



The consideration of environmental and social issues in transport policy, plan and programme making in Brazil: A systems analysis

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ABSTRACT

The need to consider environmental and social issues on a par with economic concerns in policy, plan, programme and project making in order to achieve sustainable development has been widely recognized. However, to date there has been no adequate implementation, and economic issues are frequently prevailing over other aspects. In many developing and emerging economies, a perceived urgency to promote economic growth frequently means that environmental and social costs of development are overlooked. It is within this context that this paper explores the consideration of environmental and social issues in transport policy, plan and programme (PPP) making in Brazil, an emerging economy which over recent years has invested heavily in its transport infrastructure. Aiming at establishing the extent to which environmental and social issues are considered and identifying the barriers for better practice, legal and institutional frameworks for transport PPP making, the substantive focus of PPPs as well as perceptions of actors involved in their preparation are investigated. Results show that whilst the need to respect environmental and social issues is recognized in sectoral guidelines and underlying values, in practice they are poorly considered. Main constraints to a better consideration of sustainable development in transport PPP making include the lack of instruments for a systematic consideration, the nature of existing PPP making processes and the dominance of political and economic interests. Moreover, suggestions for improvement are limited and mainly relate to external pressures. In this context, Strategic Environmental Assessment in particular would need to be introduced as an instrument for a more rigorous and clearly prescribed consideration of environmental and social issues.

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1. Introduction

Transport activities are associated with the consumption of space and natural resources and are frequently accompanied by a range of environmental and social effects, including on e.g. public health, the biophysical environment and community cohesion (e.g. Blanco et al., 2014; Jones and Lucas, 2012; Rodrigues et al., 2015; Silva et al., 2012). As a consequence, the importance of working towards 'sustainable transport' has been recognized (Jeon et al., 2013; Newman and Kenworthy, 1999). In this context, an understanding of sustainable development is frequently derived from the Brundtland Commission Report (Beiler, 2016; Jeon et al., 2013), therefore striving at balancing economic, social and environmental

aspects (Jeon and Amekudzi, 2005). However, in practice sustainable transport has proven difficult to achieve (Busscher et al., 2015).

Whilst the starting point for developing sustainable transport is an adequate consideration of environmental and social aspects in related policies, plans, programmes and projects (Fischer, 1999a; Olowoporoku et al., 2012), in practice, they are often marginal to economic interests, with decision-making frequently focusing on narrow economic purposes (European Environment Agency, 2015; Fischer, 1999b; McManners, 2016; Montabon et al., 2016; Stoeglehner and Neugebauer, 2013; Wade, 2016).

In countries that do not have a developed awareness for the need to consider environmental and social issues within decision making, challenges with regards to achieving sustainable transport are particularly high. In Brazil, for example, it has been suggested that the transport sector has proved incapable of internalizing environmental and social impacts more fully, including in particular accidents, environmental pollution and landscape fragmentation (Fearnside and Graça, 2006; Martínez et al., 2016; de

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Vasconcellos, 2000, 2005). Moreover, according to Brazilian legislation, the assessment of environmental and social impacts is compulsory only for large projects that have the potential for causing some very significant negative environmental impacts. Associated with this, numerous conflicts frequently arise when implementing projects, related to e.g. land use, induction of urban development and heavy traffic (Sánchez and Silva-Sánchez, 2008). Also, impacts of decisions made at higher levels, i.e. at the levels of policies, plans and programmes (PPPs), frequently remain unassessed (Fearnside, 2007; Fearnside and Graça, 2006; Sánchez and Silva-Sánchez, 2008).

The main aim of this paper is to establish the extent to which environmental and social issues are considered in transport PPP making in Brazil. In this context, the focus is on federal, state of São Paulo and city of São Paulo levels. Legal and institutional frameworks are explored, PPP making practice is analysed and barriers for an improved consideration are established. Based on the results, recommendations for improving current practice are provided. Whilst our focus is on Brazilian experiences, implications for PPP making are likely to be relevant in transport planning in other countries, too.

2. Background

2.1. Sustainable development and transport decision making

Decision making for sustainable development requires recognition of the often complex relationships between economic, social and environmental dimensions, as well as long-term development visions (Litman and Burwell, 2006; McManners, 2016). This is enabled by institutional frameworks that promote collaboration (Beiler, 2016; Litman and Burwell, 2006; McManners, 2016), allowing to rethink conventional geographical and temporal horizons of decision making (Litman and Burwell, 2006). In transport decision making, this is associated with changes to the way transportation impacts and alternative solutions are currently assessed (Fischer, 2007). How the public can be effectively involved is another important question (Litman and Burwell, 2006; Nadeem and Fischer, 2011).

The incorporation of sustainability principles into transport decision making will require various changes to the way transport is approached in many countries. This includes e.g. the focus on using the private car, incentives for the use of alternative modes of transport, transport equity, community liability as well as land use patterns that potentially enable a reduction of travel demand (Fischer, 2002a; Litman and Burwell, 2006; de Vasconcellos, 2008).

There have been numerous efforts to model, measure and implement sustainable transportation worldwide (e.g. Chakhtoura and Pojani, 2016; Karlson et al., 2016; Litman, 2016; Robèrt et al., 2017). Generally speaking, challenges for more sustainable PPP making include political resistance (fuelled by car and infrastructure lobbyists), inadequate institutional frameworks and mechanisms, lack of collaboration between sectors, as well as insufficient funding for sustainable transport (Borén et al., 2017; May 2015; McManners, 2016).

Furthermore, planning for long-term horizons has been found to be difficult, with a strong focus on expanding transport services and infrastructure in the short-term (Curtis, 2008; May, 2015; McManners, 2016). 'Weak concepts' of sustainability are often pursued, where different aspects can be traded off (McManners, 2014; Silva et al., 2015). Finally, environmental and social issues are frequently considered too late, i.e. only after major decisions have already been taken, resulting in minor effects on PPPs (Fischer, 2016; McManners, 2014; Olowoporoku et al., 2012).

2.2. Transport in Brazil

Transport in Brazil has been repeatedly referred to as one of the bottlenecks for the country's economic development, with costs for freight transport being described as particularly high when compared with other countries (Luna et al., 2011; Pellegrini, 2015). This is said to have significantly affected the country's competitiveness in a global market (Arvis et al., 2010; Luna et al., 2011; Moreira et al., 2008). It is within this context that the improvement of the transport system is seen to be of great importance. Consequently, investment in transport has been a priority during the last decade (National Growth Acceleration Programme, Ministry of Planning, 2016).

According to national reports (CNT et al., 2016; IBGE, 2014), transport infrastructure remains highly concentrated in South-Eastern and Southern regions of the country, especially in São Paulo state, where economic activities are also concentrated and transport services are more profitable. Furthermore, transport investment flows mainly into road infrastructure, both, for freight and passenger transport as well as for urban and non-urban transport (Ministry of Planning, Budget and Management, 2014). 61% of freight is currently transported on roads, 20.7% by rail, 13.6% on water, 4.2% through pipelines and 0.4% by air (CNT et al., 2016). 95% of all passenger trips are road based (CNT et al., 2016).

In Brazil, the transport sector has not been able to deal with its environmental and social externalities (Rodrigues et al., 2015; de Vasconcellos, 2008), resulting in negative effects, for example, with regards to air quality and public health - gaseous emissions and noise (Rodrigues et al., 2015; Silva et al., 2012; de Vasconcellos, 2008) and the distribution and use of space for transport facilities (de Vasconcellos, 2005). Automobile users, who in Brazil are mainly from higher income groups, are subsidized more heavily than others (Okubaro, 2001; de Vasconcellos, 2005).

3. Methodology

This paper focuses on transport PPP making. Brazil was chosen mainly because of it being part of a group of countries in which PPP making is not systematically supported by instruments that provide for a consideration and assessment of environmental or social issues and impacts (Malvestio and Montaña, 2013; Silva et al., 2014). Moreover, this group of countries is underrepresented in the professional EA literature (Fischer and Onyango, 2012). Transport PPPs subsequently considered include those undertaken at federal level, state level (taking São Paulo as an example) and local level (focusing on the city of São Paulo) (see Fig. 1). The choice to include these three administrative levels was based on all of them having statutory competencies for transport (Brazil, 1988). São Paulo state and São Paulo city were chosen as study regions on the basis of their uniqueness regarding the concentration of transport infrastructure and services (Braga and Castillo, 2006; de Vasconcellos, 2005).

The research underlying this paper recognizes that PPP making is influenced by many aspects, including the context in which they are prepared (Sager, 2001). The following contextual aspects are therefore explored: (i) legal aspects (Healey and Shaw, 1993; Jiliberto, 2007; Selman, 1995); (ii) institutional aspects (Jiliberto, 2007; Sager, 2001; Selman, 1995) and (iii) wider PPP making practices (Fischer, 2002b; Gazzola, 2008; Jiliberto, 2007).

An exploratory approach with multiple sources of evidence was chosen for the research design, enabling a comprehensive analysis of the Brazilian transport PPP making system. At a first stage we looked at legal and institutional aspects and at a second stage we looked at PPP making practices, allowing the identification of

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