

In: Kabat, P. & Vellinga, P. (eds.) Abstracts Scientific Programme Deltas in Depth.  
International conference Rotterdam, the Netherlands, 29 September-1 October 2010

## **Climate aspects and Strategic Environmental Assessment in spatial planning**

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Various aspects of climate change call for explicit attention in spatial planning as they may limit potential future spatial developments (Kabat et al., 2005; Van Leeuwen et al., 2009). Conversely, spatial planning may impact climate change aspects. Strategic Environmental Assessment (SEA) is a useful method to help address the interrelations between climate change and spatial planning in a consistent manner as will be proposed in this paper. The paper first describes how SEA should ideally be used to incorporate climate change aspects in spatial planning. It then analyses current practice in two recent Regional Spatial Strategies drafted by Dutch provinces (regional administrations) and then discusses existing barriers to the proper inclusion of climate change considerations in planning. Finally a number of suggestions is presented to overcome these obstacles.

Strategic Environmental Assessment is “a process that aims to integrate environmental and sustainability considerations in strategic decision-making” (Therivel, 2004, p. 3). It is based on the idea that knowledge leads to better-founded decisions and aims to ensure that environmental consequences of a proposed policy or plan are fully included and appropriately addressed at the earliest stage of decision making on par with economic and social consideration (Sadler and Verheem, 1996).

The paper focuses on a specific, new type of strategic spatial plans -Regional Spatial Strategies- that are the main guiding documents in spatial planning at the regional and local level in the Netherlands. They are an essential step in translating relatively abstract global and national level developments and regulations to the more practical local level. They are a relatively new phenomenon in Dutch spatial planning and follow from the new national Spatial Planning Act introduced in 2008 that calls for a more pro-active role of Dutch provinces in spatial planning. Regional Spatial Strategies typically focus on the year 2020, but often have a further outlook on additional developments until 2040 and should thus take note of potential changes in climatic conditions and related impacts such as flood risk, salinisation or the urban heat island effect.

The paper analyses the incorporation of climate aspects in two recent Regional Spatial Strategies (Province of Overijssel, 2009; Province of Zuid-Holland, 2009) and concludes that the relationship between the planning and SEA processes can be strengthened with the following organisational provisions. First of all SEA should be started early in the planning process. Secondly SEA should be actively linked with the steps and milestones of the planning process. Following the legal requirements of SEA too strictly poses a barrier to the adequate incorporation of climate aspects in spatial planning.

Furthermore, it is clear that ample attention should be given to the specific role of climate aspects in each of the subsequent phases of SEA. In the exploration phase, for instance, attention should especially be paid to the constraints posed by (changes in) climatic conditions. A barrier for properly addressing climate change issues in SEA is the lack of accessible knowledge on specific climate impacts. Even when such knowledge exists, it is often too dispersed or abstract to be directly useful.

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