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Sustainability principles in strategic environmental assessment: A framework for analysis and examples from Italian urban planning

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ABSTRACT

This paper presents a framework for analysing the degree of consideration of sustainability principles in Strategic environmental assessment (SEA), and demonstrates its application to a sample of SEA of Italian urban plans. The framework is based on Gibson's (2006) sustainability principles, which are linked to a number of guidance criteria and eventually to review questions, resulting from an extensive literature review. A total of 71 questions are included in the framework, which gives particular emphasis to key concepts, such as intragenerational and intergenerational equity. The framework was applied to review the Environmental Report of the urban plans of 15 major Italian cities. The results of this review show that, even if sustainability is commonly considered as a pivotal concept, there is still work to be done in order to effectively integrate sustainability principles into SEA. In particular, most of the attention is given to mitigation and compensation measures, rather than to actual attempts to propose more sustainable planning decisions in the first place. Concerning the proposed framework of analysis, further research is required to clarify equity concerns and particularly to identify suitable indicators for operationalizing the concepts of intra/inter-generational equity in decision-making.

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1. Introduction

The focal point of sustainability is to maximise multiple, mutually reinforcing, fairly distributed, adaptable and lasting contributions to well-being, while avoiding significant adverse effects (Gibson, 2006). A strategic action can be considered sustainable if it is at least acceptable socially, environmentally and economically, without causing significant trade-offs (Gibson, 2006). This concept calls for approaches to assess in an integrative way the environmental, economic and societal impacts of decisions, focusing on the interrelations among the economic, social and environmental dimensions, rather than on the three categories separately. Strategic Environmental Assessment (SEA) is "a systematic decision support process, aiming to ensure that environmental aspects are considered effectively in policy, plan and programme (PPP) making" (Fischer, 2007). According to the EU SEA Directive (2011/42/EC), even if SEA is primarily focused on environmental issues, its overall goal is to promote sustainable development.

Over the past two decades the substantive purpose and values of SEA have gradually evolved, arising a debate on the possible shift of SEA towards sustainability assessment (Bina et al., 2011). SEA is often seen as inherently having sustainability goals (Bond and Morrison-Saunders, 2011). Several scholars claim that, even if SEA deals primarily with the biophysical environment, a shift toward sustainability will help integrating the key issues related to both human and ecological systems

(Dalal-Clayton and Sadler, 2005; Pope and Dalal-Clayton, 2011; Sheate et al., 2008). Moreover, they support the idea that SEA has the potential to take a step further, addressing the link between quality of life and economic growth (Partidário et al., 2010). It remains arguable whether SEA should incorporate sustainability objectives in a more explicit and comprehensive way. Some schools of thought have a more critical standpoint, believing in the centrality of biophysical issues in SEA (Kidd and Fischer, 2007; Morrison-Saunders and Fisher, 2006). Their main argument is that this will help balancing economic and social considerations in decision-making. Moreover, keeping environmental issues separated reduce the risk that unsustainable environmental effects are not detected. However, in practice, even if we can consider the three pillars relatively separable, they interact to produce outcomes, which in turn feedback and affect one another at different scales in space and time (Ostrom, 2009).

This paper contributes to this debate by developing and testing a review framework to explore to what extent sustainability principles are addressed in SEA. The framework is structured into key themes, principles and criteria, which are then associated to a set of specific questions. In the light of the fact that the concept of sustainability is widespread and incorporates a plethora of meanings (Marshall and Toffel, 2005), the framework seeks to provide a guidance to convert widely accepted principles (Gibson et al., 2005) into operative questions, with the purpose of assessing tangible contribution of SEA to sustainability. In the debate on sustainability, crucial issues are related to equity considerations in the evaluations of likely outcomes on present and future generations (George, 1999). For this reason, the framework gives emphasis on the inclusion of key concepts, such as intra-generational and inter-generational

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Table 1
Criteria and questions proposed for Principle 1 (precaution and adaptation).

Principle ^a	Criteria	Questions
1 – Precaution and adaptation Respect uncertainty, avoid even poorly understood risks of serious or irreversible damage to the foundations for sustainability, plan to learn, design for surprise and manage for adaptation.	<ul style="list-style-type: none"> • Err on the side of caution in contentious or uncertain aspects of development proposals.^{b,f,g,h,i} • Seriously consider 'not proceeding' as an option where there is too much scientific uncertainty about particular aspects of a proposal or where the negative consequences of the proposal outweigh the • Clearly demonstrated how negative impacts of a proposed development would be managed.^b 	<ul style="list-style-type: none"> • Does the proposal: • Err on the side of caution in contentious or uncertain aspects of development proposals?^{b,f,g,h,i} • Seriously consider 'not proceeding' as an option where there is too much scientific uncertainty about particular aspects of a proposal or where the negative consequences of the proposal outweigh the benefits?^{b,f,i} • Clearly demonstrate how negative impacts of a proposed development would be managed?^b • Does the development scheme for the area take into account the maintenance of available capital of non-renewable resources in the long term?^{c,d,f,g,h,i} • Are environmental standards or limits defined?^e [also targets or ranges]

^a Gibson (2006).

^b Morrison-Saunders and Hodgson (2009).

^c Brandon and Lombardi (2010).

^d George (1999).

^e Therivel et al. (2009).

^f Howarth (1995).

^g Padilla (2002).

^h Daly (1990).

ⁱ Clarke (2002).

equity, and on the associated analysis of trade-offs through time and space. The framework has been tested by reviewing the SEA report of a sample of urban plans in Italy.

2. Development of the review framework

The concept of sustainability derives from the well-known notion of sustainable development, the “development that meets the needs

of current generations without compromising the ability of future generations to meet their needs” (World Commission on Environment and Development, 1987). However, there is no unanimous consensus on how this definition should be put into practice. Due to the elusiveness of the definition, many theoretical formulations of the concept of sustainability have been proposed, and consequently many versions of sustainability-based decision principles and criteria have been proposed.

Table 2
Criteria and questions proposed for Principle 2 (inter-generational Equity).

Principle ^a	Criteria	Questions
2 – Inter-generational equity Favour present options and actions that are most likely to preserve or enhance the opportunities and capabilities of future generations to live sustainably.	<ul style="list-style-type: none"> • Demonstrate enduring value for future generations;^b • Clearly outline the future negative impacts (local, regional and cumulative) of the proposal and how they will be managed, and by whom, and how future liability will be managed;^b • Hold proponents accountable for commitments (for example through mechanisms such as development bonds);^b • Demonstrate that the proposal will not impact on the long-term performance of existing significant local or regional land use activities.^b • Adopt a strong sustainability perspective, demonstrating how the proposal biases decisions in favour of not decreasing the level of natural capital passed onto future generations^c and combines environment, social and economic consideration in a more objective way.^d • Demonstrate how the proposal biases decisions against irreversible choices.^h 	<ul style="list-style-type: none"> • Does the proposal demonstrate enduring value for future generations?^b • Does the proposal clearly outline the future negative impacts (local, regional and cumulative) of the proposal and how they will be managed, and by whom, and how future liability will be managed?^b • Is it demonstrated that the proposal will not impact on the long-term performance of existing significant local or regional land use activities?^b • Will a particular development be economically viable in the future?^b • Who will have responsibility for managing negative impacts of a development in the future?^b • Will commitments by proponents be acted upon in the future?^b • Does the proposal adopt a strong sustainability perspective, demonstrating how the proposal biases decisions in favour of not decreasing the level of natural capital passed onto future generations^c and combines environment, social and economic consideration in a more objective way.^d • Does the proposal identify positive and negative effects and the duration of effects?^e • Does the proposal identify who is affected by the impacts and when?^f • How does the proposal undertake climate change adaptation and mitigation measures?^{d,f,g}

^a Gibson (2006).

^b Morrison-Saunders and Hodgson (2009).

^c Beder (2000).

^d Eales and Sheate (2011).

^e Therivel et al. (2009).

^f European Commission (2009a).

^g Brandon and Lombardi (2010).

^h Connelly and Richardson (2005).

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