Science, society and the social contract

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Abstract

In today's world the growing complexity of science communication is becoming apparent in the institutional management of science communication and the impact it wields on governance and the public(s). These relationships are governed by rules of engagement guided by the constitutional agreement between state and society. Nation-states, in general, have science communication mechanisms in place to enable dialogue between state and society and to assist with the development and establishment of policies. When communication mechanisms fail we have the beginnings of a failed state. In a multifaceted country like South Africa we find increasing reference to the lack of trust between state and society – extending to a lack of trust between cultures, institutions and between individuals. Such distrust can only happen when the social contract, in the form of the constitution, becomes compromised or broken.

This paper will look at the current South African deficit in the science communication process that facilitate and share information between state and society. Since science communication systems are necessary to reach consensus on governance processes, policy decisions and social transformations, it is proposed that science communication needs to reflect on its role as a stabilizer of democracy within a complex society.

Introduction

A function of science communication is to act as mediator and provide research-based information – generated in the various disciplinary fields – to enable government to compile appropriate policies. This calls for the establishment of a complex interactive

process that requires a number of different role players that brings together government officials, academic specialists and the publics. In this process academic researchers are required to be specialists in their fields when providing information to government. Government officials, as is the case in South Africa, are often appointed within a qualification scale that does not extend beyond the most basic post-educational requirement. At the same time the public, with different levels of education, is often splintered into small interest groups engaging on a variety of levels with government. All these role players share an interest in the impact of policy on their lives. However, points of tension occur when interests clash; academics are consistently critical and reflective on the role of government while government expect efficiency and statistical directives from researchers to ensure deliverables to the public(s). The public, as the collective repository and depository for policy, comprises of a group with mixed interests, expectations and levels of expertise.

To add to the complexity, science communicators are often required to follow a transdisciplinary approach in their understanding of complex information – as in the case of climate change – to provide comprehensive reports on detailed local matters. Two of the players – state and science communicator – also often have different objectives in mind where, in the case of the science communicator, knowledge is required of a range of theoretical fields as well as knowledge of global debates; the government official, on the other hand, is required to be finely attuned to local needs.

In the case of the state it is generally accepted that governments fulfil the role of being morally and politically the most fundamental entity of society. As such the state deserves our highest allegiance and deepest respect. This is the pact that keeps societies together, directs the behaviour of societies and ensures democratic governance. The rules and regulations to maintain the relationship between society and the state are instituted as a means of justice. Justice, however, is more than simply obeying laws in exchange for services rendered by the state. Justice provides the assurance of well-being for a well-regulated citizen through policies and laws. Justice, in its broadest definition, expects obedience to the state and the laws that sustain it. Therefore, we argue, dialogue between state and society is central to possibilities (and actualities) for the successful resolution of conflict and the maintenance of constitutional democracy.

The social contract, according to contemporary political theory, addresses the attempt to solve social difficulties by converting problems into a deliberative *problematique*. A social contract, as adopted by democratic governments through their constitutions, is therefore an attempt and part of a process to solve a justificatory problem by converting it to a deliberative problem. At its heart is the question of justification; of course with the understanding that there is a process of science communication embedded in this deliberative model. The deliberative model is there to help us solve *our* justificatory problem – what social arrangements we can all accept as "… free persons who have no authority over one another" (Rawls 1971). The contemporary social contract is therefore meant to be a model of the justificatory situation that all individuals face. The hypothetical and abstracted nature of the contract is required to highlight the relevant features of a problem and to report on the reasons behind the problem.

When we consider that engagement between state and society is becoming an institutionalized practice that requires trust, the responsibility for presenting factual and appropriate findings from the side of the researchers grows; with failure to do so carrying the risk of potential negative political fallout. As a result, institutions are joining the call for more sophisticated models to be deployed to assist in the science communication process. To name a few examples:

- The Aarhus Convention (UN ECE 1998) refers to the requirement of openness and public participation in policy making to ensure sustainable development.
- New protocols such as the Biosafe Protocol (adopted in 2000) and the Rio Declaration on Environment and Development (1992; Principle 10) encourages public awareness and participation to matters regarding the environment.
- The European Commission's Monitoring Policy and Research Activities on Science in Society in Europe (MASIS) 2012 report (www.masis.eu) considers the 'science in society' paradigm in Europe to be dominated by issues related to its role in sustainable development as well as its role to the appropriate governance of science.

Most significantly, the MASIS report states: "Discussions and processes relating to the appropriateness of science in society should be inclusive and based on broad public and stakeholder engagement". It further states that:

"… the Europe 2020 societal challenges can only be tackled if society is fully engaged in science, technology and innovation and it should be stressed that the dynamics of public and stakeholder engagement remains an important object for further research and experimentations."

In an effort to get to a better understanding of the level of engagement in different countries the MASIS report (2012) developed a framework for assessing and categorising a 'science communication culture' comprising of clusters of countries classified as either 'consolidated', 'developing' or 'fragile'. Science communication cultures tend to relate to the interconnectedness of governance of science and public involvement in Science & Technology (S&T) decision making. As theoretical framework science communication cultures are guided by the content of an 'ecology of knowledge' which calls for reflection on 'who uses knowledge and for what purpose'. Probing questions are already surfacing regarding knowledge already known and the kind of knowledge that society needs.

Adding to the list of public engagement actions we find growing interest in the epistemological discourse that consist of different levels of complexity: denoting the 'sociology of knowledge' in historical terms, recognising the knowledge embedded in common knowledge and applying 'new knowledge'.

Science communication in South Africa

In South Africa we increasingly find reference of the lack of trust between state and society – extending to lack of trust between cultures, institutions, and between individuals, indicating a possible compromised social contract. The remedy to this situation calls for an urgent (re-) institution of a communication process between state and society.

With the rapid development of communication technology we are witnessing a so-called 'global participation explosion' – something that is essential to sustain development but also represents the potential to promote higher expectations from the

public than that being always possible to be delivered by government. Some of these 'new' communication activities are identified by Edna Einsiedel (2008:173) as; 'citizen involvement', 'stakeholder engagement', 'participatory technology assessment', 'indigenous people's rights', 'local community consultation', 'NGO intervention', 'multi-stakeholder dialogue', 'access to information' and 'access to justice'. Einsiedel (2008:174) further listed three priority conditions that should underpin public participation:

- Access to information,
- Participation in decision-making and
- Judicial redress (where necessary).

Effective science communication may be achieved by establishing the identity of the various publics engaged in science communication, understanding the role of social movements (by designing the so-called 'civic epistemologies' as referred to by Jasanoff 1990), structuring science communication activities (within 'consensus conferences' led by 'expert and citizen panels' as promoted by Einsiedel 2008) and applying public participation as a technological assessment (resulting in the social shaping of technology as proposed by Outshoorn & Pinch 2002).

In South Africa, post-1994, we saw some dramatic changes in policy making, budget formulation and legislative and planning processes with the change from apartheid to a democratic government. Participation between state and society was central to this transformation process. Through an integrated governmental planning process with petitions, public hearings, policy-making workshops and conferences, Green and White paper processes and the establishment of formal consultative forums such as the National Economic development and Labour Council (NEDLAC) (Houston 2001) public participation was increased.

The role of civil society at all levels of this political system was recognized by the new African National Congress (ANC) government and stated in a policy document; the Reconstruction and Development Programme (RDP): "Reconstruction and development requires a population that is empowered through expanded rights, meaningful information and education, an institutional network fostering representative and indirect democracy, and participatory and direct democracy" (ANC 1994:120).

All these points are in line with the requirement for a democracy: open and regular political competition through elections, political participation in the election of leaders and policies and guaranteed civil and political liberties (Huber *et al* 1997). In 1996 South Africa adopted one of the most liberal constitutions in the world (Act No. 108 of 1996).

Public participation and the possibility of meaningful engagement between public and government become increasingly complex when society experience transition from an authoritarian and divided society to one of an emerging democracy. In 1994 South Africa was fragmented by ideology, race and ethnicity and entered a democracy as a deeply scarred and divided society. In the first stages of democracy almost every aspect of public policy and social service was subjected to review and revision. Discrimination on the basis of race was abolished and laws were scrapped that facilitated the artificial separation of society. The inherited state delivery system was fragmented, authoritarian, hierarchical and rule-bound (McLennan *et al* 2009).

In the first five years of democracy policies required rewriting and public consultation and dialogue increased amongst a population that embarked on a social transformation process. However:

"… despite the achievements made in only five years of democracy, including an expansion of a range of government services to the majority of South African, an entrenchment of democratic values and principles and the establishment of a new state delivery system, many South African were still poor and excluded" (McLennan *et al* 2009:2).

The South African government changed tactic in 2004 and introduced the concept of a developmental state as a strategy to meet the demands of social inequality and poverty. This period saw evidence of a strong civil society and a lively and unconstrained media.

Despite high expectations and a willingness to transform, the current civil society statistics in South Africa demonstrate a failure in regulated public participation, demonstrated though the public(s) increasing actions of state-critique, alienation from the state and growing violent protests as a means to seek redress on social as well as governance issues. South Africa is currently named as the 'protest capital of the world' –

which is no mean feat. In the 2010/2011 financial year police reported 11,680 peaceful gatherings (also described as 'assemblies', 'gatherings', 'meetings' and 'demonstrations') that required police presence. There were also 971 violent public protests recorded for this period leading to the arrest of 3,671 people. These statistics are showing an upward trend.
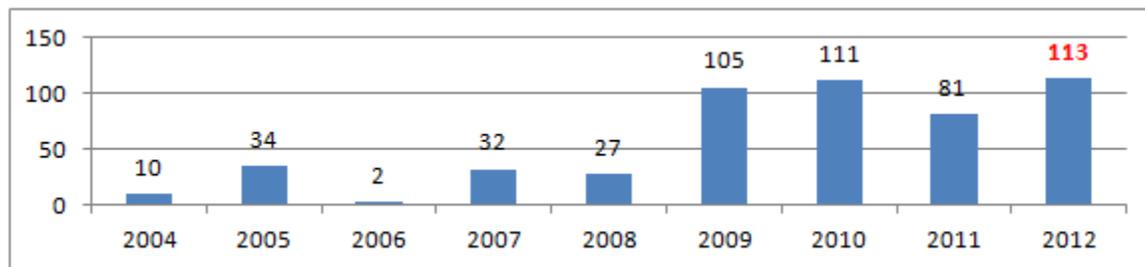

Figure 1: Major Service Delivery Protests, by year (2004 – July 2012)

[Source: **Municipal IQ** Municipal Hotspots Monitor]

The latest scores are beginning to look fairly alarming. In 2012 there were 540 protests and in February 2014 it was reported that "there had been nearly 3,000 protest actions in the last 90 days" This is more than 30 protests a day involving more than a million people. The most important aspect of the protests is the perception that "… a large majority of South African feel that conventional mechanism of engaging the state are failing, and that alternatives may be more effective" (Udesh Pillay: 'Delivery protests: National problem requires local, tailor made solutions' in *Business Day* 1 April 2011). Peter Alexander calls these protest the 'Rebellion of the poor' ('A massive rebellion of the poor' in *Mail&Guardian*, April 2012).

Poverty alone cannot be blamed as cause of this problem though roughly 23 million people (of the population reaching near 52 million) live below the upper-bound poverty line. When one looks at extreme poverty, defined as those living below the food poverty line, we can see the dramatic impact the global financial crisis of 2008/09 has had on the livelihoods of South Africa's poorest. The number of people living below the food line increased to 15,8 million in 2009 from 12,6 million in 2006, before dropping to 10,2 million people in 2011. Despite this adverse impact of the financial crisis, poverty

levels did noticeably improve according to 2011 estimates. This was driven by a combination of factors ranging from a growing social safety net, income growth, above inflation wage increases, decelerating inflationary pressure and an expansion of credit. The share of national consumption between the richest and poorest remains stubbornly stagnant. The richest 20% of the population account for over 61% of consumption in 2011 (down from a high of 64% in 2006). Meanwhile, the bottom 20% see their share remaining fairly constant at below 4,5%. South Africa's social assistance system has expanded tremendously since 2000, growing from around 3 million grants to 15 million by 2011. Growth in grants has been primarily driven by the expansion of child support grants which increased from roughly 150 000 recipients in 2000 to over 10 million in 2011. The coverage of this grant has successively been extended to children in older years, reaching those between the ages of 15 and 16 in 2010 and thus increasing its ability and reach to improve the lives of those living below the poverty line. The number of grant holders increased by over 46%, growing from 10,2 million in 2006 to 14,9 million in 2011 (www.statssa.gov.za ; *Poverty trends in SA* – accessed 25 March 2014).

Violent public protests in South Africa have many other causes that reach beyond a generalised assumption that poverty drives unrest. There is growing allegations of rampant corruption and nepotism in local government structures, growing incidents of xenophobia, lack and neglect of service delivery, a failing healthcare system and progressively poor education. All of these factors point to the failure of the state to deliver on the constitution – or, posed in a different way, the constitution has been compromised. Of course the public will react in the only way that to them seems possible.

A turning point in South African process of protest: the Marikana-Lonmin massacre

The Marikana-Lonmin massacre took place on the 16th of August 2012. Similarities between the Sharpeville massacre of 1960 (69 killed; 180 injured) and the 2012 Marikana-Lonmin Mine shootout (34 killed; 78 injured) was recently mentioned at the Farlham Commission of Inquiry into the Marikana-Lonmin bloodbath (*Pretoria*

News, March 27, 2014:1). Advocate George Bizos (representing the Legal Resources Centre) observed that:

> "… since Sharpeville there has been a stratagem on police violence against people of not appointing anybody to be in control. This will help them to say 'we were under attack and we shot in self-defence.' In this case [Marikana] there may have been the same stratagem."

This incident marked the end of a fairly interactive period of public participation. The Marikana-Lonmin massacre signifies the moment when trust has been broken between state and society. The state has become the 'enemy' by shooting its own people. The embracement of neo-liberalism by the government adds to this problem; the mines are owned by external multi-national companies. In developing non-western countries it is generally accepted that foreign ownership of mines is central to the problems generated by globalisation or what can be referred to as 'neo-liberalism.' Masao Miyoshi (2010:xxvi) notes a key shift "… from the multi-national corporation to the transnational one where national identification decreases and corporate interest increases. This transition is measured in terms of the remarkable transfer of wealth from the poor to the rich."

The question that was previously asked remains relevant:

> "… can profit driven transnational corporations perform the welfare duties of nation states? Who will take care of the health and living conditions of the mobile working class as its members follow the trail of global capital? What about environmental destruction? And where is the academic in this transition – only too ready to cooperate with transnational corporatism?" (Miyoshi 2010:xxvi).

According to Miyoshi (2010: xxvi) we need:

> "… rigorous political and economic scrutiny rather than a gesture of pedagogic expediency. We should not be satisfied with recognising the different subject-positions from different regions and diverse backgrounds. We need to find reason for such differences – at least in the political and

economic aspects – and to propose ways to erase such 'differences' by which I mean political and economic inequalities."

Central to his proposal is a wish to "… reclaim the state, cultivate empowered representative interstate organisation, intensify grass-roots activities and reorganise transnational labour unions" (Miyoshi 2010:xxvii).

Joel Netshitenzhe from the Mapungubwe Institute for Strategic Reflection (MISTRA) think tank in South Africa brought Masao Miyoshi's (2010) explanation into context with the Marikana event. In the 10th Harold Wolpe Memorial Lecture (7 November 2012) Netshitenzhe reflects in his presentation titled 'The state of the South African state' on the bigger picture of our current nation state. He applied Harold Wolpe's methodology and framework based on social organisation and class dynamics. He illustrates how the evolution of the state in a unified South Africa

"… bore all the hallmarks of a colonial imposition, promoting and protecting the material interests of the colonial settlers; and that the formation of the Union in 1910 represented racial solidarity founded on dispossession, exclusion and the repression of the Black people".

The future of science communication and public engagement in South Africa

The responsibility to shape, share and promote public opinion is supposed to be more advanced in developed democracies. Examples form the United States and Germany serve as example and a number of actions may be listed that support and promote public engagement (Thuynsma 2012:1). Heather Thuynsma (2012) proposes that the introduction of advocacy campaigns has a role to play in this regard. These advocacy campaigns should promote and frame an idea that is often largely unknown, clarify and promote an issue by presenting relevant research findings to facilitate enriching discussions regarding specific problems and to launch campaigns to influence how the law is implemented.

The question is posed: how is South Africa managing and promoting civil society participation in an effort to deepen its democracy against a background of growing violent uprisings/protests? Most countries are aware of the necessity to ensure a stable democracy that requires effective partnerships with civil society in policy development.

Such partnership is valuable and necessary to strengthen accountability in the implementation of effective service delivery. In the current South African case this awareness has been compromised by a government that is progressively seen as alienated from the needs of the people.

Is there a possibility for compromise?

Research in science communication, public understanding of science, public engagement / participation with science is complex and sometimes elusive in its aims and intentions. We have seen some of these intensions change over time – ranging from the initial need to establish the publics' scientific literacy, to the later recognition of the interrelated role between science and society. Brian Trench (2010) provided the conditions required for science communication to fall under: "… a bounded field of studies [with] significant presence in teaching and research in the higher education sector, international research, specialist scholarly publishing, organised communities of networks of scholars, and a body of theoretical work that underpins empirical study". It is inevitable that science communication in a broader sense requires the development of its own policies to ensure its political acknowledgment and role in communicating in what is popularly referred to as 'frontier research'.

This condition also involves a second tier, the funding of science and identification of areas that might not yet even be known: the so-called argument in favour of the 'usefulness of useless knowledge' posed by Abraham Flexner in 1939. The final aim of science communication is the usefulness of establishing a culture of science. Regular and regulated engagement between scientists and government is not only necessary but often leads to the excitement of recognising an unintended consequence. Here the current research in Transdisciplinarity as approach to resolve and communicate complex phenomena as embedded in macro-narrative topics (such as climate change) comes to mind.

This relation between science, state and society requires a commitment to communicate since commitment from government holds sway as a determining factor to engage with science and facilitate the necessary dialogue with society. What is becoming clear and what we argue for is that understanding the public is as important as

recognising the public attitude towards science. The two phases of science communication research, recognised internationally, adopted this role: the first was a drive for establishing scientific literacy through surveys – including understanding the impact of the media. The second phase saw increase in the complexity of science communication research – ranging from political and social issues to being more fundamental and critical in its development of a theoretical framework. Science communication now recognises the role of a 'science culture' and a science culture essentially recognises the 'science-society' paradigm. When we step back to reassess this process within a broader political context, we find a complex situation that is often compromised by wrong policies, insufficient policy implementation and institutional power struggles.

The crucial questions we should address are: what happens when the science communication process proves to be insufficient? Why do we witness a global rise in violent protests? Have we become complacent in the structuring of science communication with scientists compromising on social needs for the sake of comfort? Most importantly we ask: is democracy the best option to ensure social stability and scientific growth?

Conclusion

In this paper we explored the tensions building up between the three areas of what constitutes the science communication domain: science, state and society. We argue for a re-assessment of the position and action that is taken from the public's side when insufficient channels of communication between state and society become widespread. This, we argued, happens readily when we lose sight of the importance of state/society obligations as a democratic social contract between state and society. In times of tension and times of stress we find un-anticipated social frustration and anger coming to the surface that is not contained through accepted models of public participation.

In the case of South Africa the reasons are multiple enough to disrupt normal systems of public engagement. The government is aware of this but is clearly failing in doing something about it. As stated in the South African Reconstruction and

Development Programme (RDP) (1994) and reiterated in the National Development Plan (NDP) (2011):

> "… no political democracy can survive and flourish if the mass of our people remain in poverty, without land, without tangible prospects for a better life…attacking poverty and deprivation must therefore be the first priority of a democratic government."

The NDP and Vision for 2030, the most current guiding framework for development in South Africa, is anchored by two fundamental objectives, namely the elimination of poverty and reduction of inequality. These aims are possibly serving as a decoy to distract attention from more complex and politically problematic areas.

We conclude that new sources of information and new frames of references (whereby ideology and governance are stated upfront) should be pulled into the fold of science communication. Characteristics of social revolutions might well be as important as scientific revolutions and the art will be to identify this when it happens and to document the process properly. If we consider science communication as a field of research (inclusive of Public Understanding of Science) we have, according to Pierre Bourdieu (2004:34) a "… socially constructed field of action in which agents endowed with different resources confront one another to conserve or transform the existing power relations."

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