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Identifying the missing link between climate change policies and sectoral/regional planning supported by Strategic Environmental Assessment in emergent economies: Lessons from Brazil

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ABSTRACT

A number of public policies have emerged worldwide as a response from governments facing climate change effects, drawing the attention of the scientific community to the outcomes and actual effects/benefits these policies have brought so far. One of the challenging aspects related to this context is the integration of the objectives set by climate change policies within the sectoral and regional planning. In this respect, the literature recognizes the relevance of Strategic Environmental Assessment (SEA) as an instrument to deal with climate change issues in the planning process and to support the development of alternatives to respond to climate change policies. The influence of climate change policies on the plans and programs supported by SEA in emerging economies is yet to be verified. The paper relies on the case of Brazil, recognized by its relevance in terms of biodiversity, water resources and climate regulation. In 2009, Brazil introduced the National Policy of Climate Change (NPCC), which established guidelines to reduce the emissions of greenhouse gases (GHG) by 2020. The present paper is based on the analysis of the current SEA practice and the corresponding level of integration of climate change issues, considering the objectives of the NPCC. A set of 29 statements, delivered by the literature, was applied, combined to the content analysis techniques to review the quality of 35 SEA reports produced in Brazil between 1997 and 2014 (out of 40-odd cases). The outcomes indicate the performance is similar to what was found in other contexts, i.e., SEA areas barely address climate change issues. This thus reveals an important gap between the objectives of NPCC and sectoral/regional planning. SEA can contribute to reducing this gap, but it needs more strength to influence the development of sectoral and regional policies and plans.

1. Introduction

Climate change has been recognized as a priority in the global environmental agenda. According to the latest (fifth) assessment report, published by the Intergovernmental Panel on Climate Change (IPCC) in 2013, there is a reasonable scientific correlation between climate changes, human activities, and significant impacts on the environment and society, which must be urgently addressed by governments [1].

As a response to the awareness of the global society, a number of policies have emerged worldwide focusing on the challenges of climate change. The IPCC Summit, in 2015, resulted in an international commitment to implement effective strategies to mitigate the causes of climate change and to adapt to a different scenario. For the first time, voluntary goals to be accomplished by emerging economies to reduce global emissions of greenhouse gases (GHG) were included. In Brazil, the world's sixth largest issuer (2.9% of the global emissions), GHG emissions are expected to continue increasing in different sectors, reflecting the recent period of economic growth. After a period

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(2009–2012) of significant reduction in emissions based on deforestation control, annual estimations showed an increase of 7.8% in 2013 as compared to the previous year; they decreased in 2014 and again increased in 2015, reaching 1.402 million Net CO_2eq shared by land use (46%), energy (24%), agriculture and cattle (22%), industry (5%) and residues (3%) [2].

Brazil has a key role in the global strategies of climate change due to its GHG emission profile, large experience with biofuels and a massive potential to export carbon credits (currently, Brazil is amongst the three main countries in number of Clean Development Mechanism projects) [3].

Although government commitments to reduce greenhouse gas emissions are made on a voluntary basis, there are a number of local initiatives to address climate change. In 2009, the Brazilian Federal government passed the National Policy on Climate Change (NPCC – Federal Law 12.187/2009 and Federal Decree 7390/2010), establishing a target 38.9% reduction in GHG emissions to be achieved by 2020 [4]. Moreover, sectoral plans defining actions, performance indicators and specific reduction targets, as well as adaptation strategies, have been developed as a response to this Federal legislation [5].

In this context, the mechanisms and opportunities to integrate the objectives defined by climate change policies in sectoral and regional plans and programs play an important role [6].

Strategic Environmental Assessment (SEA) is an instrument to promote sustainability in decision-making [7] and to stimulate opportunities for timely consideration of climate change issues [8]. In addition, there is a growing interest in the performance of both climate change policies and strategic assessment in different contexts [9,10] and, recently, there has been a stronger concern in developing and emerging countries [11].

Considering the influence of climate change policies on plans and programs supported by the SEA is yet to be verified, the present paper focuses on the integration of climate change issues in strategic decisions supported by the SEA. The analytic work supporting the research is based on the application of 29 statements from an applied framework [12] and on content analysis techniques to review the quality of climate change issues of 35 SEA reports prepared in Brazil, out of 40-odd cases identified from 1997 to 2015.

2. Background

Climate change is an issue encompassing scientific complexity, uncertainty and indeterminacy [13] and is one of the major challenges posed to contemporary society [6]. Its relevance is supported by global initiatives aimed at controlling human activities associated with climate change. In this context, the World Conference on the Changing Atmosphere, the establishment of the IPCC and the United Nations Framework Convention on Climate Change can be understood as major milestones of the governance framework on climate change. The IPCC reports are considered the main reference for climate change issues by presenting international scientific soundness [13] and by influencing decision-making by global governments; the fifth report (the latest at the time this paper was written), presented in 2013, reaffirmed the responsibility of human actions for global warming and the urgency of adopting strategies for mitigation and adaptation.

The need to reverse GHG emissions led to the Kyoto Protocol, a global agreement signed in 1997. It established a set of explicit reduction commitments by developed countries, as well as some program incentives for carbon sinks and for transferring clean technologies from developed countries to developing ones [14].

International negotiations to control human action to prevent the worsening of global climate change are re-arranged in terms of public policy, represented in the planning process established on the precautionary principle that aims at ensuring safeguards for the climate effects [15]. National government actions are key to tackle climate change and to undertake effective public policies for mitigation and adaptation [16,17].

As a signatory of the Kyoto Protocol since 1998, Brazil launched its first national climate change policy NPCC, in 2009, adopting voluntary targets for GHG emissions reduction by 38.9%, by 2020. This policy also helps to formalize the Brazilian position in the multilateral and international discussions to face the challenge of global warming, thus constituting the framework for mitigation and adaptation in the country [18]. Following the national policy, other Brazilian states introduced their own climate policies. Interestingly, considering the objectives of this paper, one of these state policies (in the State of São Paulo) has explicit provisions for applying SEA to assess climate change effects from sectoral development [19].

The SEA is considered an instrument for impact assessment that facilitates both the identification of opportunities and risks of strategic actions to sustainable development [20]. The SEA is largely applied worldwide at different planning levels: more than 60 countries have great expertise and practice in using this tool to support the development of policies, plans and programs [9]. However, the SEA is not mandatory for any type of plans and programs in Brazil and it is sparsely used in the country [21–23], hindering the accumulation of experience and thus decreasing the capacity to learn from its application [24,25].

The relationship between climate change and the SEA has a transversal nature within various forms of planning and requires the definition of a set of goals for reducing emissions and for proposing measures for spatial development and adaptation [10]. In this context, SEA allows integrating climate change issues into plans and programs in many sectors and provides a technical basis to ensure that the strategic action related to climate change can be supported by the systematic consideration of the environment [6].

The relevance of including climate change into the SEA practice is deemed to be contradictory considering the little attention given to this aspect, even in countries with a mandatory SEA [26]. Instead of being comprehensively embedded in the current SEA practice, climate change issues are limited to mitigation and little attention is given to assessing the synergies between adaptation and other environmental policies [6]. Nevertheless, attempts to better explore climate change adaptation in the SEA were previously carried out for different sectors, such as river basin management plans [8] and urban planning [27].

Forecasting scenarios on climate change in impact assessments is alson an attempt to reduce the uncertainties inherent to planning process and decision making [28]. To this respect, one research [29, p. 893] argues that “it is not sufficient to concentrate on either mitigation or adaptation, but a combination of these results in the most sustainable outcomes”.

A number of countries have already adopted guidance relating climate change and the SEA, including the USA, Canada, the UK and the Netherlands. The European Union has already included climate change in the revised Environmental Impact Assessment directive (2011) and is expected to advance to the strategic level after the revision of the SEA directive [30]. Also, Multilateral Development Agencies, such as the Organization for Economic Cooperation and Development (OECD) and the Inter-American Development Bank (IDB) have issued guidance to promote the integration of climate change into the SEA.

Still, there is no evidence in literature relating the issuance of guidance and the adequate integration of CC issues into the SEA. Nevertheless, the need for an explicit consideration of mitigation and adaptation in the SEA-supported planning has been emphasized [25]

3. Methods

The lack of an official repository of SEA planning initiatives [21,24], the absence of specific legal provision [22] and also the procedural vagueness [23] regarding the SEA hinder a comprehensive analysis of the SEA system in Brazil. The Brazilian experience is quite limited, with about 40 known cases [21]. Nevertheless, empirical research focused on