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The challenge of knowledge exchange in national policy impact assessment – A case of Finnish climate policy

Sanna-Riikka Saarela [a,*], Tarja Söderman [a,b]

[a] Environmental Policy Centre, Finnish Environment Institute, Mechelininkatu 34a, 00250 Helsinki, Finland
[b] Environment Centre, P.O. Box 44, FI-02070 City of Espoo, Finland

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ABSTRACT

Impact assessment (IA) is one of the most widely applied instruments for generating policy-relevant knowledge. However, the step-wise process, logic of linear knowledge transfer and influence of IA has frequently been criticised. Current IA procedures do not adequately address complex and unpredictable policy processes, such as the preparation of climate policies. Drawing on a framework of science–policy interface problems, we analyse knowledge exchange in a national climate policy IA case and discuss the reasons for the problems. We demonstrate various problems in knowledge use and production as well as in the balance between the demand for and supply of knowledge, such as ignoring the knowledge involved in the policy process, the monopoly held by certain knowledge providers and models, insufficient scoping and framing of the IA, poor interaction with knowledge providers and users, and inadequate planning and coordination of the process. We highlight the need for adding context-sensitive and tailored knowledge exchange practices to IA processes to enhance the use of existing knowledge in climate policy.

1. Introduction

Given the characteristics of climate policy, such as the complexity of the socio-ecological problem, ambitious targets, overlapping initiatives and policy instruments, uncertainties in climate science and the high number of actors involved (Jordan et al., 2010; Leroy et al., 2010; Haug et al., 2011), researchers have called for new kinds of science–policy interactions in order to identify holistic policy solutions and translate climate change issues into long-term societal processes (Lemos and Morehouse, 2005; Hoppe, 2010; Leroy et al., 2010; van der Sluijs, 2010; Fazey et al., 2014). Increasing attention is also being paid to better integrating scientific knowledge into governance processes in order to enhance the evidence base for decisions (Guston, 1999; Cash et al., 2003; Lemos and Morehouse, 2005; Holmes and Clark, 2008; McNie, 2007; Bracken and Oughton, 2013; Fazey et al., 2013).

A widely used approach for connecting science and policy in real-world processes is impact assessment (IA). Several countries have already made IA mandatory. According to the European Commission, IA 'prepares evidence for political decision-makers on the advantages and disadvantages of possible policy options by assessing their potential impacts' (EC, 2009:4). While IA has the capacity to inform policy processes, its efficiency, success and impact have been questioned of late, and several authors have been quite pessimistic about the uptake of IA results in policy processes (e.g. Radaelli, 2004; Turnpenny et al., 2008; Hertin et al., 2009a; Morrison-Saunders et al., 2014). The logic of the step-wise IA process, which includes such phases as scoping the assessment, analysing impacts, comparing options and ex post evaluation and monitoring, has been criticised for being too rigid to account for dynamic and unpredictable policy processes (Radaelli, 2004; Hertin et al., 2009a,b; Carroll, 2010). In addition, IA is often framed as a linear model for science–policy processes: un-dimensional and one-way transfer of knowledge from science to policy (Hertin et al., 2009a). A generic assumption behind the linear model is that the influence of science on policy is strong, direct and deterministic, and that the science itself is neutral and value free (Beck, 2011). However, complex socio-ecological problems linked to sustainability, such as climate change, require more multidirectional and dynamic ways of sharing knowledge (Cornell et al., 2013).

According to Ward et al. (2012), the problem of linking science and policy can largely be interpreted as a knowledge exchange problem, one that can partly be overcome by adopting two-way or

* Corresponding author.
E-mail address: sanna-riikka.saarela@ymparisto.fi (S.-R. Saarela).

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multi-way interaction processes between knowledge producers and users. Knowledge exchanges are overarching processes that 'generate, share and/or use knowledge through various methods appropriate to the context, purpose and participants involved' (Fazey et al., 2013:19), including actors from both the knowledge production and user side and distinct forms of knowledge from multiple sources (Graham et al., 2006; Fazey et al., 2013; Ward et al., 2012). The potential of knowledge exchange practices as well as the potential to construct and manage science–policy relationships has often been highlighted in the existing literature, but they have been explored much less in real-world processes (McNie, 2007; Fazey et al., 2013; Reed et al., 2014; van Enst et al., 2014). For instance, van Enst et al. (2014) state that little focus is placed on practices and the real-world challenges of incorporating knowledge in decision-making.

Inspired by this observation, this paper aims to understand how knowledge exchange works in policy processes dealing with complex socio-ecological problems. Our research objectives are to detect the types of knowledge exchange practices involved in a national IA process and assess the difficulties involved in knowledge exchange. To achieve such objectives, we employ the framework of science-policy interaction problems (van Enst et al., 2014) to identify the obstacles to, and conditions for, knowledge exchange in a Finnish context via an energy policy case and we explore why such exchanges occur.

2. The science–policy interface and impact assessment

Previous studies have argued that the fact that knowledge is generated by researchers and fed linearly into the policy process does not guarantee that the results will be used in policy-making or for policy uptake (Cash et al., 2003; Michaels, 2009; Ward et al., 2009; Fazey et al., 2013, 2014). In order to tackle current societal problems and dynamic policy processes, more emphasis should be placed on new forms of knowledge transfer (Ward et al., 2012; Fazey et al., 2013, 2014; Reed et al., 2014). There are, however, signs that the relationship between science and policy has started to gradually move in the direction of multi-way interactions and the co-production of knowledge due to changes in research funding arrangements (Fazey et al., 2014). In particular, increasing attention is currently being paid to the importance of design and to the management of knowledge exchange practices, which can range from formal to informal interaction processes, from small-scale interventions to large-scale engagement between science and policy, and from the transfer of information to the co-production of knowledge (Michaels, 2009; Hegger et al., 2012; Fazey et al., 2014). Different knowledge exchange practices are nevertheless not necessarily mutually exclusive: more and less interactive-intensive practices can run in parallel to each other depending on the context of the science-policy process (Hertin et al., 2009b; Michaels, 2009; Reed et al., 2014) and occur at multiple levels of governance (Hoppe and Wesselink, 2014).

Current IA practices make little effort to include different types of actors and participation opportunities (Hertin et al., 2009b) in the assessment processes. Introducing new knowledge exchange practices to different phases of an IA could enhance mutual understanding between policy actors, support the development of long-term collaboration and relationship-building between knowledge producers and knowledge users (van Kammen et al., 2006), and contribute to a more targeted and resource-wise type of IA. In particular, the scoping phase of an IA is crucial from a knowledge exchange perspective because the assessment focus, including the alternatives and impacts to be evaluated, are determined at this stage. If scoping is carried out properly, the assessment will focus on significant impacts and unnecessary work will be avoided (Snell and Cowell, 2006). Furthermore, it has been shown that an IA, and scoping in particular, can contribute significantly to framing the policy problem in question (Meuleman, 2014). Recent studies (reported in Partidario and Sheate, 2013) have increasingly emphasised that IA's impact is likely to be stronger if it is linked closely in policy processes and 'performs as a socio-political, rather than simply informative, knowledge-based instrument' (Partidario and Sheate, 2013:27); likewise, it will have a stronger impact if policy actors are sharing and acquiring knowledge, not just information (Sheate and Partidario, 2010). In addition, climate science and policy produces new knowledge and a new kind of expertise, which can be utilised to their fullest potential only in collaboration with science and policy (Hoppe, 2010).

Introducing new knowledge exchange practices is nevertheless a rather large challenge due to the rigid nature of IAs, institutional procedures, time pressures and the sectorisation of policy-making (Turnpenny et al., 2008; Lyytimäki et al., 2015). As Turnpenny et al. (2008:772) state, researchers tend to 'ignore the basic fact that policy making tends to be accretive, incremental and *ad hoc*'. Furthermore, the scientific results presented are themselves causal stories and interpretations of the real world (Wesselink et al., 2013). In the real-world, the relationship between science and policy is often a troubled and contested one (Sarewitz, 2004; Holmes and Clark, 2008; Hoppe and Wesselink, 2014; van Enst et al., 2014), which affects the processes and mechanisms of knowledge exchange. Based on the existing literature on science-policy interfaces, van Enst et al. (2014) identify three categories of knowledge-related meta-problems influencing the interactions between science and policy: (1) problems linked to the strategic use of knowledge by policy actors, (2) problems linked to the strategic production of knowledge by scientists, and (3) problems linked to the operational misfit between the demand for and the supply of knowledge. The meta-problems encompass concrete science-policy interaction problems (Table 1). Problems pertaining to the use and production of knowledge are *strategic* by nature, i.e. both deliberatively influence the relations between science and policy, whereas problems explaining the misfit between the supply of and demand for knowledge are more *operational*, caused mainly by institutional factors (van Enst et al., 2014). By identifying and acknowledging the problems, the actors involved will more likely exchange knowledge that meets the criteria with respect to 'credibility' (meeting standards of scientific plausibility and technical adequacy), 'legitimacy' (being unbiased and fair regarding the views and interests of stakeholders) and 'salience' (being relevant to the problem at stake and for policymakers) (Cash et al., 2003). However, Sarkki et al. (2015) emphasise that science–policy interactions can be better assessed and improved on by focusing on

Table 1
Knowledge-related meta-problems in science-policy interactions (based on van Enst et al., 2014).

Meta-problem	Science–policy interaction
Strategic use of knowledge by policy actors	Knowledge contested by particular groups Ignoring the knowledge by policy-makers Using the knowledge selectively Disqualifying contested knowledge by using counter-expertise
Strategic production of knowledge by scientists	Presenting knowledge selectively Competing knowledge coalitions of scientists Deliberately producing incomplete knowledge
Operational misfit between demand for and supply of knowledge	Employing different time frames and levels of abstraction Differences in terms of discourses, goals and rewards Lack of clear research questions Policy makers' insufficient access to knowledge