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Boundary organisations and their strategies: Three cases in the Wadden Sea

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ABSTRACT

This article discusses three empirical cases of boundary organisations, within the context of the Wadden Sea: the Wadden Academy, IMSA Amsterdam and the NCEA. The research aims to provide further insights into how boundary organisations work in practice. The research shows that the role of a boundary organisation can be fulfilled by different types of organisations (not solely scientific). Depending on the science–policy interaction problem they face, a boundary organisation can have different goals and use different strategies. Furthermore, the strategic use of media outputs, and the degree of actuality and public debate can have a substantial influence on the practices of boundary organisations.

1. Introduction

Within environmental governance, interactions between science and policy are often contested (e.g. Holmes and Clark, 2008). Causes can be manifold, e.g. scientists are being accused of 'advocacy' when presenting knowledge, or particular forms of scientific knowledge are being marginalised by coalitions of policymakers and scientists (Milkoreit et al., 2015). It is suggested that these interaction difficulties arise from the differences between the world of science and the world of policy. From the literature it becomes clear that boundary organisations (BOs) operate on the intersection between science and policy. They are of particular interest, because they explicitly recognise this boundary, and acknowledge differences between the two arena's (McNie, 2007), despite the current tendency of understanding these boundaries as blurred, and the relationship between science and policy as less rational.

Although scientific literature discusses individual examples of these organisations (e.g. Boezeman et al., 2013; Pesch et al., 2012; Pietri et al., 2011), little attention has been paid to the specific situations in which there is a need for BOs (*when*), as well as to the goals and strategies BOs employ (*how*). We argue that with more in-depth analysis on multiple organisations, further operationalisation and insights in the *how* and *when* can be generated. This paper will therefore empirically analyse three organisations. The following research question will be central: *How can boundary organisations be characterised, in terms of goals, strategies and perceived performance?* Sub-questions guiding the research to answer this research question are: (i) What are the goals of BOs?; (ii) What science–policy interaction problems do BOs address?; (iii) Which strategies do BOs use to reach their goal?; (iv) How do BOs perceive their performance?

In order to research these questions, we focus on the Dutch Wadden Sea, a shallow estuarine sea of great ecological and economic importance. As discussed in the editorial of this special issue, this region is known for its wide range of interests (economic and ecological) and a continuous debate on scientific knowledge. The sheer difference between these interests often results in difficulties in policy making. History shows us in various cases (e.g. shellfish and gas exploitation) that the strategic (mis)use of scientific knowledge often played an important role in these disputes (Swart and Van Andel, 2008; Turnhout et al., 2008; Floor et al., 2013; Van der Molen et al., 2015), but also how BOs can play a mediating role in these disputes (Runhaar and Van Nieuwaal, 2010).

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The next section presents an overview of the literature, by, firstly, deducting the definitions used by different authors of a BO, secondly analysing the (theoretical) goals of BOs, thirdly identifying the science–policy interaction problems described, and finally by analysing the strategies used to research the goals. Section 3 outlines the methodologies used for our analysis. Section 4 discusses the results of our empirical analysis. Section 5 presents our main conclusions and points of discussion.

2. Boundary organisations: a literature overview

2.1. Boundary organisations defined

Literature provides us with multiple definitions on BOs. Following up on Gieryns work on boundary work (1995, 1999), David Guston defines BOs as those organisations that place themselves between science and policy (2001). A further selection of definitions, provide us with a similar understanding:

- "Boundary organisations link science to decision-making and link science and decision-making across multiple levels" (Cash, 2001:450).
- "Organisations that mediate interactions between the scientific community and climate change policy-making" (Niederberger, 2005:2).
- "A new class of organisations that mediate between the fields of science and those of application" (Hellström and Jacob, 2003:235).
- "Providing stability in the often contested boundary area between the political and the scientific domain" (Pesch et al., 2012:487).

It becomes clear from these definitions, but also in descriptions of BOs as "hybrid organisations which occupy an intermediate position" (Gulbrandsen, 2011), and as "an intermediate" (e.g. Boezeman et al., 2013; Pietri et al., 2011; Niederberger, 2005) that the literature understands these types of organisations as intermediaries, which place themselves between the environmental science and policy-making arenas. Furthermore, following the empirical research on BOs, they are predominantly considered to be scientific and/or governmental organisations/agencies (e.g. Gulbrandsen, 2011; Pesch et al., 2012; Huitema and Turnhout, 2009; Schneider, 2009; Miller, 2001). But, if there is a need for these intermediary organisations, which problems regarding the interactions between science and policy do they then address? With what goal, and by means of which strategies?

2.2. Goals

The literature is divided on the goals of BOs. On the one hand the focus lies on *processes* (either on the production, or on the use of knowledge), as is the case according to, e.g. Pesch et al. who argue that BOs are "supposed to enable a more effective use of knowledge in political decision-making" (2012:487), and Kirchhoff et al.: "contribute to the coproduction of science and policy by facilitating the collaboration between scientists and non-scientists; and, by creating a combined scientific and social order", but also to "build capacity for information uptake, integrate multiple forms of knowledge, and manage the inequities in power between producers and users" (2013:399).

On the other hand focus lies with the actual impact of the BOs. Following, e.g. Cash et al., who argue that BOs aim to "manage boundaries between knowledge and action in ways that simultaneously enhance the salience, credibility and legitimacy of the information they produce" (2003:8087) it could also be understood that the goal of a BO is to enhance the level of salience, credibility and legitimacy[1] of the produced knowledge, in order for it to have an effective influence on the policy-making process (McNie, 2007; Van Enst et al., 2014).

2.3. Interaction problems

One of the main issues addressed by the literature on BOs, concerns the difficulties in communication between scientists and policy-makers, due to institutional and cultural differences between them (e.g. Guston, 2001; Pietri et al., 2011; McNie, 2007; Owens et al., 2006; Holmes and Clark, 2008), such as other timeframes (Hanger et al., 2012; Owens et al., 2006; Niederberger, 2005), dissimilar levels of abstraction and understanding of boundary objects (e.g. Star, 2010), and different languages, or jargon (Cash et al., 2003). Also the insufficient access to knowledge tends to be a problem (Guston, 2001; Hanger et al., 2012; Lee et al., 2014), as does the framing of questions which lead to knowledge which is either not applicable to the policy problem at stake, or might be "uncomfortably ahead of contemporary policy agendas" (Owens et al., 2006). Furthermore, problems with the selective use of knowledge are discussed (e.g. McNie, 2007). Or, to put it differently, "orchestrating science to support (or hinder) particular courses of action, (...), making people believe or disbelieve knowledge claims." (Lidskog, 2014:2). Knowledge can also be disputed by particular groups, or coalitions, leading to politicised science (Pietri et al., 2011; Tribbia and Moser, 2008; Guston, 2001).

In their article on science–policy interfaces, Van Enst et al. combined a broad range of science–policy interaction problems into three meta-problems: (i) the strategic use of knowledge; (ii) the strategic production of knowledge; and (iii) the operational misfit between demand for and supply of knowledge (2014). Applying these meta-problems to the literature on BOs, especially the strategic use of knowledge, and the operational misfit seem applicable.

2.4. Strategies

One of the most dominant strategies[2] mentioned, is the production and use of boundary objects (e.g. Cash et al., 2003; Guston, 2001; McNie, 2007; Kirchhoff et al., 2013; Star, 2010). Following Star and Griesemer, boundary objects can be understood as "collaborative outputs that are both adaptable to different viewpoints and robust enough to maintain identity across them" (1989:387), such as artefacts, (conceptual) models, classification systems (Lidskog, 2014). According to Cutts et al., BOs "engage in a variety of methods and processes to construct, deconstruct, and reconstitute scientific and political components of boundary objects" (2011:978), for example by means of multi-stakeholder engagement workshops, and participatory model development.

[1] For the purpose of this article we understand these three concepts as follows: "credibility involves the scientific adequacy of the technical evidence and arguments. Salience deals with the relevance of the assessment to the needs of decision-makers. Legitimacy reflects the perceptions that the production of information and technology has been respectful of stakeholders' divergent values and beliefs, unbiased in its conduct and fair in its treatment of views and interest" (Cash et al., 2003:8086). We are aware of the broad discussions held in the STS literature on the understanding and conceptualisation of these three concepts. For example Koetz et al. (2012), but also Cutts et al. (2011), understand these three elements as characteristics of an SPI itself, not so much of the produced and used knowledge. However, for the purpose of this paper we have decided to follow the definitions Cash et al. provide us with, since their theory focusses on the output of the BO, rather than the BO itself.

[2] 'Strategy' is conceptualised following Mintzberg (1987) as a "consciously intended course of action, a set of guidelines to deal with a situation. (...) two essential characteristics: they are made in advance of the actions to which they apply, and they are developed consciously and purposefully" (1987:11).