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Science for transformation: research agendas and priorities in South Africa

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How do research agendas reflect and represent the research interests of different constituencies? In South Africa, public sector research is currently being steered and shaped as a means to effect reconstruction and transformation in a society in transition. South African science is driven by a very broad and ambitious transformative agenda. One of the priorities is the reconstruction of the science system to address the needs and demands of the majority of citizens. This chapter assesses to what extent the government and its various S&T agencies are succeeding in this endeavour.

1 Introduction

In 1992, the African National Congress (ANC) commissioned a review of the state of science and technology in South Africa. Three of thee main conclusions of this study, sponsored by the IDRC, were that the science and technology (S&T) system inherited from decades of apartheid was fragmented and uncoordinated, did not serve the interests of all South Africans, and was ineffective and inefficient.[2] When the ANC government came to power in 1994, the new government used these and other findings as a point of departure in starting to reshape South African's S&T system. In its green paper (1995) and subsequent white paper on S&T (1996) the government committed itself to creating a new policy framework for public science, conducting a system-wide review of the national system of innovation in order to establish its strengths and weaknesses and future priorities, and establishing new structures to develop, implement and monitor the new policy framework.

The key motif of the 1996 white paper on S&T was the concept of a *national system of innovation*. More recently, in the National R&D Strategy (2002), the Department of

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2 IDRC (1993).

Science and Technology explained this emphasis on a national system of innovation (NSI) as follows:

> 'The new government faced challenges in basic development. Having focused on the future for so long in the struggle, we now had to deal with the urgent service delivery needs of the present. Not surprisingly, the new funding scenarios required re-direction of the remaining technology competencies towards missions emphasizing quality of life and economic competitiveness. However, the emphasis was on reprioritization rather than the funding of new missions. Within this policy space, the White Paper on Science and Technology approved by Cabinet in 1996, established a policy framework for science and technology in South Africa based on the concept of a National System of Innovation'.[3]

Two key tenets of the notion of an NSI have 'guided' S&T policy, resource allocation and institutional 're-arrangement' since 1996. These are an emphasis on aligning the NSI with national socio-economic imperatives and frameworks, and the imperative to transform the system to reflect the larger demographics of the country. Underpinning both goals was a clear sense that the NSI should meet the demands and serve the interests of the entire nation, and not any specific sectoral interests.

This chapter addresses three specific questions. First, whose (research) demands are being addressed in South African science today, and to what purpose? Second, how are the research interests and demands of various constituencies in South African society articulated and represented on the national research agenda? Third, what modes of research (production) predominate in public sector R&D institutions in South Africa, and do these support a transformative agenda? The chapter then offers some observations about new, emerging forms of articulating research demand that suggest alternative modes of engagement between knowledge producers and users.

2 Whose research demands are addressed?

The South African science community is well aware of and recognizes the urgent need to undertake scientific research for development and in support of development objectives. The National Plan on Higher Education, released by the Department of Education in March 2002, emphasizes that research within higher education institutions should sustain current research strengths and promote the kinds of research and other knowledge outputs that are required to meet national development needs, and that will enable the country to become competitive in a new global context.[4]

The National R&D Strategy, published in the same year, states unequivocally that research and innovation should be aimed at poverty alleviation and improving the overall quality of life of South African citizens. It is significant that, in this statement, the department specifically mentions 'rural communities, women and the poor' as the primary end-users of innovations, and recognizes that 'innovations are needed to address

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3 Department of Science and Technology (2002) National R&D Strategy, p.1.

4 Department of Education (March 2002) National Plan on Higher Education.

poverty and that new (technological) approaches are required' in the process of sustainable rural development.[5] Even in developed and highly industrialized democracies where there are usually explicit structures and mechanisms to ensure fair distribution of access to knowledge production and its benefits, there is evidence that the 'fruits' of science and technology do not serve everyone equally.

In developing countries there is an added imperative to ensure that research serves the needs and demands of the poor, the illiterate and the marginalized. This is not only because of their more urgent needs and the potential greater benefit and value they can derive from the effects of research, but also because the demands of these groups are often not represented in national bodies and in organizations where decisions about research and research funding are taken. More often than not, the poor and marginalized have no access to such bodies; they are not well represented, or – in the worst cases – are unable to voice their concerns in a coherent and articulate fashion.

During the apartheid years, and specifically in the late 1970s and 1980s, various civil society organizations emerged to give voice to the disenfranchised and marginalized majority in South Africa. An interesting phenomenon was the emergence of numerous research NGOs and centres, many of them on the campuses of universities (predominantly historically black and English-medium universities), that deliberately and publicly aligned themselves with communities and interest groups in civil society (rural communities, rural women, underdeveloped and poorer areas). These organizations were 'hybrid' centres – they conducted research (usually in a participatory and critical fashion) but they were also deliberately activist and interventionist, constantly advocating the cause of the powerless and disenfranchised majority.[6]

These centres were characterized by the fact that they engaged in ideological and social critique utilizing participatory research methodologies (e.g. feminist and post-colonial approaches, participatory action research methods). They were closely involved with local communities to the extent that these communities had direct representation on their governing bodies. In particular, their research projects were defined in such a manner as to serve the interests of such local constituencies, usually involving a critique of apartheid policies and practices. As a result no public funding was available for these centres, and they were therefore funded by overseas donors and development agencies such as CIDA, Danida, DfID, IDRC, Sida, and the Ford and Mellon Foundations.

With the normalization of the research landscape in the post-apartheid era, many of these 'critical' research centres lost their overseas funding. Many universities decided that the centres had to be involved both in research and academic programmes in order to remain on campus. Most of them had no involvement in teaching and learning, and consequently

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5 Department of Science and Technology (2002) National R&D Strategy, pp.42–43.

6 In an earlier paper (Mouton, 1995), I referred to these as 'critical' and 'oppositional' research centres. Centres such as the Centre for Adult and Continuing Education at the University of the Western Cape, the Centre for Health Policy at WITS and the Centre for Cultural and Media Studies at the University of Natal were established with the explicit intention to do research that challenged and opposed the apartheid policies of the Nationalist government.

lost their institutional base on university campuses. In addition, the national Human Sciences Research Council (HSRC) was transformed into a credible national research organization. This meant that the research previously conducted by these critical research NGOs was now increasingly being catered for by established academic centres, the HSRC and within some government departments. The death knell for many of these research NGOs came in the late 1990s, when the government decided that the majority of overseas development aid was to be channelled through government agencies or departments.[7]

By the turn of the century, the research NGO sector had shrunk appreciably, and applied and policy-oriented social and development research in South Africa was pretty much being conducted within government departments, the HSRC or academic centres on university campuses. Therefore, it is appropriate to ask whose interests and demands are currently being addressed in the current configuration of research organizations? In other words, are the interests of the poor and marginalized now adequately represented on the research agendas of South African university centres, government research departments and science councils?

In 2002, on behalf of the National Advisory Council on Innovation, the Centre for Research on Science and Technology (CREST) at Stellenbosch conducted a survey of the utilization of public research.[8] This survey targeted researchers in all fields of public science, including all universities and the science councils. Since one of the objectives of the study was to establish the nature and extent of the utilization of publicly funded R&D, the respondents were asked to specify the major intended beneficiaries of their research programme or project. The results are shown in table 1.

Table 1. Intended beneficiaries of research programmes and projects (%) in 2002.

	Type of research organization				
Intended beneficiaries	**Science councils**	**Universities**	**Technikons**	**Total projects**	**Cluster totals**
Colleagues, peers in own discipline	18	32	31	27	39
Colleagues, peers in other disciplines	8	14	12	12	
Contracting agencies	10	6	7	7	47
Industry/firms	18	11	14	14	
Government	16	11	13	13	
Specific interest groups	17	12	13	13	
General public/ society/ community	13	14	14	14	14
Totals	100	100	100		
No. of options mentioned	1276	2317	366		

[7] For example, EU funding for technical support for education (including educational research) was to be channelled through an office within the national Department of Education.

[8] Out of the 8000 questionnaires distributed to university and technikon researchers, and a further 2859 to science councils, 2058 were completed, constituting a response rate of about 20%. The complete report on the survey is available from the author.

The responses in the first two rows (colleagues in own and other disciplines) typically refer to fundamental and basic research. If one ignores these responses, it becomes clear that a huge proportion of research across all types of research organization is carried out for specific contracting agencies, industry, government and specific interest groups. The percentages in the category 'general public, society and community' are slightly misleading as further inspection of the open-ended responses shows that most respondents interpreted this to refer to rather general and open-ended benefits. Most researchers who selected this option did not have a specific benefit or value in mind, but indicated that their research would 'in general' be of value to society or the public.

The other category of interest is the 'specific interest group'. Out of more than 175 open-ended comments and responses, the major beneficiaries listed here were health practitioners, teachers, consultants, community workers and organizations, donors and international funding agencies, farmers, unions, professional groups (engineers, dentists, doctors, lawyers) and industry associations. The number of responses was small, however, and in each case less than ten cases were listed.

This leaves three main categories of intended beneficiaries: specific contracting agencies, government and industry. Since the first is very likely to be a government department or company, it effectively reduces to two, government and industry. These findings are not that surprising if we look more closely at the main sources of funding for the projects documented in the CREST survey.

The science councils in South Africa (such as the Agricultural Research Council, Human Sciences Research Council and the Council for Scientific and Industrial Research) all receive annual block grants from parliament, and all of them augment these grants with contract research commissioned by government departments, business and industry (see table 2).

Table 2. South African science councils: main sources of funding, 2002.

Sources of funding	**Total value of grants (R000)**	**%**
Parliamentary grants	621 830	52.2
Business contracts	241 540	20.3
Government contracts	68 096	5.7
Other science councils	85 707	7.2
Sales of goods	53 102	4.4
Other sources, including international	121 653	10.2
Totals	**1 191 928**	**100.0**

Research at South African universities and universities of technology is for the most part funded by national agencies such as National Research Foundation (NRF), the Medical Research Council and the Water Research Commission, but, as table 3 shows,

government contracts and industrial commissions are significant 'third stream'[9] sources of funding – business support constitutes 27% of all sources of research income. If one were to include other sources, which include government contracts, one would have to add another 28%.

It is clear that a significant proportion of public research in South Africa is both funded by and carried out for government and industry. The available information provides little evidence of many projects implemented directly for civil society organizations. This observation is not surprising. In most developed systems of innovation, the bulk of research funding also originates from industry or government. Similarly, research commissioned by a contracting agency is more likely to be of direct benefit to that agency. One could argue, of course, that many government-funded projects might be aimed at benefiting local communities and organizations, either directly or indirectly. However, another key question still remains unanswered: How, if at all, are the interests of these constituencies represented and articulated on the agendas of national S&T institutions? Are there adequate mechanisms in place to ensure that their 'authentic' interests are properly articulated on national research agendas?

Table 3. Universities and institutes of higher education: sources of funding, 2002.

Sources of funding	**Total value of grants (R000)**	**%**
National Research Foundation (NRF)/ Medical Research Council (MRC)	133 500	7.6
Technology and Human Resources for Industry Programme (THRIP)		
Innovation Fund		
University own funds	582 000	33.1
Business/private sector	480 000	27.3
Overseas donors	75 000	4.3
Other sources, including government	485 000	27.6
Totals	**1 755 500**	**99.9**

3 How are research agendas constructed?

The need for the transformation of South African science in the early 1990s was driven by the realization that the research interests of the majority of citizens were not being served by apartheid science. One of the most damning critiques of the apartheid regime was that it had developed one of the most sophisticated nuclear and defence R&D industries in the world, a vibrant energy research industry and various internationally

[9] The term 'third-stream funding' in the South African context refers to all research monies earned through contract and commissioned research, irrespective of whether this is for government, business, industry or other clients. The 'first stream' of funding refers to the parliamentary grant that all universities receive as part of the Education Vote, whereas the 'second stream' refers to grants and scholarships received through the national funding agencies such as the NRF.

competitive research niches, but was unable to provide shelter, clean water or basic services to the majority of its population.

The principal instruments through which national (and institutional) agendas are constructed and put into effect are policy 'statements' (symbolic measures), funding programmes (financial measures), evaluation and review processes (accountability measures) and performance-related processes (recognition and reward measures).

Policy statements, found in white papers, national acts (such as the founding act of the NRF) and national research strategies and plans – formulate and embody a national vision of where the system of innovation should be headed. Policies are normative discourses that specify desired end-states. As such, policies typically have symbolic value. So when the White Paper on S&T prioritizes poverty alleviation as the main end goal of science and technology, it sends a very strong signal to the research community. Similarly, when indigenous knowledge systems are identified as a specific new field of research on the national agenda, it signifies a new intent on the part of government.

However, policy statements are rather empty if the necessary tools are not put in place to give effect to these desired end-states. *Funding programmes, evaluations* and *performance-related measures* are generally recognized as three such measures of implementation. Since 1994, the South African government, through its funding agencies, has established various new funding programmes to give effect to its S&T policies.[10] With respect to evaluations and review programmes, the South African system of innovation currently has two major forms of research review[11] – evaluations by independent panels and the institutional audit review process.

The construction of research agendas can be approached from two perspectives. First, the *directionality* of agenda construction or, in other words 'who are the main actors driving the process?' Second, the degree of *interventionism* in agenda setting or the 'steering versus shaping' of research priorities.[12]

In South Africa, instances of predominantly government-driven and strongly interventionist agenda setting in public sector R&D can be witnessed. Policies, funding programmes, reviews and performance-related measures are all examples of government mechanisms put in place to give expression to its research goals and priorities. Even a cursory inspection of the governance structures of the major agencies (NRF/Innovation Fund/ THRIP/MRC) shows that government, higher education, business and industry are

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10 The three most visible of these are the Technology for Human Resources in Industry Programme (THRIP), which is jointly funded by the Department of Trade and Industry and partners in industry, and is administered through the NRF; the Innovation Fund that aims to encourage new product and business development; and the NRF's Focus Area Programme, which has identified 10 areas for targeted funding.

11 The science councils and national research facilities are reviewed every five years by independent panels, whereas universities are reviewed every six years through the institutional audit review process of the Council for Higher Education.

12 Rip (1994 1997), Rip and van der Meulen (1996).

well represented on their governing bodies, whereas civil society and, especially, local communities are not.

There are a few spaces where 'alternative' setting of research agendas can be found. The most obvious ones are research in development issues – of which the South Africa–Netherlands Partnership for Alternatives in Development (SANPAD) initiative is the most significant, and research into HIV/AIDS. In both of these areas, somewhat ironically, overseas funding[13] has enabled local researchers to pursue more open research agendas outside formal government structures and funding regimes. From its inception in 1997, the SANPAD programme actively pursued ways and means to involve representative and diverse groupings in identifying research priorities and modalities.[14] One such mechanism was a stakeholder conference in November 1997, which attracted nearly 100 researchers, practitioners, policy makers and NGO representatives who shared an interest in 'alternatives for development'. The fact that the SANPAD could work outside the 'formal' government structures and funding paradigms made it possible for it to be more innovative in how it wanted to shape research and capacity building in this area. But initiatives such as these are few. The evidence overwhelmingly indicates that research agenda setting is increasingly dominated and directed by government.

Since 1994 the scientific community in South Africa has bought into the macro policy agendas and strategies of the post-apartheid regime.[15] There is clear evidence of what one could call the 'endogenization' of national priorities and goals in the research programmes and projects of many scientists in the system. The fact that the majority of scientists subscribe to the new national goals and priorities as inscribed in the new policy documents, is in itself laudable. However, it still does not mean that there is any guarantee that the pursuit of these goals and centrally defined agendas are in the interests of the poor and marginalized! In fact, this issue becomes even more problematic when one realizes that the demographic profile of the scientists in the system has not changed substantially over the past ten years.

When it came to power in 1994, the post-apartheid regime inherited a deeply skewed public science system. Various studies by CREST have shown that although there have been some positive shifts towards greater participation of female and black scholars (there have been huge increases in enrolment and, to a lesser degree, in graduations of black postgraduate students) and of female scientists across the system (although significant disparities remain). Although recent survey data show that the science councils now employ significant numbers of black and female researchers, the system is still heavily skewed and remains unrepresentative of the population.[16]

The production of scientific knowledge in South Africa continues to be dominated by white, male and ageing scientists. More specifically, The CREST surveys show that

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13 Dutch funding for SANPAD and Wellcome Trust funding for HIV/AIDS.

14 The author was a member of the first interim committee of SANPAD, established in 1997, and of the first official South African programme committee, established in 1998.

15 Mouton (2001, 2002).

16 Department of Science and Technology (2004).

between 1990 and 2002, 80% of all peer-reviewed articles were published by men, although they constituted only slightly more than 60% of the R&D workforce. Similarly, 90% of all articles were produced by white scientists even though black scientists and academics constitute approximately 30% of the research workforce. The science system is also highly skewed at the institutional level. The weight of the South African science base – especially basic science – increasingly resides in a small number of historically advantaged institutions. The 'big five' universities (Cape Town, Natal, Pretoria, Stellenbosch and Witwatersrand) produce 64% of all scientific output (peer-reviewed articles), 53% of all PhDs, and are awarded 52% of all THRIP funding by the NRF.[17]

The scientific community in South Africa does not in any way represent the demographics of the country. Although there is evidence that this community has 'bought into' the new transformation agenda and is actively supporting many of the goals of the new national R&D strategy, their interests might not represent the real interests of the majority of the population. There is also evidence that those universities located in the rural areas – such as Fort Hare, North, Venda and Zululand – are increasingly repositioning themselves as universities *for* development. In an interesting repeat of history, these universities are increasingly – as did the Afrikaans universities in the 1930s and 1940s – defining themselves as institutions that need to meet the local demands of their surrounding communities. Historically, Afrikaans universities such as Potchefstroom, Free State, Pretoria and (to a lesser extent) Stellenbosch, saw themselves as 'volksuniversiteiten' that must first serve the training and educational needs of the Afrikaner nation, and then science in the wider sense. The same trend is noticeable with regard to the rural black universities listed above. If this trend continues, it might counteract some of the 'centralist' government initiatives on agenda setting outlined above.

4 What is the nature of knowledge production for social transformation?

The third issue to be addressed concerns the nature of research or knowledge production. As shown in section 2, the bulk of public science in South Africa is currently funded by and conducted for government, industry and business. Some authors have argued that these trends are in line with a shift from mode 1 to mode 2 forms of knowledge production.[18] The distinction between mode 1 and mode 2, introduced by Gibbons *et al.*,[19] points amongst other things to a shift from research agendas that are solely or mainly constructed by the scientists themselves (in universities and R&D laboratories) which is typical of mode 1, to research agendas that are developed in the 'context of application' (typical of mode 2).

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17 Mouton (2000, 2003).
18 Muller (1999).
19 Gibbons *et al*. (1994).

The Gibbons thesis became very popular in South African S&T and higher education circles in the mid-1990s.[20] For some commentators, mode 2 equated with research that has its origins outside academia and more specifically within local communities and areas in which civil society is active. Mode 2 came to be identified (perhaps even somewhat idealistically) with collaborative and participatory modes of research. This thesis was so widely held that both the report of the National Commission on Higher Education (NCHE) and the White Paper on S&T, both published in 1996, alluded to it.

The NCHE report recommended that higher education institutions broaden their activities to encompass at least four types of research. These included *traditional research*, i.e. basic or fundamental research that seeks to extend the knowledge base within a discipline; *applications-driven research*, understood as discipline-based research directed towards resolving practical problems arising from social, economic or technological needs; *strategic research* commissioned by government or industry to mobilize a group, usually a trans-disciplinary group, to address an identified need or problem; and *participation-based research*, particularly research on social issues, that can only be effected through interactions and with the active participation of both the research group and the community it wishes to serve.[21]

The sentiments expressed in the NCHE report are echoed in many sections of the White Paper on S&T, but nowhere as clearly as in the following passage:

> 'Traditional ways of producing knowledge within single disciplines and institutions are being supplemented by knowledge generated within various applied contexts. This is knowledge that is collaboratively created within multidisciplinary and transdisciplinary research programmes directed to specific problems identified within social and economic systems. A national system of innovation benefits from "knowledge practitioners" being located in multiple knowledge generating sites and institutions such as higher education institutions, government and civil society research organizations. Setting up a national system of innovation in South Africa that will stimulate such collaborative, multidisciplinary, applications-based research will require new policy, funding and organizational arrangements, including provision for training a new generation of scientists and technologists oriented towards the solving of real problems'.[22]

The reality has turned out to be somewhat different, however. The Gibbons thesis posits a general shift towards application-driven research. But there are obviously various contexts for applying knowledge and research in a knowledge-based society: government, business, industry, multinational corporations, overseas donors and funders, NGOs and civil society. It would be a mistake to assume that the shift towards mode 2 necessarily means a shift towards more participatory and action-type community-based research. In fact, as the results of the CREST survey show (see above), the shift has been towards the poles of contract and consultancy-type research, rather than towards development and community-based research.

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20 Ravjee (1999).
21 NCHE report, cited in Martin (1997: 98).
22 White Paper on S&T (1996, p.6).

5 The homogenization of demand?

The cumulative effect of the trends discussed above can be described as the increasing homogenization of research demand in the South African S&T system. One could even formulate this development as a more general thesis. The homogenization of demand occurs under the following conditions: where there is a tendency in S&T systems to steer the system either centrally or from the top, or both, and where, even within mainstream 'formal' science, there is an increasing blurring of boundaries between institutional missions.

The first condition, in effect, means that the research agenda is defined by central policy documents rather than driven from below by 'grassroots-level intelligence'. This is an ironic development given South Africa's political history. The vibrant system that was in place in the 1980s and early 1990s, with broad-based participation of community organizations and NGOs in national research initiatives, gradually gave way to developments in the mid-1990s that involved the 'decoupling' of these organizations from mainstream, academic and institutional science.

The second condition, the increasing blurring of institutional missions, is produced by two mutually reinforcing developments – the continuing pressure on science councils and universities to augment their incomes through third-stream funding. This has already led to a noticeable increase in the amount of contract and commissioned research within all these institutions. It is also driven by a kind of market failure – poor academic salaries, coupled with the lack of indigenous knowledge production and analytical capacity in government, have increased the demand for 'academic' (as opposed to freelance) consultants. Again, the agenda setting occurs within the commissioning agencies, i.e. the demands and interests of business and government are articulated and met, but not necessarily those of civil society and the public in general.

So who loses out with the increasing 'homogenization' of research demand? In one sense, it is the academics and scholars who do not have the money or time to pursue basic, fundamental and curiosity-driven research questions, and, of course, those in civil society who are still too far removed from institutional structures and networks to have their interests articulated and voiced.

There is a related dimension of these trends that should not be forgotten. The 'homogenization' of demand is not only about whose interests are being served, but also about the 'increasing conformity' or consensus that creeps into the system. The homogenization of demand could in practice also lead to a non-critical (articulation of) demand. Where the articulation of demand is increasingly steered by government and its agencies, and such demand increasingly represents the interests of government and industry, it is not too far-fetched to conclude that research interests that challenge and are critical of the consensus view are not reflected on national agendas.

6 Articulating the demand for research

The challenge can be articulated as follows: how can a developing country such as South Africa create/generate demand for research that is *heterogeneous* in terms of the range of interests it serves, *representative* of who is involved in the research, and *critical* in terms of the nature of the research to be conducted?

Instead of relying exclusively or depending on formal steering by government, other actors also need deliberately to pursue modes of interactive agenda setting. What are required are initiatives that strengthen the interface between research and the public sphere and incentive instruments that encourage more 'interactive engagement' between scientists and their 'publics'.

This rest of this section briefly examines a case that demonstrates new forms of such 'interactive engagement'. Following from the CREST survey on knowledge utilization conducted for the National Advisory Council on Innovation (NACI) in 2002, researchers identified examples of 'non-standard' forms of research.[23] They reported at least 10 research projects that utilized innovative organizational forms in engaging with funders, users and other stakeholders (e.g. practitioners).

One of these is the Arid Zone Ecology Forum (AZEF), an informal network that brings together, at annual conferences, researchers, conservationists, postgraduate students, farmers and other interested groups who are concerned with addressing and finding solutions to problems in the arid region of southern Africa, which extends from the Cape into Namibia and parts of Botswana. The AZEF network comprises 'people from state, provincial, educational and research institutions, as well as farmers and individuals from the private sector'.[24] Researchers and government officials come mainly from the departments of agriculture, environment and conservation in their respective institutions. One of the researchers associated with AZEF for some time commented on the value of the informal gatherings as follows:

> 'I think AZEF is a hugely important body for informally coordinating research, without rules, but just by mixing with fellow scientists and colleagues on a very friendly basis and listening to them and perhaps offering some constructive criticism on their projects and they on yours, you reach a much more effective goal, your results are much more effective in the end. AZEF plays a major role in this and it certainly is growing amongst the Arid Zone scientists and the farmers who are qualified and can benefit from this sort of meeting. AZEF is increasing in stature and it is shown by the numbers who attend these meetings every year.' (Interview with AZEF researcher)

These comments suggest that the AZEF does play a role, albeit a small one, in the process from knowledge production to utilization. Most pertinently, it provides a forum for researchers and practitioners to get together and share ideas about innovations and debate solutions to common problems. The value placed on informal interactions within the forum ensures that members feel comfortable talking about their work to people

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23 The author wishes to acknowledge Jaamiah Galant's contribution to this section.

24 AZEF website: www.nrf.ac.za/azef/

whom they know are interested in what they do and can give them constructive feedback. This 'homely' feel is further entrenched through the location of the annual AZEF meetings in small rural towns, as one of the organizers explained:

> 'They are not in the major cities. … it is quite nice because the meetings are very informal. And getting people together in a small town – they can't disappear to do other things at night. They are always forced to interact. The other thing I like about it is that taking 100-120 people into a small town does quite a lot for the economy. You fill the guesthouses and you use local caterers and hire the town hall, which is quite nice. And what we also do is we have a field trip in the middle of the meeting. So we go and look at specific projects that are being undertaken in the vicinity. The researchers introduce their work and we all discuss it.' (Interview with Mark Anderson)

The location of the annual AZEF conference thus serves as a strategy to get participants to interact formally and informally, to network and also to engage with 'on site' research projects. The participants appreciate both the formal and the informal aspects of the meetings:

> 'The formal part of the conference is usually two or two and a half days. This year because we got so many papers it will be two and a half days of presentations, talks as well as poster presentations. We also have what we call round table discussions, so this year we only have one. But if there is a topic we think needs input and time we will have informal round table discussions, usually in the pub over a few beers. Someone will introduce the topic and it is a more relaxed way. You find that people who generally wouldn't contribute in the meeting feel much easier about these round table discussions.' (Interview with Mark Anderson)

In this context, the round table discussions serve as a specific strategy to get participants to talk and to share research ideas and possibly reflect on practical implications of the implementation of those ideas. This case shows how non-standard organizational forms are utilized in the production and utilization of research findings. The organization developed from its respective constituencies and is not directly related to government initiatives (although AZEF receives support from the National Research Foundation) and performs a strategic function in bringing together a wide range of knowledge producers and users at grassroots level. The nature of the engagements is such that the research interests of the diverse members arise 'naturally' from these interactions. There does not seem to be much in the way of central steering or top-down directives. The articulation of research demand occurs in self-organizing systems which in turn are embedded in other related networks.

Research demand can be articulated and developed in ways that complement and strengthen the more formal government-driven mechanisms described in the first sections of this chapter. The value of such 'non-standard' organizations is that they strengthen the absorptive capacity of informal research organizations and they also indirectly develop much needed capacity of civil society to act as knowledge brokers for their respective constituencies. In the final analysis, in order to ensure a more heterogeneous, representative and critical articulation of research demand that will serve the transformative agenda of a country such as South Africa, it is essential that the role of such intermediary agencies is revitalized and expanded.

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