Social Science & Medicine 85 (2013) 79–86

Contents lists available at SciVerse ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Scientific decision-making and stakeholder consultations: The case of salt recommendations

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ARTICLE INFO

Article history:
Available online 28 February 2013

Keywords:
Risk governance
Post-normal science
Scientific advisory committee
Stakeholder consultation
Institutional risks
SACN UK
Nutrition policy
Salt

ABSTRACT

Scientific advisory committees (SACs) are seen as "boundary organisations" working at the interface between science, policy and society. Although their narrowly defined remit of risk assessment is anchored in notions of rationality, objectivity, and reason, in reality, their sources for developing recommendations are not limited to scientific evidence. There is a growing expectation to involve non-scientific sources of information in the formation of knowledge, including the expectation of stakeholder consultation in forming recommendations. Such a move towards "democratisation" of scientific processes of decision-making within SACs has been described and often studied as "post-normal science" (PNS) (Funtowicz & Ravetz, 1993). In the current paper we examine the application of PNS in practice through a study of stakeholder consultations within the workings of the UK Scientific Advisory Committee for Nutrition (SACN). We use the theoretical insights from PNS-related studies to structure the analysis and examine the way in which PNS tenets resonate with the practices of SACN. We have selected a particular case of the SACN UK recommendations for salt as it is characterized by scientific controversy, uncertainty, vested interests and value conflict. We apply the tenets of PNS through documentary analysis of the SACN Salt Subgroup (SSG) consultation documents published in 2002/2003: the minutes of the 5 SACN SSG's meetings which included summary of the SACN SSG's stakeholder consultation and the SSG's responses to the consultation. The analysis suggests that the SACN consultation can be construed as a process of managing sources of risk to its organisation. Thus, rather than being an evidence of post-normal scientific practice, engagement became a mechanism for confirming the specific framing of science that is resonant with technocratic models of science holding authority over the facts. The implications for PNS theory are discussed.

Introduction

Post Normal Science (PNS) is a theoretical framework developed by Funtowicz and Ravetz (1993) to denote a new way of production of science that is required in the context of high scientific uncertainty and high stake (interest), when the problems are multifaceted and decisions are urgent. Within this context, scientific process, traditionally confined to scientific peer community, is seen to benefit from engagement with an extended peer community that includes many perspectives and values. Arguably, scientific advisory committees (SAC) are the site within which PNS practice is most visible (Lorenzoni, Jones, & Turnpenny, 2007) due to their boundary position between science and policy (Guston, 2001). We report on a case study of the Scientific Advisory Committee for Nutrition in its efforts to engage a wider network of stakeholders in the processes of setting recommendations for salt. Uniquely, the case study examines the actual consultation outputs throughout the recommendations setting process. We apply the analytical framework developed by Turnpenny, Lorenzoni, and Jones (2009) to capture the elements of practice within SACs that can be described as "post-normal science", and critically evaluate the application of the concept. The current article reflects on the extent to which PNS is a helpful lens through which the processes of engagement within SACs are explained and theorised.

The remainder of this introduction unfolds as follows: we will first give an overview of PNS theoretical framework and the aligned notion of democratisation of science, then review the policy origins of the calls for democratisation of science with a particular reference to the workings of SACs. We will then describe the case of

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http://dx.doi.org/10.1016/j.socscimed.2013.02.032

SACN reviewing both the policy context and the institutional characteristics of the SACN.

Post-normal science and democratisation of science

PNS is a step change in our understanding of the practices of science, diverging from Kuhn's (1962) framing of "normal" science. "Normal" science is characterised by a high degree of scientific consensus about the scientific approaches, until such time that the on-going critical reflections of scientists reach a point of "paradigm shift". In contrast to this, the new, "post-normal" approach to scientific practice reflects the emergence of complex, multifaceted and multidisciplinary nature of problems (defined as "wicked" problems), which in turn call for the inclusion of multiple perspectives and values. Broadening of the scientific practice from the traditional (scientific) peer community to the extended community of peers is seen as necessary for a number of reasons. It is believed that it enables scrutiny of assumptions and questions (Nowotny, 2003), that it ensures that ethical dimensions of social problems are not overlooked through scientific evidence production, and that it leads to trust in the decisions of the regulator (Government Office for Science, 2009; Government Office for Science, 2007a,2007b; Parliament Office of Science and Technology, 2001; Wynne, 2006). According to PNS framework, the "extended peer community" (Rosa, 1998) as the community of individuals who should be included into scientific deliberation either because they are affected by the issue or can provide perspectives that broaden and extend the framing of the problem, make quality judgements of the scientific process based on considerations of values as well as scientific facts (Turnpenny, Jones, & Lorenzoni, 2011).

The concepts of PNS and the extended peer community have been in wide use for the past couple of decades, both as a theoretical framework to explain and guide the relationship between science, policy and broader society, and as a method developed to identify the contexts – issues, stakes and uncertainties – that call for the extended peer community in scientific practice (Turnpenny et al., 2009). The studies employing PNS as a framework have used it to identify the "wicked" problems – issues characterised by uncertainty, value inconsistency, urgency and heterogeneity of visions and epistemologies – that call for the adoption of post-normal scientific practice (e.g. Saloranta, 2001); and to explain the processes of science in practice in the light of PNS (e.g. Petersen, Cath, Hage, Kunseler, & van der Sluijs, 2011; Turnpenny Lorenzoni, & Jones, 2009). Among the more enduring debates about PNS is the extent to which it represents a normative framework for scientific practice and its links to policy, or rather, is a theoretical model, a description or a heuristic (Farrell, 2011) that offers an explanatory framework for this interaction as it happens in practice. The growing critique of PNS framework questions some of its unexamined assumptions that ascribe a normative role to the extended peer community as "quality control" (Wesselink & Hoppe, 2011). More recent examination of the processes of the EPC through alternative theoretical angles such as risk colonisation (Rothstein, 2006; Rothstein, Huber, & Gaskell, 2006), showed how application of the concept can be played out in practice with unintended consequences that are at variance with the values of inclusivity, information completeness and heterogeneity. In a similar vein, Walls, Rowe, and Frewer (2010) have demonstrated how the pressures for openness and engagement can lead to selective transparency by making obvious only those elements of scientific decisions characterised by consensus and uniformity. It is argued that the current procedure for linking democratic control and risk assessment as the two modalities of decision-making within a SAC can lead to institutional deficiency and diminished legitimacy (Bijker, Bal, & Hendriks, 2009; Ferretti, 2007). This raises an issue of the applicability of PNS aims in practice, their compatibility with the traditional governance approaches, and their relationship with aligned concepts of better governance such as accountability and transparency. This is particularly relevant to the workings of scientific advisory committees. The way in which PNS aims are reflected in policy discourse related to the workings of scientific advisory bodies will be examined below.

Policy rationales for the extended peer community in the operations of SACs

Scientific advisory committees are seen as "boundary organisations" working at the interface between science, policy and society (Guston, 2001), which makes them clear contenders for the post-normal scientific practice. Historically, however, they have been tasked with risk assessment, that is the technical decision-making of experts who engage in systematic, analytical, and largely probabilistic thinking to characterise hazard, model its distribution, and estimate its risk (Renn, 1998). The past 10–15 years have witnessed a great deal of regulation of this process through clear guidelines of when and how SACs are convened, the mechanisms through which their decisions are made and conveyed (as exemplified in Codes of Practice for Scientific Advisory Committees (Chilvers & Burgess, 2008; Liberatore & Funtowicz, 2003; Office of Science and Technology, 2001; Scientific Advisory Committee on Nutrition, 2002).

The principles of scientific universalism and independence enshrined in definitions of risk assessment have been under increasing scrutiny. Various documents such as the House of Lords report (House of Lords, 2000) and *Code of Practice for Scientific Advisory Committees* 2001 (Office of Science and Technology, 2001) in the UK, and *Science in Society Action Plan* (European Commission, 2001), and *Communication on Collection and Use of Expertise* (European Commission, 2002) in the EU emphasised the requirement of SACs to seek external input on their decisions, broaden the basis on which they are made, increase transparency, and ensure active acceptance by those who will be implementing them.

Consequently, the framing of SACs' role and practices as embodied in policy documents contains a dichotomy of the competing and simultaneous emphasis upon the technocratic bases of policy ("normal science") and the ethos of stakeholder engagement (or extended peer community). For example, alongside the EC *Science and Society Action Plan* (European Commission, 2001), which calls for democratisation of expertise, is the enshrining of the key principle of scientific independence from external constraints (in the Part II of the *Draft Treaty Establishing a Constitution in Europe*, 2003, Article II:13 (European Commission, 2003). An interesting and thus far unexamined question of both practical and conceptual importance therefore is whether and how the twin pressures (implicit within policy documents) of engagement and scientific independence can co-exist within the workings of SACs. The examination of this tension in the current paper will focus on the operational aspects of the Scientific ADvisory Committee for Nutrition (SACN) and the strategies used to manage the consultation procedures.

Aim of the paper

The aim of the current paper is to examine the application of PNS in practice through a study of the Scientific Advisory Committee for Nutrition (SACN). We use the theoretical insights from PNS-related studies to structure the analysis and examine the way in which PNS aims resonate with the practices of the boundary organization such as SACN. We have selected a particular case of SACN recommendations for salt, the scientific area that is characterized by controversy, uncertainty, vested interests and conflict,