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Environmental impact assessment in urban transport planning: Exploring process-related barriers in Spanish practice

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ABSTRACT

The effectiveness of EIA for evaluating transport planning projects is increasingly being questioned by practitioners, institutions and scholars. The academic literature has traditionally focused more on solving content-related problems with EIA (i.e. the measurement of environmental effects) than on process-related issues (i.e. the role of EIA in the planning process and the interaction between key actors). Focusing only on technical improvements is not sufficient for rectifying the effectiveness problems of EIA. In order to address this knowledge gap, the paper explores how EIA is experienced in the Spanish planning context and offers in-depth insight into EIA process-related issues in the field of urban transport planning. From the multitude of involved actors, the research focuses on exploring the perceptions of the two main professional groups: EIA developers and transport planners. Through a web-based survey we assess the importance of process-related barriers to the effective use of EIA in urban transport planning. The analyses revealed process issues based fundamentally on unstructured stakeholders involvement and an inefficient public participation

Introduction

The reduction of the negative environmental impacts of transport planning, seen as decisive for promoting sustainable development outcomes (Banister, 2005; Litman, 2009), requires their assessment. Integrated assessment methods have become a rapidly developing set of tools, usually focused on policy/program change or project implementation (Deakin et al., 2007; Gasparatos, 2010; Ness et al., 2007). A key one among these, an Environmental Impact Assessment (EIA) is a comprehensive evaluation of the likely effects of major projects that significantly alter the environment. It provides decision-makers with an indication of the likely environmental consequences of their selected policies (Jay et al., 2007). Firmly rooted in rational planning theory, this approach employs a technical evaluation to provide a strong basis for decision-making (Fischer, 2003; Owens et al., 2004). Since the 1970s EIA has become increasingly more important in planning practice and has been introduced in national legislation worldwide (Cornero, 2010; European Commission, 2009).

Although widely used in many countries and planning contexts, the effectiveness of EIA for evaluating urban transport projects is contested (Fischer, 2001; Folkeson et al., 2013; Keshkamat et al., 2009; Zhou and Sheate, 2011). Next to content-related barriers (i.e. the technical measurement of environmental effects), process-related barriers (i.e. the role of EIA in the planning process and the interaction between key actors) also play an important part in this discussion. The context of transport planning has seen dramatic changes in the last decades, in particular with the growing interaction between professional domains and stakeholders in decision-making (Bertolini, 2007; te Brömmelstroet & Bertolini 2011; Bertolini et al., 2008). As a result, more actors are involved in the EIA process, which limits the suitability of technical-rational instruments in the context of transport planning. The academic literature identifies a number of EIA issues that underlie this challenge: the perception that EIA is undervalued in decision-making (Hildén et al., 2004); the participating professional groups seem to focus heavily on securing a dominant position during the assessment process, which impedes the creation of constructive dialogue and transforms EIA into a non-transparent process (Richardson, 2005); stakeholders are not always structurally involved during the assessment, affecting the scope of the EIA (Soria-Lara, 2012); public participation is not addressed in a way that provides effective support to the experts (Lidskog and Soneryd, 2000); practitioners do not consider EIA's role during early decision-making phases, which drastically reduces its effectiveness (Thomson et al., 2013); there are significant differences between the more sophisticated assessment methods developed by researchers and the simpler methods often used by practitioners in daily practice (Lee, 2006); practitioners feel that the conclusions and suggestions of EIA are not sufficiently implemented into transport planning (Mayer et al., 2012; Tomlinson, 2011).

Despite the abovementioned process issues, academia has traditionally paid more attention to solving the EIA's content-related barriers and paid only limited attention to such process-related barriers. Nevertheless, it is unclear whether overcoming content barriers alone will be enough to

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improve the effectiveness of EIA in transport planning. Spain is a case in point. EIA became mandatory in the Spanish planning system in 1988 and has served as the main support tool for decision-makers in major transport projects ever since. Recently, its effectiveness is increasingly coming being questioned by scholars. The solutions that are frequently developed are mainly based on determining how to measure environmental impacts (Gómez-Orea, 2007; Loro et al., 2014); however, the abovementioned process barriers (lack of communication, trust, collaborative work, transparency, etc.) between key involved agents (EIA developers and transport planners) and other stakeholders have not been sufficiently explored as a part of the solutions.

This paper aims to gain more insight into the discussion on EIA effectiveness and offer in-depth knowledge about process issues by exploring the following central research question: Which are the main process-related barriers in EIA, according to practitioners, and are there significant differences in perception of the different professional groups? We explored these perceptions with a web-based survey with the two main involved professional groups, EIA developers and transport planners. The Spanish context provided the empirical focus.

In the next section, the recent academic insights on process-related EIA issues are discussed, paying special attention to the Spanish case. In Section 3 the research method is described, while Section 4 presents the main results of our research. The paper closes with several concluding remarks and recommendations for further inquiries.

Process-related barriers of supply analysis techniques

Significant changes have taken place in the context of transport planning during the last two decades. Instrumental rationality has come under strong attack (see Bertolini et al., 2008; Willson, 2001), resulting in the emergence of new communicative approaches, mainly based on effective facilitation of the interaction between different professional domains (see te Brömmelstroet & Bertolini, 2011; Beukers et al., 2014; Straatemeier, 2008). In this particular context, the study of process-related issues in transport planning is not exclusive to EIA; interesting examples associated with other supply analysis techniques can be also found in Cost–Benefit Analysis (CBA) and Planning Support Systems (PSS).

Like EIA, CBA is a widely used as an ex-ante tool to support decision-making on transport plans and projects. Together with methodological and content problems, related to for example cost estimates (Mouter et al., 2013), also process-related issues are noted. Mackie (2010) highlights that in the UK CBA effectiveness is reduced because planners feel it does not give always understandable and recognizable outputs. Discrepancies between planners and appraisers regarding how to integrate CBA results in decision-making is also a relevant issue in the Swedish context (Eliasson and Lundberg, 2010). Beukers et al. (2012, p.76) find two fundamental process issues during the implementation of CBA in the Netherlands: “the mistrust between plan owners and calculators towards each other and the plan or instrument which they represent and, furthermore, how this leads to a communication deficit and inferior cooperation”. In French transport projects, Damart and Roy (2009) also note a lack of transparency among experts, which directly impeded the effectiveness of CBA.

PSS are geoinformation tools developed to support specific spatial planning tasks (Vonk et al., 2005). They can be very useful in transport planning, for instance in supporting the development of strategies for an effective integration of land use and transport systems (Te Brömmelstroet and Bertolini, 2008). Similar to EIA, PSS can assess alternatives and support actions. Te Brömmelstroet (2010) demonstrates however that a common language between PSS developers and planners is still lacking and that this shortcoming is a substantive barrier for the effective implementation of PSS in transport planning practice. The persistent divide between PSS developers and planners can largely explain why most of the wide range of developed PSS do never make it past a prototype phase. Their characteristics are seen as too rigid, too complex and in general unfit to the characteristics of the planning processes in which they are supposed to be used. As a result, and because planners with high expectations and hopes were often disappointed, many planning practitioners have developed a strong antagonistic attitude towards such PSS.

Many of the abovementioned process problems also seem to be present in the context of EIA implementation in Spanish transport planning. Arce and Gullón (2000) and Granero (2011) note several process-related barriers that hamper the effectiveness of the EIA during the initial goals-setting phase of the transport planning process in Spanish practice: the experts' perception of the EIA's role in decision-making; the need to foster stronger collaboration between EIA developers and transport planners in earlier phases; the lack of transparency and unrealistic EIA expectations. While the authors indicate that EIA developers and transport planners should act as entrepreneurs—addressing integrated objectives, advocating values and norms, reflecting those formulated in higher tier policies (Lee, 2006)—the current situation in Spanish practice frequently invites frustration and distrust between EIA developers and transport planners (Romero, 2012). Public institutions do not foster interaction among professional groups in EIA's earlier phases, and the practitioners end up working separately without constructive dialogue. In addition, Soria-Lara (2012) describes that the high EIA expectations seen in earlier phases are sharply reduced later on, due to the expectation that EIA outcomes will usually not be taken into consideration in decision-making.

Other process-related barriers are highlighted in the Spanish context during the intermediate generation and selection of alternative phase of transport planning. They are based in particular on the perception of assessment methods by practitioners, the importance they give to comparing alternatives in practice, the collaborative work between EIA developers and transport planners, including the level of EIA comprehension among the involved actors. Arce et al. (2010) highlight the existence of a significant gap between environmental assessment methods developed by academia and the simpler methods often used by Spanish practitioners. Simple matrices are the most commonly used method in practice, while quantitative and more robust assessment techniques are preferred by Spanish scholars (Miralles-Guasch and Domene, 2010; Miralles-Guasch and Martínez-Melo, 2013; Soria-Lara and Valenzuela-Montes, 2014b; Talavera-García et al., 2014).

Lastly, EIA effectiveness in Spain seems to be also dependent on certain process-related barriers that emerge during the final decision-making phase in transport planning. “Monitoring and frustration” seem to be the usual outcome. Mandated by the legal framework, EIA establishes a monitoring plan focused on measuring the performance of plans and projects. However, this monitoring plan is scarcely implemented in practice, and its impact on the transport plan or project is frequently limited, which fosters a feeling of frustration among experts (Lopez, 2012).

Research method

We sought to explore the main process-related problems that impede the effective use of EIA in Spanish transport planning practice, as identified by the main actors (EIA developers and transport planners) in a web-based survey. The survey was designed based on experiences from Spanish planning practice as well as already documented process-related issues from other transport supply analysis tools (e.g. CBA or PSS). In January 2014, using mailing lists from Spanish professional associations and institutions, approximately 700 people involved in EIA of urban transport planning were asked to participate in the survey by filling out an online form.

In total 181 respondents filled out the form. Thirteen respondents declared having no experience in transport planning EIA and were eliminated from the analysis. Fig. 1 shows the distribution of respondents according to their primary work domain: 77 EIA developers, 54 transport planners, 11 both work domains (respondents with a dual