



The role of transport indicators to the improvement of local governance in Rio de Janeiro City: A contribution for the debate on sustainable future



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ABSTRACT

One of the main outcomes of the Rio+20 Conference was the agreement by member States to launch a process to develop a set of Sustainable Development Goals. Governments need to be aware of this process considering that there are many challenges to promote sustainable development, especially in cities of the developing world, usually with weak governance. In this context, governance arises as a key aspect to achieve sustainable development targets integrating other goals on specific issues. Additionally it is important to highlight that the other way around is also true, which means, setting goals helps to improve governance and the selection of the best indicator to monitor progress. Taking into account that transport is priority for cities, the development of a participatory, accountable, and an effective governance to support rapid and equitable urban transformation is fundamental. Therefore, this paper considered the transport sector in a developing city as Rio de Janeiro as a methodological approach to illustrate how a set of sustainable transport indicators associated with a responsibility matrix could play an important role as a tool to improve governance while pursuing sustainable transport goals. The use of indicators is extremely helpful to strengthen governance that is crucial to achieve sustainable development. The authors presented the success of the governance structured in Rio de Janeiro to comply the Olympics commitments as a case study and, the CO₂ indicator was chose as an example of sustainable transport indicator.

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1. Introduction

The vision of sustainable development as a holistic concept addressing the four dimensions of society: economic development (including the end of extreme poverty), social inclusion, environmental sustainability, and good governance including peace and security is presented in the Rio+20 outcome document (UNCSD, 2012). Societies aim to achieve all four dimensions and to be effective, a shared framework for sustainable development must mobilize the world around a limited number of priorities and associated goals.

In order to achieve a sustainable future, governments have an important role (Tortajada, 2010). However, in some developing countries, a governance system is still under construction (OECD, 2010). One way to improve governance is by creating tools to help

to define responsibilities and targets as well as monitoring the results of actions taken by governments and institutions (Maurseth, 2008). Three aspects of governance need to be considered: good governance (the processes of decision-making and their institutional foundations), effective governance (the capacity of countries to pursue sustainable development), and equitable governance (distributive outcomes) (Biermann et al., 2014). While these three different aspects have a number of connections between them and will require separate political efforts (Maurseth, 2008; Tortajada, 2010; Biermann et al., 2014). The use of indicators to monitor the progress and achievement of Sustainable Development Goals (SDGs) is extremely helpful in that task.

Rio de Janeiro is a big city that presents highly complex issues, as social and economic problems that are common in developing countries (Santos, 2014). Challenges related to urban sustainable development will require additional efforts. Thus, this study aims to present how a definition of a governance matrix and the use of transport indicators could assist to achieve the SDGs and commitments presented in laws and international agreements. The reason for consider the transport sector is due to the multiple

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actors involved in the sector that without a clear comprehension of targets and roles generates a weak governance. Furthermore, the transport is a major concern of urban areas worldwide.

Therefore, the use of indicators is crucial to promote governance in any scale, national or at municipal level. In order, to achieve sustainability it is crucial to tackle climate change. Climate change will have significant impacts in four sectors in most cities: local energy system; demand and supply of water and wastewater treatment; transportation and public health (Rosenzweig et al., 2011). Cities already lead the action on responding to climate change and are crucial to global mitigation efforts (Rosenzweig et al., 2011). The International Energy Agency estimates in its latest survey that urban areas are responsible for 71% of global carbon emissions related to energy (Rosenzweig et al., 2010).

Besides the obvious relevance of urban mobility, transport is also a major user of carbon-based fuels (Hickmana et al., 2010). Globally, transport is responsible for 23% of total emissions of greenhouse gases (GHG) related to energy, and 13% of global GHG emissions (UN-HABITAT, 2011; IPCC, 2014). Therefore, this paper considered Carbon Dioxide (CO₂) as a sustainable transport indicator that can stimulate the debate on the necessity of to strengthen governance in cities as a way to promote sustainability.

Rio de Janeiro City is presented as a case study to contribute on the discussions related to sustainable transport indicators and its use to assure governance, and at the same time, this case can illustrate how a governance created to comply the Olympics commitments can deliver results in terms of sustainable indicators, including CO₂ emissions avoided. The urban deficient transportation system represents a major challenge to Rio de Janeiro become a sustainable city. The city governance in this area is a problem due to several different stakeholders acting in the local transport policy.

2. The importance of indicators and governance in city planning

Governance denotes how a society is organized and indicates its procedures and rules. It also determines how to build political decisions and avoid conflicts of interest (Maurseth, 2008). Increasingly, there is strong evidence for specific ways in which particular types of governance factors can contribute to development. This evidence is starting to point out to those elements of governance that may matter most. Therefore, breaking governance down, as a concept into different dimensions and themes is likely to be useful in developing measurable, and actionable, proposals (Foresti et al., 2014).

Because governance is such a complex and debated concept it might lead to a conclusion that it is hard to measure. However, it is important to recognize that there were some progress in relation to specific dimensions of governance in recent years (OECD, 2010). A range of relevant and useful indicators and measures, especially at the national level was developed. In addition, there is growing agreement that indicators based on assessments of specific governance issues can play a useful role in policy and resource allocation processes (Foresti et al., 2014).

In the globalization age, governance within and among countries is becoming more diffuse and complex (Jacobi, 2009; IPEA, 2013). Whereas in the past, national governments made most decisions relating to a country's internal economic development, today they must coordinate with a broad spectrum of actors, including businesses, local governments, regional and international bodies, and civil society organizations.

In practice, different kinds of data sources can be useful to assess specific features of governance. In addition, a range of data sources might be more useful to assess some types of indicators but not others: for instance, compliance with international norms and standards for example are useful measures of 'forms' of

governance, while measures of institutional performance are better suited to assess governance functions (Foresti et al., 2014).

In terms of governance matters, there are need valid and reliable data. According to the authors, many challenges remain in effectively assessing and analyzing governance issues. There remains debate over how best we can meaningfully measure governance—many believe current indicators provide poor measures of key governance processes. Most existing sources of governance data are subjective (Court et al., 2002).

An indicator is a quantitative metric to track progress towards achieving a target. The development and use of indicators are meaningful for analyzing and monitoring sustainable development targets and in policymaking (Spangenberg, 2002; Gudmundsson, 2003; Hakkinen, 2007; Huang et al., 2009; Joumard et al., 2011; Litman, 2011; Santos and Ribeiro, 2013). Organizations ranging from public actors, to NGOs and private sector produce many indicators. The simplicity of indicators makes it relatively easy to communicate them to third parties. The expectation is that decisions based on indicators are relatively transparent (Davis et al., 2010). Creative examples such as creating dashboard or menu approaches to governance at the level of targets or indicators could allow countries to self-design robust, multifaceted approaches to good governance. If common principles were established, the selection of targets and indicators could then allow for customization to national and local contexts (Biermann et al., 2014).

Defining indicators of sustainable development has multiple motivations that include decision-making and management, participation and consensus building, and research and analysis (Parris and Kates, 2013). Several authors note that the selection of indicators should be driven primarily by the questions to which the indicators are supposed to provide answers (Hester et al., 2004; Litman, 2008; Joumard and Gudmundsson, 2010; Litman, 2011; Hagshena and Vaziri, 2012; Santos and Ribeiro, 2013; Joumard and Gudmundsson, 2010; Litman, 2011; Hagshena and Vaziri, 2012; Santos and Ribeiro, 2013).

One of the most common applications of indicators consists in comparing municipalities, notably to support local decision-making processes (Diamantini and Zanon, 2000; Litman, 2008; Tanguay et al., 2010; Joumard et al., 2011; Tanguay et al., 2010; Joumard et al., 2011). The indicators should be based on data that are available (Stead, 2001; Reddy and Balachandra, 2013) or that can be made available at a reasonable cost, and that are of known quality and regularly updated (OECD, 2011).

Study by (Joumard and Gudmundsson, 2010) indicates that the American experience generally suggests that the indicators related to performance of planning can be more useful and have more impact on policy. In that case, the indicators are not only information, but also targeted signs that bureaucracies and decision makers are required to respond in some way.

It is important to make a distinction between governance performance indicators and governance process indicators. Governance Performance indicators refer to the quality of governance in terms of a normative outcome, such as the level of corruption. Governance Process indicators refer to the quality of governance in terms of how outcomes are achieved. The challenge, therefore, is how to measure governance cohesively and systematically in terms of critical processes (Court et al., 2002).

In terms of sustainability goals, the climate change prevention and mitigation is an important environmental issue. In that case, the GHG emission reductions can be the objective. In this work, the authors used the CO₂ emissions an example of sustainable transport indicator, in order to evaluate sustainability of transport sector, the achievement of the goals and targets presented in laws, commitments posed by sportive events and additionally the governance performance in the city.

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