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A user perspective on the gap between science and decision-making. Local administrators' views on expert knowledge in urban planning

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ABSTRACT

The role of expert knowledge of the environment in decision-making about urban development has been intensively debated. Most contributions to this debate have studied the use of knowledge in the decision-making process from the knowledge providers' point of view. In this paper, we reverse the perspective and try to understand how local decision-makers use scientific knowledge in decision-making about an urban plan and how they perceive the world of the scientific experts providing this knowledge. We approached municipal administrators in the Netherlands, responsible for local urban development, with conceptions regarding the use of knowledge that were derived from the literature on this issue. By reversing the perspective on the science – decision-making gap, we find that local administrators have a different view on this divide than do scientists. Administrators appear to have a more nuanced or even completely opposite perception of the different epistemic backgrounds of scientists and decision-makers, the inherent uncertainty of scientific knowledge and the rationality of decision-making in urban planning. We conclude that local administrators make use of expert knowledge primarily to obtain their main goal, which is balancing all interests to arrive at a decision that can count on political and public support. Rather than perceiving a problematic gap between decision-makers and experts, they nourish this gap in order to provide as much room for manoeuvre as possible for striking the intended balance of interests. There is a lesson here for environmental experts: rather than supplying decision-makers with more or better knowledge about how a plan affects environmental values, they should focus on providing better decision frameworks, by trying to enhance the weight attached to these values.

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1. Introduction

Planning sustainable urban development involves knowledge about the environmental effects of policy decisions (Atkinson and Klausen, 2011) and more particularly urban plans. Many scientists and practitioners are producing such knowledge daily to the presumed benefit of decision-makers. But how do decision-makers responsible for urban planning perceive and use scientific knowledge about the environmental impacts that the intended developments may have? Scientific literature suggests a pronounced divide between decision-makers and environmental quality specialists, who feel that their scientific input to the urban planning process is underused (Brown, 2003; Evans, 2006; Owens et al., 2004). The perception of such a divide is nourished by a normative belief that policy making, including decision-making about urban plans, *must be rooted* in scientific knowledge (European Commission, 2008; Evans, 2006). However, Holmes and Clark (2008) reviewed several criticisms to this stance, based on the arguments that in science, there can be opposing views and that science, instead of answering questions, may pose new ones; thus, it would be an oversimplification to say that ‘science can be straightforwardly be translated into policy’ (Owens et al., 2006; Holmes and Clark, 2008).

If scientific knowledge is vital to decision-making, why is it underused? Siew (2008) has pointed out that three major problems concerning the science – policy interface can be identified in the literature: first, scientists and decision-makers have rather different views of the world. Second, scientists and decision-makers are part of distinct epistemic communities. And third, whereas science can deliver arguments for rational decision-making, decision-making itself is characterized by bounded rationality (Owens et al., 2004; Nilsson and Dalkmann, 2009); it has been acknowledged that public decision-making is inherently political in nature and involves values and power (Richardson, 2005). Other authors have stressed that scientific knowledge is about complex phenomena and therefore inherently uncertain and undetermined (Van den Hove, 2007); decision-makers – as well as scientists – have to deal with that uncertainty.

Producers of expert knowledge tend to describe the limited use of the knowledge produced in terms of *barriers* (e.g. Edelenbos et al., 2004; Gocmen and Ventura, 2010). If, indeed, barriers between science and decision-making exist, how can they be circumvented? Assuming that knowledge is socially constructed (e.g. Edelenbos et al., 2004), instruments have been proposed to bridge the divide between science and decision-making, such as joint knowledge production (Edelenbos et al., 2011; Hegger et al., 2012) and knowledge brokerage (Bielak et al., 2008; Partidario and Sheate, 2013; Sheate and Partidario, 2010).

The perception of barriers between science and decision-making is highly dependent on one’s perspective (Owens et al., 2006). By and large, the perspective adopted in most contributions to this debate has been that of the *providers* of knowledge. Little is known about the *demand* side, i.e. how decision-makers feel that knowledge can be of use to them. Changing perspective, therefore, this paper’s research question is the following: how is expert knowledge about the environment perceived and used by decision-makers to arrive

at a decision about an urban plan that they feel is feasible. Exploring this issue is important for two reasons: first it may shed a new light on the recurring question, posed in academia, regarding why expert knowledge is underutilized in the everyday practice of decision-making. Second, it may help improve the ways in which experts engage with decision-makers, rendering their advice more useful.

Reviewing recent literature on the science – policy divide in urban planning we characterized scholars’ views about the role and use of science. Next, we asked municipal administrators in the Netherlands, who are responsible for urban development in their towns, to comment on those views and to articulate how they use expert knowledge about environmental impacts to arrive at a decision on an urban plan. The interviews focused on examples of inner-city redevelopment in areas that are highly burdened by environmental impacts; such situations are quite common in Dutch cities and towns. As urban planning in the Netherlands is a much more public issue than elsewhere, the examples are relevant, because there is political pressure to establish a high quality urban plan, and scientific knowledge must be used to assure adequate environmental quality or at least compliance with environmental standards.

The paper is structured as follows: First we review recent literature on the gap between knowledge and decision-making and the ways that have been proposed to bridge this divide, merging these findings into five stereotypes about the role of knowledge in decision-making. After describing our research method we present our findings, which we discuss in the final sections, drawing conclusions, particularly with regard to the question of whether opportunities for better environmental quality are being missed in today’s practice.

2. Conceptions of scientific knowledge in decision-making

First, let us define what, in this paper, we mean by ‘knowledge’ in the context of urban planning. Knowledge can be distinguished from *information*, i.e. data that is used to answer a specific question. Knowledge, then, can be understood as information that, through some theoretical relationship, reveals some hitherto unknown aspect of reality (Krizek et al., 2009), such as the expected impact the exhaust of a factory might have on an ecosystem nearby. Different types of knowledge are known to play a role in urban planning. Rydin (2007) distinguishes four types: empirical and experiential knowledge; predictive knowledge; process knowledge; and normative knowledge. This paper focuses on the second of those categories, more precisely knowledge obtained from natural, social and technical science, that is used to describe environmental processes and to predict their behaviour as a consequence of a spatial plan. Here, this type of knowledge is referred to as ‘expert knowledge’. Another distinction is that between explicit and tacit knowledge (Healey, 2008; Nonaka and Von Krogh, 2009; Van Tilburg, 2007). This paper focuses on explicit knowledge, that has been codified in forms such as environmental assessment reports, rather than on tacit knowledge, which resides unconsciously in actions and heuristics of experts.

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