, currently most of the students who need this extra attention still come from

black communities. And (as the overview of the Royal Society/NRF programme illustrates) what joy it is to see them grow in confidence, in scientific ability, and to reach their full intellectual potential, regardless of their roots and no longer held back by 'the racially dominated legacy of the past'.

But empowering those students surely does not require the blatant racist discrimination of the NRF's bursary policy, as exemplified by the letters it sends out. There is no sign of a means test; no attempt to seek and gather the best talent from all population groups; not even a semblance of justice.

If we genuinely want to fill the rapidly widening gap between what we have by way of practising scientists in South Africa and what we need, I submit that this can only be done effectively and equitably when ideologues in high places get down to where the action is and start helping every deserving case, without regard for outdated concepts of social engineering.

1. *S. Afr. J. Sci.* **101**, 390–392; 2005.
2. Lutjeharms J.R.E. and Thomson J.A. (1993). Commercializing the CSIR and the death of science. *S. Afr. J. Sci.* **89**, 8–14.
3. O'Donoghue S. and Marshall D.J. (2003). Marine pollution research in South Africa: a status report. *S. Afr. J. Sci.* **99**, 349–356.
4. Anon. (2002). Antarctic research programme also in need of rescue. *S. Afr. J. Sci.* **98**, 210.
5. Reason C.J.C., Landman J., Rautenbach J., Lutjeharms J.R.E., Hewitson B. and Piketh S. (2006). A review of South African research in atmospheric science and physical oceanography during 2000–2005. *S. Afr. J. Sci.* **102**, 35–45.
6. Lutjeharms J.R.E. and Roos D.v.d.S. (1999). 'n Dekade jaarkon00gressie van die Suid-Afrikaanse Vereniging vir Atmosferiese Wetenskappe. *Suid-Afr. Tydskr. Natuurwet. Tegnol.* **18**, 69–72.
7. Pouris A. (2003). South African research publication record: the last ten years. *S. Afr. J. Sci.* **99**, 425–428.
8. *South African Science and Technology: Key facts and figures 2002*, p. 30. National Advisory Council on Innovation and the Department of Arts, Culture, Science and Technology, Pretoria (2002).

Johann R.E. Lutjeharms

Department of Oceanography,
University of Cape Town,
Private Bag,
Rondebosch 7701.

Professor Lutjeharms is the recipient of the Fridtjof Nansen Medal for 2006, awarded by the European Geosciences Union, 'for his seminal descriptions and analyses of the Greater Agulhas System, and for inspiring and collaborating with many climate scientists'. He is the first person outside Europe or North America to be so honoured. — Editor