Environmental Science & Policy 54 (2015) 513–521

Contents lists available at ScienceDirect

Environmental Science & Policy

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

Knowledge brokerage designs and practices in four european climate services: A role model for biodiversity policies?

Sabine Reinecke

Chair of Forest and Environmental Policy, University of Freiburg, Germany

ARTICLE INFO

Article history:
Received 29 January 2015
Received in revised form 7 August 2015
Accepted 11 August 2015
Available online 31 August 2015

Keywords:
Science-policy
Knowledge brokerage
Climate services
Saliency
Credibility
Legitimacy

ABSTRACT

Environmental policies are broadly claimed to rely on sound scientific evidence because of the complexity, the uncertainty and the diverging political stakes that characterize issues like biodiversity decline or climate change. Classical advisory formats like assessments or standing advisory bodies have proliferated widely – especially at the global and national levels – yet exert only a limited influence on political decision-making, particularly in sub-national and local implementation contexts. Against this background, scholars have called for 'bottom-up' approaches to Science-policy interfaces that move from 'problem to policy'. In the area of climate change, numerous 'climate services' have evolved at national, sub-national and even local levels, with the promise of being more decision-oriented. Four climate services in three European countries (the United Kingdom, Germany and Switzerland) are investigated regarding whether and how they institutionalize and enact knowledge brokerage in a credible, salient and legitimate way. Focusing on the institutional and strategic design principles of this advisory setting in climate policy, insights are generated for the biodiversity policy field, where comparable settings are still broadly lacking.

1. Introduction

Environmental issues like climate change or biodiversity and ecosystem decline are characterized by high degrees of spatial and functional complexity, uncertainty and diverging political stakes, which are broadly seen as heightening the need for more 'evidence-based' policies (Sutherland et al., 2004). As these issues are typically framed as problems of global extent and magnitude, a key strategy has been to strengthen a global, politically independent and consensual body of knowledge brought together in international research programmes and assessments or global expert bodies (Bäckstrand, 2003; Haas, 2004). The Millennium Ecosystem Assessment (MA), The Economics of Ecosystems and Biodiversity (TEEB) and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) are prominent examples of efforts in the context of biodiversity policies to assess or inform about the health of ecosystems, related economic costs and societal impacts, as well as avenues to enhance policy responses (Görg et al., 2010; MA, 2005; SPIRAL, 2011; TEEB, 2010).

Although such science-based and problem-oriented formats dominate practice as well as academic attention in the context of biodiversity policies (for an inventory: SPIRAL, 2011), they exert minimal influence on practice beyond raising awareness or setting an agenda in support of negotiations (Beck, 2011; Cash and Clark, 2001; Cash, 2000; Neßhöver et al., 2013; Spierenburg, 2012). This is less a result of a dearth of knowledge than of naïve hopes that 'sound' information automatically leads to better policies (Haas, 2004; MA, 2005). This view appears misplaced for 'wicked' or unstructured cases, where "both the nature of the 'problem' and the preferred 'solution' are strongly contested" (Head, 2008: 101). Solving such policy problems is not neatly separable into science concerned with 'puzzling' about the problem and policy dealing with different interests, i.e. 'powering' (Heclo, 1974; also: Hoppe, 2010). Rather "intellectual and political struggles" will arise in either sphere (Hoppe, 2010: 114; italics SR), which is why science policy interfaces need to genuinely shift "from problem to policy" (Beck, 2011: 304) allowing "a transparent negotiation among standpoints *in the link with policy processes*" (Van den Hove, 2007: 818, italics SR). Against this background, national or global assessments do not appear to be very helpful or legitimate when applied to distinct cultural contexts and when used for local decision making (Beck, 2011; Görg et al., 2010; Koetz et al., 2009; Spierenburg, 2012). Also because context affects how problems are framed and addressed (Hoppe, 2010), 'bottom-up' advisory processes are proposed that actively pursue the participation of

E-mail address: sabine.reinecke@ifp.uni-freiburg.de.

http://dx.doi.org/10.1016/j.envsci.2015.08.007
1462-9011/

local stakeholders as producers and not just receivers of knowledge for policy (Failing et al., 2007; Görg et al., 2010; Head, 2008; Neßhöver et al., 2013; Van den Hove, 2007).

ICLEI (International Council for Local Environment Initiatives) is a transnational association of local governments on sustainability and one of the few exceptions in the biodiversity policy field. This global initiative offers advisory services that engage with cities' local and practical biodiversity knowledge through its Local Action for Biodiversity (LAB) or Urban Biodiversity Initiatives (URBIS). However, with the primary research partner located in Sweden (Stockholm Resilience Centre) and support material, like the TEEB Manual for Cities, produced based on singular pilots, practical relevance for and legitimate transferability to other culturally distinct contexts is limited because alternative "ways of knowing and valuing" are marginalized (Ernstson and Sörlin, 2012: 274). Beyond that, only singular cases of *nominally* more 'integrative' 'biodiversity platforms' (e.g. in Malta, India), 'interfaces' or 'networks' (like the UK's National Biodiversity Network or the South African National Biodiversity Institute) are currently institutionalized at national or lower levels. Their limited number and early formative phases have prohibited a systematic investigation to date.

By comparison, the so-called 'climate services' (CSs)[1] constitute a novel regionally, nationally and sub-nationally rooted and institutionalized form of Science-policy interface (SPI) based on nodal-like structures with a specialized staff of 'intermediaries' (Máñez et al., 2014; Vaughan and Dessai, 2014). Climate services have flourished mainly in the area of climate change mitigation and adaptation and they claim to coordinate knowledge exchange between science and practice in nominally policy- or 'bottom-up' oriented ways (Máñez et al., 2014; Reinecke et al., 2013; UKCIP, 2011; Vaughan and Dessai, 2014). With that, they appear to follow the idea of *facilitating* decisions, rather than merely transferring or bridging knowledge from science to policy (Turnhout et al., 2013). However, too little is known about existing climate services (Vaughan and Dessai, 2014) to presume that they function in this way. The few existing studies have limited their empirical focus to regional assessment programmes (e.g. McNie, 2013) or base their insights on literature review of singular cases (e.g. Vaughan and Dessai, 2014). In light of this research gap, this explorative paper seeks to gain a more systematic understanding as to whether and exactly how climate services live up to their claims of fostering more integrative and policy-oriented advice in practice and to generate clues about how they may act as role models for other policy fields. Drawing on an analytical reading of knowledge brokerage, a selected number of distinct climate services in three countries – Germany, Switzerland and the United Kingdom – are scrutinized to decipher whether and exactly how they assure that decisions are made based on salient, credible and legitimate advice.

2. Knowledge brokerage: from science transfer to boundary work

Scholars broadly agree that SPI performance has to be improved – not only in the area of biodiversity or at local scales (Görg et al., 2010). However, when it comes to the details of exactly how the desired integration can be achieved, much confusion exists regarding what should be integrated and how (Cash and Clark, 2001). Depending on how one conceptualizes Science-policy – with problems (and solutions) being rooted in either the science or the policy domain or at their nexus – suggestions of how to achieve better performance vary dramatically (Stone and Diane, 2001). Moreover, such evaluation is highly context dependent and varies, for instance, with problem structure or political culture (Hoppe, 2010). Critical approaches stressing the hybridity of SPIs suggest more interactive, participatory and policy learning oriented formats, especially at local levels (Beck, 2011; Hoppe, 2010; Van den Hove, 2007). Along these lines, 'boundary organizations' (BO) have been conceptualized as institutional settings that integrate principals, agents and professional mediators in such a way that the brokered information remains accountable to both spheres (Cash, 2000; Cash et al., 2003). In 'unstructured' cases, boundary work – ideally – builds precaution and flexibility into decisions and allows for testing and monitoring as well as for considering different views, including that of counter-experts (Hoppe, 2010).

Although the concept of boundary work has great analytical and heuristic value, particularly for evaluating singular cases, it lacks the analytical precision to grasp the diversity of institutional and practical designs of SPI (Jungcurt, 2013). To allow for a more systematic understanding useful for strategic learning across policy domains this paper is informed by recent work on *knowledge brokerage* (KB). KB refers broadly to all sorts of 'intermediary activities' at the science policy nexus (Karner et al., 2011) but recent conceptual applications have developed an analytical precision about particular SPI processes that is of value for the purpose of this paper. Science-policy interactions are described as being fostered, for instance, through the application of particular *KB tools*, e.g. group model building or simulation and role-playing games (Magnuszewski et al., 2010), or through *institutional design elements* that support impartial mediation (Klerkx and Leeuwis, 2008). To characterize distinct brokering activities, Michaels (2009) has synthesized a set of *six functional KB strategies*. Comparatively linear KB approaches like 'informing' or 'consulting', are contrasted with more interactive strategies like 'matchmaking', 'engaging', 'collaborating' or 'capacity-building'. The latter are seen as better suited to unstructured problems, such as when consensus proves elusive or decisions are made under conditions of chaos and complexity (Michaels, 2009). With that the genuine focus of KB is on identifying facilitating features of SPI as a dynamic and multi-directional process rather than on qualities of knowledge as mere static output (cf. Sarkki et al., 2015; in this Special Section).

However, differing normative readings have fuelled confusion about the actual operational principles of KB and the role of science therein (Turnhout et al., 2013). For some, KB is merely about improving the uptake and transfer of evidence in policy (e.g. Jäger, 2011), an understanding that reinforces a linear model of the Science-policy relationship (Hoppe, 2009). In contrast, KB understood as *facilitating* is more integrative and acknowledges different perspectives (Turnhout et al., 2013). Circumventing these controversies, I rely on a mainly analytical and less normative typology of KB activities which includes six distinct types of activities (KBA). Each is complemented by sub-variants that cover instances where 'interaction' appears fairly unidirectional to more interactive cases (see Table 1). The typology makes it possible to grasp a whole variety of different advisory activities along distinct patterns, which makes it a valuable analytical tool for gaining a more systematic understanding of the practical working of SPIs. Although it resonates with strategic conceptualizations of KB (Michaels, 2009; McNie, 2013), this KBA concept explicitly acknowledges that even the same activity can have different meanings and hence functions in different contexts, an understanding which avoids presuming rather than assessing effectiveness.

To assess when KB processes are effective, I rely on a set of broadly acknowledged principles that scholars have crafted mainly for global environmental assessments: *saliency, credibility and legitimacy* (Cash and Clark, 2001; Cash et al., 2003). Credibility relates to whether stakeholders accept the "scientific adequacy of the technical evidence and arguments" (Cash et al., 2003: 8086), whereas saliency covers the relevance of knowledge to users.

[1] Not to be confused with climate services (e.g. carbon sequestration) that are provided by ecosystems such as forests.