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Ecosystem services in spatial planning and strategic environmental assessment—A European and Portuguese profile

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ABSTRACT

Despite the growing interest on ecosystem services (ES) in research, significant knowledge gaps on ES integration in decision making subsist. Particularly, ES-focused profiles of governance frameworks for different policy areas, like spatial planning, are scarce. The goal of this research is to draw a profile on ES integration in the European policy and guidance framework for spatial planning and strategic environmental assessment (SEA). To investigate how this framework might be translated in a particular country of the EU and across different levels of governance, the Portuguese spatial planning and SEA framework is also analysed. To achieve these goals, a content analysis of policy and guidance documents was conducted. We have found a general low level of explicit ES integration, but some notions associated with ES are present in the documents, although more indirectly. Results highlight the potential role of SEA for ES integration. However, in the Portuguese context, the contribution of SEA in practice is currently limited and for the coming years ES will not be specifically targeted or integrated in regional spatial planning practice. Recent changes in the wider European governance framework contribute to potentially higher degrees of ES integration in the future. Nevertheless, bottom-up demand for improved ES integration in plans and policies will be an important driver. Our approach contributes to identify which policies, plans and guiding documents need improved ES integration.

1. Introduction

The concepts of ecosystem services (ES) flows and natural capital stocks are increasingly useful ways to highlight, measure, and value the degree of interdependence between humans and the rest of nature (Costanza et al., 2014). ES are commonly defined as the benefits people obtain from ecosystems (MA, 2003). They can be seen as a metaphor useful for raising public awareness about the crucial role ecosystems and their biodiversity play in maintaining the quality of our everyday life (Spangenberg, 2013).

Since the introduction of the concept of nature's services (Westman, 1977) and later of ES (Ehrlich and Ehrlich, 1981) in the academic literature, there has been a rapidly growing body of peer-reviewed literature on the subject of ES (Fisher et al., 2009; Abson et al., 2014; Haase et al., 2014). Furthermore, several authors stress that major initiatives on ES, like the Millennium Ecosystem Assessment (MA, 2005) or TEEB – The Economics of Ecosystems and Biodiversity (TEEB, 2010) have brought the ES concept into the international policy agenda (Gómez-Baggethun et al., 2010; Braat and de Groot, 2012; Costanza et al., 2014). Other initiatives contributing to this include for example the Urban Biosphere Initiative (URBIS) by ICLEI – Local Governments for Sustainability (www.urbis.iclei.org) and the Cities and Biodiversity Outlook project (CBO, www.cbobook.org), both concerned with the local/city level, or the Ecosystem Services Partnership, a global network that aims to enhance communication, coordination and cooperation in the conceptualization and application of ecosystem services (www.fsd.nl/esp). Accordingly, others mention that the ES concept is already being integrated in different policy contexts and is becoming an explicit decision and policy tool (Abson et al., 2014; Jacobs et al., 2014; Shapiro and Báldi, 2014). In fact, some recent international policy initiatives highlight ES, most notably the EU Biodiversity Strategy 2020 (European Commission, 2011b), or the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) (Perrings et al., 2011). Also the global strategic plan for biodiversity for the period 2011–2020 of the Convention of Biological Diversity complements previous conservation based biodiversity targets

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with the addition of ES (Maes et al., 2013). However, Hauck et al. (2013b) stress that the implementation of the ES concept into European policy-making via the EU Biodiversity Strategy to 2020 needs its use at both national and regional levels.

At the same time, ES integration has been reported as poor and limited in general decision making and more specifically in spatial planning (Geneletti, 2011), development planning (Bennet et al., 2008), the US environmental law and policy (Ruhl et al., 2007; Ruhl, 2011), or landscape planning and management (de Groot et al., 2010; Hauck et al., 2013b; Albert et al., 2014a). Authors like Daily et al. (2009) see a need for an explicit and systematic ES integration into decision making by individuals, corporations, and governments, supported by a rapid advancement of the ES science. This need is related with poor incentives for decision makers to account for ES (Tallis and Polasky, 2009; Sitas et al., 2014), although they might already use knowledge on ES but using different terminologies (von Haaren and Albert, 2011). There are also evidences that a majority of citizens embraces calculating the benefits that nature provides to people, and explicitly acknowledging it as part of decisions about how natural resources are managed and used (Metz and Wiegel, 2010; Bastian et al., 2012). In the context of EU policies, for Maes et al. (2013) the alignment of the objectives of the EU water policy, the EU common agricultural policy and even the EU regional and cohesion policy, with Europe 2020 Strategy's resource efficiency guiding principle for other EU policies, is considered as a step towards the inclusion of ES in those policies and an important one towards a more sustainable economy, considering that both agriculture and regional development contribute to over 80% of the annual EU budget. Nevertheless, a knowledge gap concerning the actual dissemination of the ES concept into national environmental policies, beyond supranational programs and agreements, has been underlined by Matzdorf and Meyer (2014).

In this context, spatial planning is a particularly relevant decision making process, since one of the main drivers of anthropogenic ecosystem changes is land use change (Burkhard et al., 2010), for example linked with urbanization processes (Haase et al., 2014). It is for spatial and land-use planning that the effects of decisions upon ES provision and use are perhaps more evident and straightforward (Geneletti, 2011). Spatial plans or strategies have an important role in relating public policies to particular places and demonstrating that policies do not play out uniformly across a territory. Therefore they can help policy makers understand the interaction of a given policy with the particular qualities and characteristics of the territory where it is applied, which is a key factor for policies' outcomes and effectiveness (Adams et al., 2006). Still some authors, like von Haaren and Albert (2011), are of the opinion that spatial planning science has failed to connect with the international ES discussion.

As a strategic decision support instrument, strategic environmental assessment (SEA) can play a significant role in ensuring ES consideration (Partidário and Gomes, 2013) and provide better guarantees that ES are taken into account in planning and related decision-making processes (Slootweg and van Beukering, 2008). In a SEA context, ES that are not explicitly identified may be overlooked, and even overridden by the strategy development, leading to negative consequences on services, as well as on human well-being (Honrado et al., 2013). Although ES integration in SEA has been discussed by some authors (see for example Geneletti, 2011; Partidário and Gomes, 2013) and analysis of SEA reports focused on that issue, even though scarce, exist (e.g., Honrado et al., 2013), a systematic analysis of relevant SEA documents in light of a coherent spatial planning framework, crossing different governance scales, is to our knowledge yet to be conducted.

The goal of this research is to draw a profile on ES integration in the European policy and guidance framework for spatial planning and SEA. To investigate how this framework might be translated to national and sub-national level in a particular country, across different levels of governance, the corresponding Portuguese framework is also analysed.

It is particularly important to consider ES in the European context, since some ES are crucial for Europe's economy and society. For example, Europe is likely to become more dependent on its own ability to produce food as the global price of food increases and imports from outside the EU become less affordable. Another example is that Europe's communities place a high value on nature and on the possibility of enjoying natural places for leisure activities (European Academies Science Advisory Council, 2009). Moreover, the European case is relevant for analysis across different governance levels, since it has a common supra-national governance framework that is internalized by member states and its effects can often be traced down to the local level. As noted by Matzdorf and Meyer (2014), the EU law is increasingly relevant in the member states, and it is difficult to find fields of environmental law that are not influenced by it. Additionally, the "resource-efficient Europe" flagship initiative, under the Europe 2020 Strategy (European Commission, 2011a), is influential for several other EU policies, as previously mentioned. Within the wide scope of this long-term framework, Europe is in the forefront of political commitment to ES, most notably through its EU Biodiversity Strategy 2020 (European Commission, 2011b). The Natura 2000 network and the European Landscape Convention are also important EU-wide initiatives for safeguarding biodiversity and ES, with considerable benefits in terms of tourism, recreation and employment (European Environment Agency, 2012). Additionally, a multi-level analysis is relevant in light of evidence that vertical integration of SD policies within the European Union (EU) Member States is rather weak (ESDN, nd).

The choice of the Portuguese case has to do with the fact that Portugal was one of the few national level assessments, out of the eighteen approved MA sub-global assessments; actually it was the only one at national level in Europe. The MA assessment for Portugal was itself a multi-scale assessment, including case studies at lower levels (Pereira et al., 2009). This was similar to the aim of covering different governance levels in this research. Moreover, Portugal possesses a very diverse natural heritage thanks to its geographical location and geophysical conditions (CBD Secretariat, nd) – located in Southwestern Europe, it is predominantly a Mediterranean biogeographical region in the mainland territory and a Macaronesian region in the archipelagos of Azores and Madeira. Hence it has high potential for ES provisioning, for example of pollination services (Maes et al., 2012). These conditions also mean that Portugal is very vulnerable to global environmental changes, like climate change, with potential impacts including decreased precipitation, burnt area by forest fires and loss of species (e.g., typical tree species that contribute to the sense of place and cultural identity of the inhabitants, traditional forms of land use, and the tourism sector), among others (Metzger et al., 2006).

2. Context of spatial planning and strategic environmental assessment

2.1. Spatial planning

The EU does not have formal competences on spatial planning, because of the risk of a EU-wide planning framework going against the logic of national sovereignty of Member States (Faludi, 2009). However, several initiatives have been taking place, which are important for a European convergence in spatial planning policies. The complex puzzle formed by such initiatives and its influence on European spatial planning were thoroughly discussed by other authors (see for example Böhme, nd; Faludi, 2009; Salez, 2009;