Scientists as lobbyists? How science can make its voice heard in the South African policy-making arena

Nikki Funke[1]
Council for Scientific and Industrial Research (CSIR), Natural Resources and Environment Unit, Pretoria, South Africa

Shanna Nienaber
Council for Scientific and Industrial Research (CSIR), Natural Resources and Environment Unit, Pretoria, South Africa

Roland Henwood
Department of Political Science, University of Pretoria, South Africa

This paper examines the complexity of the South African policy-making context and its official and non-official actors and investigates the challenges that scientists face when trying to exert their influence here in order to strengthen the science-policy interface. Based on this analysis, the paper makes preliminary recommendations on how scientists can venture to lobby policy-makers in spite of the many obstacles they face. The main areas of interest in this paper are the science-policy interface, the policy-making process and lobbying.

Introduction

Science is an important source of evidence for policy-makers in the South African policy-making arena. It is valuable to policy as it encourages policy choices that potentially work better because they are based on researched considerations of the best possible solutions for the complex challenges facing society (Mubyasi and Gonzalez-Block, 2005; Watson, 2005; Shisana and Louw, 2006; Shung-King, 2006; Campbell *et al.*, 2007; McNie, 2007; Nienaber *et al.*, in press; Strydom *et al.*, in press). Scientists also have an obligation to promote uptake of the

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[1] Correspondence to: Nikki Funke, Council for Scientific and Industrial Research, Natural Resources and Environment Unit, Pretoria, South Africa

nfunke@csir.co.za

research they produce, particularly when it is funded by government (Marshall, 1984).

While much has been written, especially in international literature, on the science-policy interface and the challenges that scientists face when trying to influence policy, two crucial problems remain. Firstly, there is a lack of South African literature on this subject (Strydom *et al.*, in press). Secondly, despite extensive research, uptake of scientific knowledge into policy decisions is still not happening to the extent that it should (Hanney *et al.*, 2003; Bowen and Zwi, 2005).

Part of the hindrance to evidence being absorbed into policy is the reality of scientists ' limited understanding of the complex policy-making arena within which science exists and interacts. In order for science to have an impact on policy, the context within which public policy-making takes place in South Africa must be understood (Nienaber *et al.*, in press).

In this paper the authors try to further such an understanding by describing key official and civil society actors who try to influence policy (Nienaber *et al.*, in press). This exercise helps to reveal some of the policy problems and complexities that characterise South Africa. With this background in place, it is possible to more accurately understand the challenges that scientists face in lobbying their work to policy-makers. This understanding paves the way for making some preliminary recommendations on what South African scientists can do to try to influence policy.

Positioning the science policy interface in the context of public affairs

The political science view on public affairs is based on the distinction between public (the political sphere of life) and private (the non-political sphere of life). This distinction is commonly expressed as that which is "the state" and that which is "civil society". The state consists of institutions that organise, structure and guide a society and is funded by society through taxes. Thus, this realm is public as it affects all and should be designed to benefit all. Civil society consists of private groups or individuals such as family, kinship groups, private business, unions and churches. These initiatives are run and funded by individual citizens to satisfy their own interests, rather than those of broader society (Heywood 2007). It should be noted, however, that the actual line between state and civil society is not clear and is subject to much debate. This is because most actors in a society will have

simultaneously public and private ambitions (Heywood 2007). The impact of science is a good example of how this "grey area" plays out. Part of the work of a scientist is in the civil society or private realm. The reasons for a person choosing to be a scientist are private, the choice of research that a scientist does is, at least partly, a private choice, much of the work that a scientist does occurs within the private domain of the organisation within which he or she works.

However, at some point, most scientists' work becomes public, either through publications or presentations in public forums such as workshops and conferences, by doing research for actors funded by public money, and by advising policy-makers about how to address issues. Scientists may indirectly influence policy by publishing their work in books and journals that will be read by policy-makers seeking to inform themselves about cutting edge research. Scientist may also actively try to influence policy by becoming issue advocates and lobbying for very specific sets of recommendations to be taken up into policy (Pielke, 2007). Lobbying, by definition is an act that makes representations to policy-makers and tries to influence policy (Heywood 2007, Werner and Wilson 2008). Clearly, the issue of scientists trying to get science taken up into policy is a public one as it is not something that only affects individual scientists, but can also have broad societal impact.

The complex spectrum of actors and processes that form part of the South African policy-making landscape

Public policy is made in a specific socio-political context. Its direction is shaped by different actors who interact in a complex political landscape (Cloete and Meyer, 2006), which is characterised by dynamic processes.

Official policy-makers and the policy-making process

The official policy-making authority in South Africa is the government, which is made up of national, provincial and local spheres. The separation of powers principle between the executive, legislative and judiciary applies (Anderson, 2006; SA Yearbook, 2008/9).

Administrators

South Africa's public service, under the Cabinet, is responsible for carrying out the decisions (laws) that are made in Parliament (Venter and Theunissen, 2006). It consists of all

staff employed by the national (government) and provincial administrations (Venter and Theunissen, 2006).

In theory, people who work in the public sector are appointed officials, and thus work for government without being part of it. Since 1994, however, the higher positions in the public service have become more political. Director-Generals of state departments have to adhere to the party-political views of the Minister of their respective departments (Venter and Theunissen, 2006). In addition, policy is often drafted in national and provincial government departments before being tabled in Parliament (Sadie, 2006), thereby increasing the level of influence of administrators in determining which issues make it into policy (Cloete and Meyer, 2006).

Scientists who want to target administrators to make their views heard need to try to identify and interact with selected decision-makers in government departments. In practice, this may prove challenging as high-level government officials are notoriously difficult to meet with. If scientists are successful in having secured an interview, they will have to take care to communicate their agenda accurately, understandably and in a way that speaks to the short-term political priorities of the official they are targeting (Strydom *et al.*, 2007).

Executive

The executive branch of government consists of the President and the Cabinet, as well as the provincial executive authority and municipalities. Together with the Cabinet, the President is responsible for developing and implementing national policy and legislation, while at the provincial level it is the Premier and the Executive Council who have that responsibility. The local sphere of government is made up of municipalities and their executive and legislative power is vested in Municipal Councils (RSA, 1996).

The Cabinet and the President are key players in setting the policy agenda, initiating and, through the public service, implementing policy. As Alence (2004) puts it, Parliament is not the main venue for trying to influence major policy issues the country is facing; it is the executive that makes the main decisions here. The executive should thus be targeted by those aiming to influence the policy agenda. Practical ways for scientists to do so would be to either directly target the relevant Minister, government departments, or Parliamentary Portfolio Committees, which report back to their respective Ministers at the Cabinet level. On the provincial and local levels, the provincial or local executive should be targeted. It is often difficult for scientists to influence this high and

powerful level of decision-making without having the right contacts in place.

The politicians referred to here tend to be well recognised and very busy individuals. Riding on media waves about the commitments, challenges and mistakes of these actors can be important windows of opportunity for scientists to interact with and advise such individuals.

Parliament

South Africa's legislative authority is vested in Parliament, which consists of the National Assembly and the National Council of Provinces (NCOP). The National Assembly is responsible for providing a national forum for the public to consider pertinent issues, passing legislation, and scrutinising and overseeing executive function (SA Yearbook, 2008/9). The NCOP participates in the national legislative process in an effort to ensure that provincial interests are taken into account (RSA, 1996).

In terms of the policy-making process, Bills are introduced into Parliament by the executive or initiated by Parliament itself (Joint Task Team on the Legislative Process in Parliament, 2010). Debates about proposed legislation and other issues take place within Parliamentary Portfolio Committees, the "watchdogs" of Parliament, which are specialised working groups consisting of Members of Parliament (MPs) and NCOP delegates (Taljaard and Venter, 2006). Legislative authorities also exist at the provincial level, where the provincial legislature has the power to pass provincial legislation (RSA, 1996).

In terms of influencing the process at the legislative level, scientists should try to give inputs to the relevant Portfolio Committee, which has the right to change the principle and the content of the draft Bill (Sadie, 2006). Also, during public hearings called by the Portfolio Committees, scientists could give inputs into how scientific evidence could assist in improving the implementation of legislation or the revision of policy.

There is a major challenge for scientists to influence the policy-making process at the parliamentary level. South Africa's political system is a dominant party system (Taljaard and Venter, 2006). This means that while opposition parties still freely exist in South Africa, there is no rotation of parties leading government (Sadie, 2006). In areas where there is a substantial difference of opinion between the executive and legislature on matters that are important to the executive, the executive is likely to prevail (Mattes, 2002).

Therefore, scientists may find themselves unable to influence new policy or make recommendations on the implementation of

existing policy, especially if their views and/or recommendations are contrary to the ANC's agenda or place the ruling party in an unfavourable light. In order to strengthen their position, scientists therefore need to partner with opposition political parties, and/or other actors from civil society in order to present a stronger, united front when addressing Parliament. Such partnerships need to be formed carefully though, as there is a real risk of unintentional engagement in party political or ideological contests, resulting in alienation of ANC MPs and even the delegitimisation of the intended outcome. Avoiding this scenario requires using all available channels of communication, including the continuous dissemination of scientific knowledge to influential sectors of society, without the politicisation of non-political issues.

Courts

The judiciary in South Africa, and in the last instance the Constitutional Court, can review legislation and executive decisions and declare them invalid if they are judged to be unconstitutional (Mathisen and Tjonneland, 2001; SA Yearbook, 2008/9). As a result of the rather weak separation of power between the executive and legislative branches government, South Africa's judiciary is very important for the prospects of accountable governance (Alence, 2004).
Scientists can collaborate in networks with other actors to take the government to court, if they feel that the government is in any way compromising the provisions enshrined in the Constitution and if they are sufficiently independent from the government. The challenge that arises here is that some research organisations, such as the Council for Scientific and Industrial Research (CSIR), are constituted by Acts of Parliament (CSIR, 2010), and are to a large extent dependent on government funding. It would thus present a conflict of interest to engage in court action against the government. In such a case, the most that research organisations can do is make their science available in the public domain or to other civil society groups specifically, to be used as evidence in court proceedings, thereby indirectly engaging in such a process.

It now becomes important to examine some of the civil society actors who attempt to influence policy and to glean how scientists could collaborate with such actors to influence policy.

Non-official policy-makers (civil society)

Civil society is different to official policy-makers in that it does not have "legal authority to make binding policy decisions" but merely persuades, exerts pressure and provides information (Anderson, 2006). There are a number of different actors in civil society which are considered below.

Interest groups

South Africa has a considerable number of interest groups, some of which are closely connected to the state, while most are independent (Lehman, 2008). Interest groups are actors who have specific interests which they aim to promote in society and lobby the government to respond to. Their membership tends to be less varied than political parties due to their specific focus and concerns (Sadie 2006; Lehman, 2008).
There are a number of techniques that an interest group may choose to employ to lobby for its cause. It may try to influence legislation through hearings convened by Parliamentary Portfolio Committees (Sadie, 2006) or it may try to influence policy-making through lobbying, publications, discussions with government officials and public protest actions (Mattes, 2002; Sadie, 2006).
Direct and personal communication with official policy-makers, by interacting with them and personally presenting research results at parliamentary hearings, tends to be the most effective lobbying mechanism. More impersonal activities such as letter writing and public campaigns are less effective. The least effective strategies appear to be those of "keeping 'channels of communication' open between interest groups and decision makers through, for example, social get-togethers and financial contributions" (Sadie, 2006). These also carry the additional risks associated with unethical, fraudulent and corrupt practices.
In addition to the need to choose appropriate lobbying techniques, there are a number of other issues that are critical for successful policy engagement. These include "strong organisational capacity, a high degree of perceived legitimacy by the government, and adequate financial resources" (Robinson and Friedman, 2007).

In South Africa there are numerous examples of the effective roles that interest groups can and do play in lobbying government, providing oversights and critical policy review (Burton, 2000. A well known example is the Treatment Action Campaign (TAC) which campaigned for access to lower-cost

Acquired Immune Deficiency Syndrome (AIDS) drugs by opposing the international pharmaceutical industry, and opposing the South African government by demanding a comprehensive treatment campaign. This was achieved by confrontational mass action, Constitutional Court challenges of the government's AIDS policy, and participation in official policy consultation (Alence, 2004).

There is interesting potential for scientists and interests groups to network and form partnerships. Scientists can provide much needed evidence to interest groups to support their cause and arguments. Interest groups can provide an organisational and lobbying capacity that scientists are often too time-constrained and ill-equipped to deal with. Such alliances do however require patience and time. Activists need to learn to trust and understand scientists and their science, whilst scientists need to help interest groups to convey their science in an accurate and appropriate manner (Hobbs, 2010; Liefferink, 2010).

Challenges facing the cooperation between scientists and interest groups include a reported decrease in the structured engagement of civil society with the government compared to the first post-apartheid administration (Mattes, 2002; Sadie, 2006), the constant risk of interest groups being co-opted into government (Lehman, 2008), interest groups being unable to work effectively due to inadequate funding, or simply being ignored by a government that is very unlikely to be forced out of its position of power despite poor choices and service delivery.

Political parties

A "political party is a group of people that is formally organised and is identified by an official label, with the primary purpose of gaining control of the government machinery, by election or other means" (Sadie, 2006). In theory, political parties in South Africa play an important role in society. Firstly, they bring together sectional interests in society, coordinate and refine demands from different groups within the political system and transform demands into policy alternatives. Secondly, political parties link the opinions and views of citizens to government officials. This occurs by people voting for parties that cater for their preferences which are then represented in Parliament (Sadie 2006).

Given this role, scientists should have close links and a strong interest in political parties. This is also because the primary role of political parties is to pick up on the demands of particular constituencies in society and translate these into viable policy options. These options could subsequently be adopted or implemented should the party win a suitable number of

seats in Parliament. Scientists have crucial capacity in both steering party leaders towards the most critical issues and needs in society and developing viable and effective policy options and potential solutions (Turton *et al.*, 2007).

In practice, however, there are a number of severe challenges that undermine the South African party system. Firstly, as already mentioned, South Africa has an entrenched dominant party system (Taljaard and Venter, 2006) that is unlikely to change in the foreseeable future (Sadie, 2006). This means that the ANC controls the "ideological spectrum" for policy in the country, making it difficult for other parties to present policy alternatives. Where opposition parties do present policy alternatives, they only appeal to a small set of the electorate (Sadie, 2006). This further entrenches ANC dominance and silences potentially dissident voices.

The second major challenge is that South Africa currently runs a closed list system of proportional representation. The higher up on the party list a candidate is, the better is his/her chance of acquiring and keeping a seat in Parliament. This reality makes it necessary for candidates to impress the party leadership and not the electorate (Alence, 2004), which in turn means that parliamentarians tow the executive line by voting uniformly as a party (Mattes, 2002; Sadie, 2006). This system can lead to a serious lack of accountability and contact between MPs and their constituencies (Sadie, 2006), as is regularly demonstrated in South Africa.

The final major challenge is the reality that there is a political culture in South Africa that is deeply impacted by liberation and race politics (Schrire, 2001; Southall, 2001; Hamill, 2004; Sadie, 2006; Baldauf, 2008) and thus impacts on voting behaviour. This provides an important hold for the ANC despite its relatively mixed performance in areas such as economic growth, employment generation and service delivery (Hamill, 2004). Opposition parties in South Africa do not seem to be able to compete with the ruling party's struggle credentials, its contribution to the birth of South Africa or its domination of political discourse in the country (Hamill, 2004).

What then does all this mean for science's interaction with political parties? Firstly, because the ANC is in no immediate danger of being replaced by an opposition party (Habib and Taylor, 2001), it will be very hard to promote a policy solution that is not in line with ANC interests. Secondly, even if a solution is in line with the ANC's interests, scientists may come up against apathy and lack of enthusiasm from the leading party given its potential lack of accountability to the

electorate. This is especially true in the case of complex and potentially risky policy alternatives.

What then remains for scientist to try is to seek out enthusiastic and committed MPs. When presenting evidence that may be uncomfortable to the ANC this needs to be done in consortium with a large pool of civil society actors to add clout and power to the suggestion. Presenting evidence research in a way that could improve the image of effectiveness and success of the ruling party government will increase the chances of it being noted and accepted.

Research organisations

Research organisations come in many different forms. Some may have a very broad set of research areas, others may be tailored to focus on a very specific set of issues. Research organisations will have different experts, such as natural scientists and social scientists, depending on their scope and focus, working within and in collaboration with them. The funding sources that keep research organisations afloat are numerous. Some organisations, such as the CSIR, derive part of their funding from government and part from independent funding sources (CSIR, 2009). Research consultancies tend to more specifically depend on commissioned research from a variety of actors. Government departments, both within and beyond South Africa, provide large sums of money for the purpose of research and technological development.

Not only are the organisations themselves very diverse in shape and form, so is the evidence they produce. Scientific evidence takes the form of research/surveys, quantitative/statistical data, qualitative data and analysis thereof (Strydom et al., in press).

In theory, research organisations, scientists and the evidence they produce should have a huge impact on policy. Scientists produce evidence, which policy-makers use to make decisions, while, in turn, policy-makers solicit evidence from scientists (Choi et al., 2005). Ultimately, most scientists desire their research to have an impact for many reasons. Firstly, scientists invest their lives in work that they may believe is important, useful and could have a positive impact on society. Secondly, scientists depend on receiving ongoing funding for their work. Funders in turn need to see that their money is productively used,

and do so by monitoring the impact the research has had.

However, the ongoing reality in South Africa, and elsewhere, is that scientific evidence often does not achieve adequate impact in policy-making processes (Hanney et al., 2003; Bowen and Zwi, 2005), for which there are numerous reasons. Scientific evidence takes too long to produce to meet the short-term demands of policy-makers, scientific evidence is not always presented in a digestible format and poor levels of communication and engagement exist between scientists and policy-makers (Gilson and McIntyre, 2008; Strydom et al., in press).   Another reason for why it is so difficult for scientific evidence to impact on the policy-making process is because it is but one small potential source of influence on policy amidst other types of evidence (for example, economic, attitudinal, behavioural and anecdotal evidence) (Strydom et al. in press). Thus, scientific evidence, which is often produced in clinical, objective and rational conditions, is forced to compete in a policy context that is driven by issues of politics and power (Nienaber et al., in press). Marshall (1984) points out that scientists often feel unsure about where to start to communicate their findings and work in the political context. To be successful, scientists must "become informed about the worlds, personality preferences, traditions, cycles and schedules, motivation and concerns" (Marshall 1984) of the policy-makers that they are trying to impact. Furthermore, scientists should adopt the approach of controlling what they can and for the rest ensure that they have wide and diverse networks where their research will generate interest and be indirectly used to lobby different policy options.

The media/communication

A strong democracy needs a strong and relatively independent media, which need to provide significant information to the citizenry so that they can comprehend issues of importance and relevance to them. The media also need to provide the citizenry with a forum in which they can influence political leadership and the policies and actions of the government so as to contribute to the political efficacy of the state (Zegeye and Harris, 2002). In terms of policy-making, the media have the most profound impact on public, as well as policy-maker, opinion

and therefore on shaping the policy agenda. The media are capable of both indoctrinating and educating millions of people on policy issues in order to rally support for specific issues on the policy agenda (Cloete and Meyer, 2006).

The South African media have in recent times emerged as political actors in their own right. Their combative relationship with both the ruling ANC and big business is proof that they now are a relatively powerful and autonomous centre of power (Zegeye and Harris, 2002). South Africa's mass media communications provide public information and are important channels of communication, but they also represent the identities and interests of the different social groups within South African society (Zegeye and Harris, 2002).

Despite these positive developments, however, it is not clear that the media are providing South Africa's citizens with the forum and information needed to influence the political leadership, policies and actions. There are also no signs that the media are contributing substantially to the democratisation of the political system (Zegeye and Harris, 2002).

Despite the mixed successes of the media, it is essential that scientific evidence should be communicated to it to inform the public about best practice, alternative policy options, and new ideas. Such information also enables civil society to imagine policy alternatives and place demands on the government.

In practice there are a number of challenges that hinder the communication of scientific evidence to the media. Firstly, scientific evidence seldom makes for "sensational" news, which makes it difficult to gain support and air-time from the popular press. Secondly, scientific evidence tends to be highly specialised knowledge. This makes it difficult to find journalists who accurately understand and report on findings. Thirdly, scientists themselves gain little credit or career development from publishing in the popular press. When they do have time to publish, they try to do so in academic journals to further their careers.

There are a number of ways in which these challenges can be overcome. Firstly, whilst science may not be sensational to a daily newspaper, producers of a growing number of issue-specific newsletters, magazines, television shows and documentaries may be interested in informing their readers about relevant scientific developments. Secondly, scientists can begin to write their own news briefs and articles or can form long-term relationships with journalists to facilitate accurate understanding and reporting of scientific evidence (Liefferink, 2010). Thirdly, scientists need to be supported, incentivised and encouraged to publish their findings in the popular press. This type of encouragement needs to come from the management of

research organisations through, for example, adding the requirement for popular dissemination of scientific evidence to a scientist's performance assessment.

Individuals

Since 1994 a number of laws have been passed giving individuals the right to meaningfully engage in the affairs of authorities, particularly at local level. Local authorities are obliged, for example, to consult citizens with regard to the Integrated Development Planning (IDP) process (Williams, 2004). Community participation, in order to influence policy, can take place in a number of ways. Firstly, communities can make their views heard by acting through legitimate, democratically elected political representatives (for example town councillors). These representatives are meant to communicate the needs of their voters at higher levels, and are also expected regularly to report back to their voters. Secondly, communities can communicate their views through the involvement of leaders or legitimate organisations in the community, such as civic, cultural and religious organisations. Regular feedback from these leaders to their constituents is essential to legitimise their actions. Thirdly, communities can influence policy through the involvement of individual opinion leaders in the community. Finally, communities can make an impact by becoming involved in mass activities (for example, participation in protest marches or consumer boycotts) (Cloete and Meyer, 2006).

In present day South Africa, mass protests take place on a regular basis as communities are increasingly dissatisfied with poor service delivery and with their lives not having improved under the democratic political dispensation. Through making their opinions and grievances heard in this way, these individuals are influencing the political agenda and are thereby shaping policy, as politicians have to sit up and take notice of large numbers of their constituencies being dissatisfied. Although the ANC is secure of its position as the ruling party, it is nonetheless obliged to take notice of its voters' concerns to maintain its legitimacy.

Scientists have many different options in terms of engagement with individuals. One avenue is to engage with publicly recognised figures such as former politicians, media icons or people who have achieved success in their careers. The benefit of partnering with such individuals is that they are often highly recognised, already trusted by policy-makers and well connected. By getting such individuals to buy into and support their science, scientists may make enormous gains in terms of increasing the exposure and impact of their work. The risk of

this co-operation is, however, that the public figure may speak on behalf of the scientist, which can lead to misinterpretation or misquoting of evidence. Scientists and public figures therefore need to work closely together in terms of the messages that they are trying to convey (Liefferink, 2010).

Another avenue is to extensively consult at "grass roots level", depending on the nature of the research; this may involve scientists conducting interviews, surveys, or focus groups with people across the socio-economic spectrum. Such engagement will help scientists themselves to accurately understand problems on the ground and develop relevant solutions and will add credibility to research because scientists can then claim to represent the concerns of a specific segment of society. By effectively disseminating the results of such interactions with individuals, scientists themselves provide a watch dog role over government as they generate their own public perception results. This is important, as community participation by local government has been reported, under certain circumstances, to be merely carried out to ratify official behaviour rather than with the purpose of influencing or changing it (Williams, 2004).

Business

The South African government and the business sector are bound through the policy-making process, on which the business sector has a major impact, and a complex relationship exists between them as a result. The business sector, which represents a multitude of interests and roles, requires an enabling environment to be successful, and relies to a significant extent on the government, through proper policies, to provide this environment. The government requires funding and resources to function effectively. The business sector contributes to such funding by being a major contributor to the tax base. The institutionalisation of South Africa's business sector as a role player in the policy process, through the National Economic Development and Labour Council (NEDLAC), emphasises and entrenches the importance of the business sector in this context (NEDLAC, 2010).

The government and business sector have very different reasons for existing. Where the government utilises policy to provide public goods, which the business sector cannot provide (Leach, 2008), the business sector exists to achieve success, mostly measured in terms of acquiring wealth. These important differences create tension and a level of competition between the government and the business sector.

A number of organisations, for example Business Unity South Africa (BUSA), the South African Chamber of Commerce and Industry (SACCI) and the *Afrikaanse Handelsinstituut* (AHI), exist to facilitate the relationship between the government and the business sector (AHI, 2010; BUSA, 2010; SACCI, 2010). Such organisations are also used as an avenue by the business sector to ensure the influence of this sector and the protection of its interests at the policy level. Scientists have an interesting relationship with business. Sometimes research organisations are businesses themselves, particularly in the case of private consultancies. Similarly to business-based evidence, scientific evidence supports the government's policy-making needs, and scientists also depend on the government to create an enabling environment for them to carry out their work.

How then can scientists connect with the business sector to more effectively lobby for its knowledge to be absorbed into policy-making? Firstly, scientists may benefit from viewing themselves more like the business sector does. They have a service and product (knowledge and innovations) to sell to the government. The government is likely to buy these products if they are of high enough quality, affordable and will save the state money in future. Secondly, scientists can often serve the business sector by producing scientific evidence and information for various companies. In this case, the role of lobbying information to the government will be taken over by the business sector itself. This is potentially a useful partnership for scientists as the business sector, given the government's dependence on the revenue it provides, has great power to influence government. Scientists need, however, to be aware that producing scientific evidence for actors with a particular agenda in mind holds certain potential risk.

Having explored the spectrum of actors in the policymaking context, it is now important to understand the resulting landscape that has and is emerging from the interaction of these actors.

Problems characterising the South African policy-making landscape

Some of the problems that characterise the South African policy-making landscape have already been alluded to in the discussion above. In addition, there have also been arguments that the ANC is increasingly attempting to centralise state power (Mathisen and Tjonneland, 2001). An example of this tendency is the fact that sometimes when controversial policies are formulated, public participation is minimised. A case in point is the

formulation of the neo-liberal Growth, Employment and Redistribution Strategy (GEAR), formulated to replace the Reconstruction and Development Programme (RDP), which was developed by a group of conservative economists without any consultation of groups outside of government, Parliament or government departments other than the Department of Finance (Johnson, n.d.).

The ANC's inordinate amount of control and power of the state is however coupled with weak government structures, characterised noticeably by a lack of capacity of government officials and administrators to carry out the functions assigned to them (Cuthbertson, 2008).

Given the problems characterising government, as described above, scientists will find such a weak government, characterised to a large extent by a lack of professionalism, unwillingness to learn, and focused on its own historic mission of transformation, difficult to engage with.

This poses a number of challenges to scientists attempting to influence policy. Firstly, in an often centralised and exclusive policy-making process, a number of self-interested actors will want to use and manipulate information, rather than see it as a source of consensus (Healy and Ascher, 1995). Scientific research may represent a means by which a particular policy direction can be justified or legitimated (Gilson and McIntyre, 2008), even if that research may be of poor technical quality (Healy and Ascher, 1995). The lack of influence of the scientific community on the political level and the difficulty to access the central decision-making structures of government are hindrances here as those knowledge producers with a greater level of influence will make more of an impact, even if the scientific knowledge they hold may be of inferior quality.

Secondly, the weakness of government departments to carry out the implementation of existing policy may add to the frustration of scientists trying to interact with administrators in government departments due to factors such as high staff turnover or perceived ineffectiveness of government administrators. A further problem is that the potential for research to have an instrumental use at the policy level is time-bound. The high personnel turnover in government means that those who have possibly been influenced by research recommendations will have moved on before the knowledge absorbed by them will have become new institutionalised practice (Gilson and McIntyre, 2008).

Recommendations

Despite the considerable challenges facing South African scientists, who wish to influence policy as part of their public role, there is no reason to give up. Scientists should rise to the challenge of making their science heard in order to make a difference to South African society. How can this be achieved in practice?

Firstly, research organisations need to re-look at the way in which they are trying to achieve an impact at the policy level. The internal bureaucratic structures of many organisations result in individual scientists working very hard on advancing their careers by publishing in scientific journals and sourcing research funding, so that they have little time funding available to try and engage with the policy-making process or its actors. Also, given the need for high-level policy-maker engagement, managing the science-policy interface may be more of a management responsibility within research organisations than an individual scientist's responsibility (which necessitates organisational commitment to such engagement and appropriate funding), Care should be taken to consider the dynamics and language of the engagement process. Management at scientific organisations needs to "sell" science to stakeholders and specifically policy-makers to make a meaningful impact. This is not the same as marketing, however, as it includes in-depth engagement with stakeholders from the beginning (proposal writing phase) and a host of engagement activities such as provision of advisory support to government, capacity building and teaching and conducting independent research and research commissioned by government. The credibility of the scientific research findings in the eyes of policy-makers is very important here (Gilson and McIntyre, 2008).

Secondly, in order for scientists to influence policy, it is necessary to understand the South African policy context and to attempt to engage people at different levels. Scientists need to look beyond influencing the policy formulation and development phases, and need to engage the policy implementation phase as it is often here that scientific inputs can make a constructive contribution to policy change and improvement. There is also no need for scientists to attempt to influence policy alone. Rather, partnering with other civil society actors is likely to increase their chances of pushing a particular view on an issue on to the policy agenda (Court and Mendizabal, 2005).

As a final point, scientists need to be entrepreneurial about the work they do. This may mean acting outside of the policy process and simply "getting things done" at the grass roots level, possibly in partnership with interest groups. If it

proves to be successful, once already tried and tested, it can be promoted (perhaps more convincingly) to become part of official government policy. Gilson and Mcintyre (2008) suggest that being entrepreneurial means creating space and time for interaction with ones target audience (and scientists may have more than one audience), building trust with ones users, taking advantage of windows of opportunity, adopting multifaceted dissemination strategies and by being persistent.

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