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Research, Research Productivity and the State in South Africa*

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Abstract

Taking the plan of action adopted at the June 2005 Department of Science and Technology conference on 'Human Resources for Knowledge Production in South Africa' as its starting-point, the authors of this article discuss four separate but related barriers to research productivity in South Africa: inadequate academic remuneration and onerous working conditions; the tension that seems to have emerged between advancing equity and realising academic excellence; obstacles that undermine institutional collaboration within the higher education and science council sectors, and the poor quality of senior managers in the knowledge system. In each case, the authors indicate the difficulties that lie in the way of reform and suggest how nevertheless the challenges can be met in contemporary South African conditions. They conclude that social wellbeing in general as well as the health of the research system depends on facing up to and solving these difficult and sometimes controversial issues.

Résumé

En prenant comme point de départ le plan d'action adopté lors de la conférence sur les «Ressources humaines pour la production des connaissances en Afrique du Sud» organisée en juin 2005 par le Département de Sciences et Technologie, les auteurs de cet article examinent quatre barrières, distinctes mais liées, à la productivité de la recherche en Afrique du Sud : l'insuffisance de la rémunération des universitaires et les conditions de travail difficiles ; la tension qui semble être apparue entre la promotion de l'équité et la réalisation de l'excellence sur le plan universitaire ; les

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obstacles qui compromettent la collaboration institutionnelle dans les secteurs de l'enseignement supérieur et du conseil scientifique, et la faiblesse de la qualité des cadres supérieurs dans le système des connaissances. Dans chaque cas, les auteurs indiquent les difficultés qui existent sur la voie de la réforme et suggèrent la façon dont néanmoins les défis peuvent être relevés dans la situation de l'Afrique du Sud contemporaine. En conclusion, ils soutiennent que le bien-être social en général ainsi que la santé du système de recherche sont tributaires de la capacité à affronter et à résoudre ces problèmes difficiles et quelquefois controversés.

Academic, scholarly and applied social research is in crisis in South Africa. As the Department of Science and Technology's (DST's) *National Research and Development Strategy* (R&D Strategy) indicates, spending on research and development declined from 1.1 percent of Gross Domestic Product (GDP) in 1990 to 0.7 percent in 1994, though South Africa's scientific system now had to support the political and socio-economic aspirations of 40 rather than 5-6 million people (Government of the Republic of South Africa 2002:15).[1] This percentage is particularly low considering that the OECD countries spend on average 2.15 percent of GDP across the public and private sectors, with countries like Finland and Korea approaching the 3.5 percent level. As DST's R&D strategy document concludes, this is disastrous, since 'South Africa's current expenditure is significantly lower than it should be to ensure national competitiveness in years to come' (Government of the Republic of South Africa 2002:17).

But the problem is more profound than aggregate research spending. South Africa's share of global research output has been declining for over a decade, from 0.8 percent in 1990 to 0.5 percent by 2001. Independent assessments of South Africa's public research sector publications suggest that scientific output has been stagnating for the last decade and a half (Kahn and Blankley 2005; Pouris 2003). Moreover, for some years researchers have been ageing without adequate renewal. This is graphically demonstrated in figures from the R&D strategy that indicate that whereas researchers over fifty years of age produced only 18 percent of publications in 1990, their contribution to total output had increased to 45 percent by 1998. Moreover, black scientists accounted for only 8 percent of total scientific publications at this stage (Government of the Republic of South Africa 2002:21). In short, South Africa's scientific personnel are mainly white, male and ageing. If this is not addressed urgently, it will result in the decline of the country's scientific profile and infrastructure in coming decades.

In recent years, this crisis has galvanised government into action. Not only are there a number of initiatives under way to re-organise funding and direct it to the scientific establishment, but also conversations are increasingly being facilitated between various stakeholders aimed at understanding and solving the problems at hand. There have, for instance, been four meetings of the Higher Education Working Group, which comprises the President of the country and the vice chancellors of all higher education institutions. Signifying the urgency of the matter, President Mbeki, and Ministers of Science and Technology, and Public Enterprises, Mosibudi Mangena and Alec Erwin respectively, have co-authored a paper intended to spark a national dialogue on the role and purpose of higher education institutions in contemporary South Africa (Erwin, Mangena and Mbeki 2005).

Another notable initiative was the 'Human Resources for Knowledge Production in South Africa' conference in June 2005, organised for the DST by the Africa Institute and the Human Sciences Research Council. The conference focused on how to revitalise research in South Africa. It took place as a result of recognition by government and other entities that South Africa's share of global research output has steadily declined for over fifteen years. Government is increasingly worried about the implications for economic development, political democracy and higher education.[2]

Representatives of various stakeholders participated in the conference, including state officials, higher education and science council managers, private sector and civil society leaders, researchers and international experts. Almost all were decision-makers within different institutional settings, and as a result, were collectively in a position to put a negotiated national strategy into effect. The conference adopted a multi-faceted resolution involving action by all stakeholders.

This article reflects critically on this resolution. It considers its viability against the backdrop of existing research on the academy and the production of knowledge in South Africa. It focuses on state spending patterns and institutional linkages in the knowledge sector, higher education and other policies, university reforms, and how these facilitate or undermine research productivity. Thus, the article speaks to possible futures for the knowledge system in South Africa.

The conference agenda and plan of action

The conference was designed as a summit where conversations happened among diverse stakeholders, firstly, to articulate what they saw as the main obstacles to enhancing research productivity, and secondly, to negotiate a strategic plan

with sufficient consensus to ensure its viability and facilitate its implementation.

The conference agenda was organised to facilitate action. After a welcome by the Minister of Education, Naledi Pandor, Dr. Mashelkar, president of the Council of Scientific and Industrial Research (CSIR) in India, delivered a keynote address on his country's experience in developing its research environment and enhancing its intellectual productivity.[3] This was followed by South African institutional leaders' presentations on several topics including: the relationship of education, training and employment; existing and potential linkages between knowledge development and the South African economy; the impact of globalisation on research; research funding; the state of public research infrastructure; and the continental dynamics required by and for a redeveloped science and technology strategy.

In summary, the plan of action adopted at the conference on 24 June 2005 advocates:

- Recruitment and retention of high-level scientific and technological personnel, and the promotion of partnerships between universities, research councils and industry in support of this agenda.
- Careful attention to the support of advanced study, to its form and content, and appropriate incentives.
- Linking the research agenda to national priorities, and allocating funding accordingly.
- Increasing national investment in research in ways that also leverage quality overseas and domestic involvement.
- Promoting South Africa's role in Africa as a leader in scientific research for continental development.
- Engaging with scientific globalisation so that South Africa becomes a hub in appropriate research areas, and attracts talented researchers (Department of Science and Technology and Department of Education 2005b:2-3).

This plan of action is predicated on retaining good academics and scholars within the knowledge system, attracting a new generation of students to the research professions, encouraging research in areas with beneficial impacts on the economy and society, and finally promoting institutional collaborations within and across national boundaries. Its viability depends on solutions to four distinct, but related problems: inadequate academic remuneration and onerous working conditions; the tension that seems to have emerged between advancing equity and realising academic excellence; obstacles that undermine

institutional collaboration within the higher education and science council sectors; and the poor quality of senior managers in the knowledge system.

Research funding, academic remuneration and working conditions in the higher education sector

How is a quality workforce to be developed and retained within the knowledge system? First, academics, researchers and other knowledge workers need to be adequately remunerated. Second, the institutional environment, defined by the availability of financial resources and appropriate working conditions, must enable knowledge workers to undertake one of their core functions, namely research. Should such an environment not prevail, systemic incentives are unlikely to be sufficient to retain good academics and researchers. Both elements need to be disaggregated and require further clarification.

Three sets of reforms in remuneration are urgently required. First, remuneration scales in the academy as a whole have to be raised significantly. Academic salary scales have fallen in relative terms for over two decades. A study that attempts to estimate the real purchasing power of academic salaries between six Commonwealth countries puts South African academic salaries slightly ahead of those in Malaysia, and behind those of the United Kingdom, Canada, Australia and New Zealand (Kubler and Roberts 2005). They have declined even more steeply in relation to other South African professional salaries. A South African Universities' Vice-Chancellors Association (SAUVCA) report notes that 'it has been evident for a long time that academic salaries are not comparable to private sector salaries and … have been increasing at a slower rate than salaries offered to professionals in other fields' (SAUVCA 2004). It is common to hear of masters graduates with no substantial working experience being employed as deputy directors in the public service, and at the bottom of that scale receiving remuneration packages equivalent to those of professors with twenty years experience. The effect of such situations is that the academy has become an unattractive career option. Not only has this resulted in top graduates shying away from research careers in the academy, but it has also resulted in the senior researchers and established scientists required for the reproduction of a new generation of scholars engaging extensively in commissioned research and consultancy to augment their inadequate salaries (Department of Science and Technology and Department of Education 2005a, citing Kraak 2003). University managements have ensured that their salaries are market-related, without paying concomitant attention to the salaries of established scientists.[4] Unless this is urgently addressed, research productivity is likely to continue to decline.

However, an overall increase in academic salaries is not in itself going to address the problem. This is because sufficient resources are not available to lift these remuneration scales to levels equivalent to those of two decades ago. This raises the issue of differential academic remuneration. The South African academy, based as it is on the British system, has for long been defined by relatively standardised and egalitarian patterns of remuneration within the different research hierarchies. This comes at the cost of the more productive researchers who are not rewarded monetarily to any great degree for their hard work and prolific output. For a system needing to retain good researchers and encourage further output, is it not mandatory that remuneration be tied to productivity?

There are precedents. In the American academy, senior professors are able to negotiate their salaries on an individual basis, which leads to a system that is more unequal but more productive. There are also South African precedents. Two of the more notable cases in recent years have been the Human Sciences Research Council (HSRC) and the University of KwaZulu-Natal. In the former case, a new HSRC management attracted social scientists of quality by offering higher salaries than those of the universities. The result was that the institution's productivity, as measured by peer reviewed journal publications, jumped from 0.18 per researcher in 1997 to 0.8 units per researcher in 2004, or 0.67 adjusted for multiple authorship (Human Sciences Research Council 2005:5, 9; see also Orkin 2005). In 2002 the University of KwaZulu-Natal implemented a different reward system tied to academics' research codes. As a result, the productivity of the University of Natal component of the now-merged institution jumped from 448 to 582 SAPSE units between 2001 and 2003 (University of KwaZulu-Natal 2004). These examples suggest that the research outputs of institutions can be dramatically improved when research productivity is rewarded monetarily.

But is increased remuneration for productive researchers affordable? Studies indicate that globally the distribution of scientific production is not a normal one. As Huber reminds us, 'the distribution of productivity does not follow the normal (i.e., bell curve) distribution, but rather follows the exponential distribution. Thus, most authors produce at the lowest rate and very few authors produce at the higher rates' (2001:1089). This means that in any given field in a given period 60 percent of researchers will have one publication, 15 percent two, 7 percent three and so on (ibid.). Thus, if remuneration is tied to productivity, it is likely to reward small numbers of researchers within the academy, thereby making it more affordable. Moreover, while more resources would be directed to a limited pool of researchers, it would nevertheless have beneficial systemic effects by encouraging others, including younger researchers, to be-

come more productive. The consequence is likely to be greater aggregate output from the nation's knowledge system.

Finally, a transformation in the architecture of academic remuneration is warranted. Presently, salary scales are structured to reward managerial more than core research and teaching positions, as recent revelations on the salaries of some top managers have shown (Macfarlane 2004). This tells academics that should they want to earn more, they need to consider becoming academic managers. A dynamic has therefore been created where productive researchers, black and white, tend to move into management because that is where monetary rewards are highest. Not only does this undermine the retention of high calibre senior black academics within research and teaching, but it also prejudices research productivity. The result is catastrophic. It becomes almost impossible to progress adequately towards a demographically representative academy.[5] And, the nation's research output falls, with serious consequences not only for its intellectual reputation, but also for economic growth and development.

However, reform of academic remuneration is, on its own, unlikely to enhance research productivity. Working conditions must also be structured appropriately if a vibrant research culture is to emerge. Studies have indicated that South Africa's academic workplace has become more onerous and stressful in the last decade. In one such study, Eddie Webster and Sarah Mosoetsa (2002) demonstrated that academics have to teach and mark more, and that a more commercial managerial logic in the universities has produced demoralisation, stress and decline in productivity. This leads to the inevitable conclusion that working conditions in the academy have to be radically reformed if research output is to increase.

This must not be interpreted to mean that teaching and marking, and in general educating a new generation of high-level workers, are not important. These functions are crucial to the nation's development, stability and future prosperity. But if the demand to educate a new generation is to be coupled with generating more research, then the institutional environment has to empower researchers and research activities more. Not only would this involve employing more academics with a resultant decrease in staff-student ratios, but more support for marking and other teaching functions would also be required (Webster and Mosoetsa 2002). Again, lessons can be learnt from other experiences including those of the American academy. The net effect of these reforms would be greater expenditure on the university system from the public purse and a more entrepreneurial approach from higher education managers.

Better remuneration and more enabling working conditions are indispensable for a productive knowledge system. Without these, the top end of the graduate

pool is unlikely to be attracted to academic research as a profession. Moreover, for the foreseeable future the academy would haemorrhage its most capable researchers, especially in an environment where there are skills shortages in many areas. If South Africa's political elites are serious about enhancing the country's research productivity, and if they understand this as necessary for realising greater growth and development, then they must seriously consider the reforms of academic remuneration and working conditions detailed above.

Equity and excellence

The search for equity is a key theme in contemporary South Africa. Equity has many dimensions, in South Africa the most sensitive being that of race. Arguments for racial equity also saturate the universities and research councils, posing interesting and difficult problems, amongst them that of maintaining institutions' research profiles.

It should be noted that two separate discourses—that of racial empowerment and that of research quality—are at play in the debate on the transformation of South Africa's knowledge system. Before exploring the contours of this debate, it is worth stating that excellence in research has nothing to do with race. Moreover, redress as defined in the Constitution and legislation explicitly states that the search for racial equity should not be at the expense of quality. However, the real world is not as neat as that of theory, and as a result of the racialised legacy there is in fact a real tension between the two imperatives. While the emphasis has tended to change in key documents from equity to quality and efficiency (Cloete 2005), there are strong, even increasing, pressures towards racial redress in higher education and research, now articulated more in terms of black empowerment than egalitarianism. The challenge currently confronting leaders and managers of South Africa's higher education and research institutions is to manage the tension and advance towards a more racially representative knowledge system without irreparably damaging research productivity.

Excellence in research also has nothing to do with democracy, except in the sense that democratic policies that widen access to education and information increase the population from which talented researchers will emerge, and that democratic environments are more likely to assure researchers the tolerance they require to flourish, especially in the social sciences. Research however depends on merit, not representivity. Merit in research is composed of various things, including intelligence, imagination, experience and judgement. The excellent researcher will evolve over time. However intelligent, researchers are unlikely to be at their peak immediately after being awarded their Ph.D. Meritorious research does not, however, imply one specific approach. It can

involve the use of differing evidence, methodologies, judgements and conclusions, even when it pertains to similar areas.

If these propositions are accepted, some worrying issues arise in the context of contemporary approaches to research equity in South Africa. The institutional and personal profile of research in South Africa, and no doubt the intellectual orientation of many researchers, was and is deeply marked by racial origins and social class, though this is not necessarily directly reflected in the academic approach of all researchers from such backgrounds. This environment, for good or ill, largely defines the country's contemporary research profile, with, as noted earlier, a preponderance of white, male, and now ageing, academics and researchers. This cannot be rapidly reversed, since education, particularly higher education, evolves gradually. This research structure can be dismantled, and incrementally modified, especially through the mechanisms outlined in the previous section. But it is not possible to immediately replace it with an alternative, equally robust research system.

If these are the lineaments of research in South Africa, how do they relate to the current situation in universities and research councils? There is pressure to achieve a more balanced racial profile amongst researchers as rapidly as possible. Quantitative targets have been set which departments and faculties struggle to meet. The retirement of researchers has often been encouraged and sometimes enforced. Almost all universities shifted their retirement ages from 65 to 60 in the last decade in the hope of creating space for a more representative demographic profile.[6] Staffing gaps are often not filled and are left vacant because no suitable black candidate can be found. Premature promotions are common, leading to a lowering of the status of academic titles. Talented and highly qualified black researchers find themselves courted from all sides, and, as noted above, often have well-rewarded options, which many exercise, outside research. In short, as Jonathan Jansen argues, 'The university ceases to exist when it represents nothing other than an empty shell of racial representivity at the cost of academic substance and intellectual imagination' (Jansen 2004:11).

This situation involves various dangers. It could be said that in time a type of normality will establish itself. Larger numbers of black researchers will be produced, and the pressures to appoint black candidates at all costs will ease. Ultimately, there will be an approximately normal distribution of the races in research as in other jobs, and the need for affirmative action will fall away.

However, this perspective is too long to be truly helpful. Research is vital in so many spheres, and the possibility of falling behind world developments is so great, that South Africa cannot wait for the problem to resolve itself over time. There is a real danger that South Africa could casually marginalise its existing research talent while not being in a position to replace it. And while it

can and does draw on the talents of other countries, especially African countries (incidentally to the peril of the research infrastructure of these neighbours), South Africa is not in a position to import and pay for such talent on a large scale, as is, for example, the United States (Kahn et al. 2004).

There is, therefore, an uneasy balance between equity and excellence in contemporary South African research. It is crucial that the country gets this balance right. It will not help the cause of equity in the long run if research is so badly damaged that it enters a downward spiral. It is particularly important to maintain existing expertise for its own sake and for the training and support it enables for upcoming researchers. A parallel situation was that of the school teaching force in the mid-1990s, when experienced and well-qualified teachers were offered the chance, which many took, to retire on favourable terms, to the lasting damage of the school system and the interests of pupils (Fiske and Ladd 2004:106). A similar danger exists in this case.

Institutional collaboration

It is generally agreed, and the 'Human Resources for Knowledge Production in South Africa' conference emphasised, that in modern conditions in many crucial research spheres, collaboration in substantial focussed groups is essential. It is unlikely that such groups can always be constituted from within a single institution. In many cases, they will have to transcend institutional boundaries. This leads to the many forms collaboration can take. It can consist of networks that evolve purely from the logic of a particular research enterprise, without necessarily being predicated on the formal alignment of institutions. In other cases, however, institutional collaboration is important in facilitating research and making best use of the expertise and facilities available nationally, regionally and even internationally.

In South Africa, some barriers to institutional collaboration have been partially eliminated in recent years. The mergers and realignments in higher education of the past few years have begun to clear away some obstacles to such collaboration, in research as in other areas. Though undoubtedly the fundamental motivating factor in the mergers was an attempt to reduce costs, they cut through the racial categorisations that had previously divided the sector, and began to clear away this pernicious legacy of educational apartheid (Gibbon et al. 2001a, 2001b; Habib and Parekh 2000).

Nevertheless, despite the many positive outcomes, the process of merger and realignment was difficult in many ways, and its repercussions are still being felt (Hall, Symes and Luescher 2004; Jansen et al. 2003). Third-level institutions are complex entities, and the shocks they received in the course of institutional realignment have often left them reeling, at least for the moment. The

introspection and scrambling for certainty in an uncertain environment that they have experienced and continue to experience tends to divert attention from core activities, research included. Also, with internal bureaucratic and academic structures still unsettled, they often find it difficult to embark successfully on programmes of research collaboration with external partners, even fellow-universities.

This tendency towards introspection and self-absorption is also a reason, it seems, for the low level of collaboration between universities and science councils. However, there are also other reasons. While the move towards financial self-reliance and cost recovery is near-universal in the contemporary academic world, it is particularly marked in the science councils, where subventions from their home ministries remain static or increase very little, and where they are required to raise ever-greater proportions of their revenue from research entrepreneurship. This in turn means that the councils can afford to devote little if any of their employees' time to research activities that do not earn substantial revenue. This economic model does not rule out collaboration with universities, but it makes it difficult. It puts a premium on rapid results, on adequate as opposed to excellent research, and on a breadth of area sometimes amounting to dilettantism as opposed to rigorous investigation and specialisation. Also, as researchers' time is rigidly costed, it makes it virtually impossible to create space for a mentoring relationship with the postgraduate students who are at the heart of university research.

Institutional collaboration goes beyond national boundaries. South Africa stands at an intersection. On the one hand, it is a substantial regional and perhaps continental power, whose weight is felt, in research as in other spheres, far into Africa. On the other hand, it is, in relation to the economically highly developed 'northern' societies, relatively insignificant and vulnerable, producing a small and declining proportion of the world's research output. As a 2004 Council on Higher Education report aptly commented, 'South Africa has the best developed and capacitated national research and innovation system on the African continent, although its standing in the wider international research array has weakened' (Council on Higher Education 2004:124). This wider world is often seen as 'globalised' with the implication that it has entered a completely new stage. Though this may not be as unprecedented as is often implied, research in South Africa has to operate in a context where knowledge is fluid and instantly communicable, yet also subject to power relations that tend to benefit those most able to utilise the immense power and sweep of contemporary technology.

The 'Human Resources for Knowledge Production in South Africa' conference spoke of collaborating with the rest of Africa towards the development

of the continent, and of South Africa's 'vanguard role'. For such aspirations to make sense, there should be a realistic assessment of the regional and continental situation. While there are islands of excellence, in general, universities over most of sub-Saharan Africa are grossly under-resourced and out of touch with the latest research. Academics are usually paid extremely low salaries, and many of the best African academics and researchers leave their home institutions for appointments abroad, some coming to South Africa. Most research work at African universities is carried out for consultancies, to earn a living for the researcher, with all the limitations of this genre. Sometimes academics spend much of their time working at occupations and on projects without any research content at all. As in South Africa but even more disproportionately, managers of academic institutions are paid more and have more prestige than academics and researchers (see Lebeau and Ogunsanya 2000).

What might institutional collaboration mean in these domestic, regional and international contexts? In all of them, resources are crucial, but the question takes different forms in the three environments. In South Africa itself, the declining rate of state support, particularly in the science councils but also in the universities, tends to move research in directions favoured by the remaining funders such as domestic or international donors, or industry and commerce. Research funding has never been a neutral or a simple process, and the argument here is not that there is always and in every case an automatic correspondence between the public interest and the state. However, it can be argued that the state's partial retreat from direct funding of research, particularly in the science councils whose remit is applied science, has tended to limit the available options and has opened the way for research agendas not always or primarily aligned to the interests of the South African public. Collaboration between research bodies is to be encouraged; it enables large projects to be undertaken, makes good use of skilled researchers and saves in personnel and other costs. However, it is more questionable if it masks the decline in state support and provides a channel for the elaboration of research agendas over which South Africans have little control.

The question of resources applies even more starkly to collaboration between South African and regional and continental researchers. Here, power is wielded in South Africa. With generally a very limited research base, it is difficult for African research organisations to negotiate as equals, and the tendency is for South African researchers (like South African business) to be able to dictate the terms of the relationship. South Africans should be aware of this, and try to ensure that the research relationship, in spite of political and economic realities, is as even-handed as possible. This is an essentially and perhaps unsatisfactorily

moral and ideological approach, but it is difficult to see what else is possible in the circumstances. In facing the 'globalised' world, the situation is reversed, and South Africa, in research terms, tends not to hold the trump cards. However, in some research areas this may not be the case. South Africa thus needs a clear research focus, and a keen appreciation of what it can and cannot do, and where its comparative advantages lie. South African researchers are in a better position to enter collaborative international agreements on a basis of approximate equality than are other African research communities, and they need rapidly, though prudently, to develop collaborative international networks of this kind. To do this, however, the level of support in South Africa itself will need to be maintained and increased.

Management of higher education and research

Many of the issues we raise come into sharp focus when the management of higher education and research is considered, because this is the point of delivery. Questions of academic remuneration referred to above affect research management. Glaring salary inequalities between researchers and administrators demotivate researchers and sap their productivity. The South African system to some extent rewards researchers financially for success in their fields, though this varies from institution to institution. However, these rewards are inconsiderable, and the way to advance in the system is in essence not to succeed in it, but rather to leave its crucial, research aspect. This is not a recipe for a vibrant research sector.

Management of South African higher education and research is problematic.[7] The shocks and adjustments that have affected the whole of the society have not spared universities and other research institutions. However, even within a system that appears to be undergoing substantial change, there are also forces of inertia and conservatism that influence, not always for the best, how research is managed. Instability and conservatism sometimes unite in a malign combination.

Policies of empowerment can have unexpected results in the context of universities and research councils. Programmes, faculties and departments aim to balance their racial and gender composition, which normally means appointing more black candidates. Though policies in this area spell out that this process should work in conjunction with the maintenance of quality, in fact targets tend to be interpreted in terms of a crude racial headcount. This has a number of effects, given the historical realities of educational privilege. One is that posts can go unfilled for lengthy periods for want of adequate black candidates. Another is that there tends to be an influx of young and inexperienced

black academics, which leads to the unfortunate situation, with many possibilities for misunderstanding and conflict, of a cohort of older mainly white academics in authority over young and mainly black junior colleagues.

In forming the merged third-level institutions the posts of vice-chancellor were publicly advertised, though of course at this level there are many influences at play in such appointments. However the practice with second-tier management has in general been to allocate positions to the personnel of the old institutions with an eye to the careful division of posts rather than to the creation of dynamic and innovative research administrations. These processes have various effects. Firstly, management quality is deficient. Research managers, it is generally agreed, ought to know what the world of research consists of. Yet top managers frequently have very few academic publications. A few have or, where no longer in office, have had none. Given that peer-reviewed publication is, rightly, the touchstone of academic competence and achievement, particularly in the field of research this is a worrying tendency. Arguably, opportunities were missed during the merger process to look carefully and critically at research administration in its totality.

There appears also to be little sense of history or context. The ubiquitous strategic visions intended to guide institutions tend to be much the same, from wherever they emanate, uttering the same ambitious but decontextualised and unspecific mantras of quality, relevance and the like (Habib 2001). They pay little attention to the difficult historical legacies and current problems of South Africa's varied and unequal higher educational and research environment. Without greater clarity of vision, it is difficult to believe that mergers of institutions will in themselves resolve these questions.

At the centre of the academic system are deans. Always powerful, their bureaucratic position has in one sense been strengthened in recent years by the tendency to appoint 'executive deans' who are line managers directly answerable to the vice-chancellor. Previously, faculty members elected deans who were more directly responsible, and therefore generally responsive, to the academic community.

Yet the way in which the power of deans has tended at present to express itself has been through an elaboration of and concentration on administrative processes rather than on critical engagement with research and teaching. Thus formal power does not always go with the real power, for example, to influence research and help to create imaginative research agendas. Academic systems have become more bureaucratic, even authoritarian, yet also less responsive and nuanced in their approach to the core responsibilities of higher education institutions. To what extent this is a structural issue, with academic and research influence perhaps inevitably seeping away in a welter of meetings and

form-filling, and to what extent it is a product of the appointment of often inadequate deans, servants of central administrations that increasingly engross power without always being able to exercise it in creative ways, is difficult to determine. The effect, at any rate, is that, typically, deans do not play their expected role in high-level strategic decision-making and management.

A further weakness in academic management is the council system that is meant to oversee the activities, including research, of universities and research councils. In many cases, councils have frittered away their time on micro-management and in partisan involvement in the quarrels that tend to afflict academic life, or have hung back from decisive action on gross mismanagement. Of twelve councils surveyed in a CHE report in 2002, half had serious problems, three of which 'were either deadlocked by endemic crises … or have collapsed as a result of such crises' (Hall, Symes and Luescher 2002:75; see also Habib 2001). In an attempt to preclude immersion in these institutional politics, the Higher Education Act of 1997 laid down that sixty percent of council members must now be from outside the institution. However, vice-chancellors nominate potential council members to the Department of Education, and this tends to lead to councils packed with their allies, a situation that makes real oversight impossible.

In short, the research system has emerged from, and still bears the marks of, deliberately imposed inequality. Though it is difficult to generalise about the quality of research management, which differs from institution to institution, large swathes of the system are badly administered. The 'managerialism' said to characterise the sector should not necessarily be taken as implying bureaucratic efficiency in a context where high-level bureaucratic and administrative skills are at a premium.

Conclusion

South Africa in the 1980s was characterised by isolation. There was the basic fact of politico-geographical isolation. The electronic revolution that has in some senses eroded the isolation of particular societies was still in its infancy as a mass phenomenon. South Africa was at the southern extremity of a poor and scientifically underdeveloped continent with which it was tacitly or overtly at war, yet with its ostensible loyalties to the western world and the western values that it claimed to represent only reciprocated in part, contingently, and with many reservations.

There was also the more subtle isolation engendered by the harsh and intractable issues that characterised South African society and politics. A country that once, albeit in the context of colonialism, had been linked in many ways to the rest of Africa, found itself isolated from the continent as a whole, or joined

only in the tense embrace of mutual hostility. This engendered introspection and parochialism in research as in many other fields. This was not confined to the then establishment. Even the academic left paid remarkably little attention to Africa north of South Africa. History, sociology and other disciplines focussed almost entirely on South Africa itself, and whole historiographical and other intellectual movements in Africa in the forty or so years from the mid-twentieth century passed South Africa by (Mamdani 1996). The intellectual scene was set by an intolerant and racist orthodoxy, and even the radical and liberal players, protest as they might, had to perform on this stage.

It is therefore ironic that contemporary South Africa, open to and engaged with the world, is less productive in research terms than the isolated and provincial country of the apartheid era. This is not a trivial question: social wellbeing is bound up with the ability to face and solve the questions that challenge it. A robust, well-supported, critical research system is the lynchpin of this process. The June 2005 'Human Resources for Knowledge Production in South Africa' conference was perhaps a hopeful beginning in that it indicated problems and began to suggest ways of confronting them. However, the real challenge lies in facing up squarely to the many difficult and sometimes controversial issues that this confrontation will involve.

Notes

1. This figure has increased to 0.8 percent of GDP amounting to R10.1 billion spent on R&D in the 2003/2004 financial year. Just above half was spent in the business sector, while 22 percent and 21 percent were directed to the higher education sector and science councils respectively.
2. Studies indicate that there is a strong correlation between research, innovation, and economic development and prosperity (Mouton, Boshoff and Bailey 2002).
3. India is seen as successful because of its economic growth and especially the development of its information technology sector. This is integrated into and has successfully competed with the corporations of the developed world.
4. Indeed, many believe that university management salary scales are too generous. There was an outcry when the *Mail & Guardian* published the salary packages of the country's vice-chancellors (see Macfarlane 2004).
5. There is plentiful anecdotal evidence for this claim. For example, some time ago one of the authors asked a well-known black academic manager, a mathematician by training, why s/he left his/her field within twenty-four months of obtaining a Ph.D., even though s/he had clearly demonstrated potential to become a significant researcher. The response was that monetary pressures were too intense, and the quickest way to relieve this pressure was to earn a decent wage, only available within the academy in management.

6. This is apparent from university websites. See, for example, the University of the Witwatersrand, http://www.wits.ac.za/vacancies/condperm.htm
7. Jansen notes that leadership is the single most crucial variable determining the success or failure of mergers, yet that insufficient attention has been given to this in the far-reaching restructuring of South African higher education (Jansen et al. 2003)

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