



Analysis

Application of the ecosystem services concept in environmental policy—A systematic empirical analysis of national level policy documents in Poland



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ABSTRACT

We explore the occurrence of the ecosystem services (ES) concept in public policies in Poland by providing a systematic content analysis of national environmental policies. A detailed analysis of the legal acts, national strategies, and decrees using the Common International Classification of Ecosystem Services codes, which embraces a full range of ES, shows that the ES concept is reflected in the investigated documents. However, it is mainly depicted in an indirect, latent form. We further explore the ES concept occurrence in the Polish legislation with in-depth interviews of experts. From the interviews we identify two general groups of barriers to the ES concept implementation in environmental policy: (a) a limited understanding and acknowledgement of the concept among individuals involved in policy making; and (b) sectoral divisions within environmental governance that hinder the spread of the concept. Analysis reveals that the concept of services for society provided by nature had already been perceived in Polish national environmental policies before the emergence of the ES concept and the implementation of the EU biodiversity policy. However, the concept is referred to mostly in a latent form, before and after its emergence.

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1. Introduction

The ecosystem services (ES) concept has received increased attention and has been widely discussed over the last two decades (Costanza et al., 1997; Daily, 1997; de Groot, 1992; de Groot et al., 2010). It has been quickly utilized in various research areas, such as biodiversity conservation (Nelson et al., 2009; Wendland et al., 2010), landscape and spatial planning (Syrbe and Walz, 2012; Vihervaara et al., 2010), environmental governance (Primmer et al., 2015) and environmental management (Ervin et al., 2012; Ingram et al., 2014). However, its application is considered arbitrary and highly diversified in terms of methodology (Seppelt et al., 2011). The concept itself is hard to operationalize in a systematic and consistent way. Thus, it is hard to develop one classification of ES

that would be universal for different application contexts (Fisher et al., 2009). Considerable effort has been devoted by academia to the classification of ES. The most widely used, and the most influential results, of these efforts are the following initiatives: the Millennium Ecosystem Assessment (MEA, 2005), the Economics of Ecosystems and Biodiversity (TEEB, 2010), and the Common International Classification of Ecosystem Services (Haines-Young and Potschin, 2013). While there is a growing body of practical and scientific applications of these classifications (Haines-Young and Potschin, 2013), their application in ecosystem assessments usually requires additional efforts at the stage of their operationalization. Despite these challenges, the concept is considered useful as a support for policies aiming at sustainable development (Balvanera et al., 2012), e.g., in the process of Mapping and Assessment of Ecosystems and their Services in the European Union (Maes et al., 2016), and widely applied in international environmental policy recommendations, e.g., within the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) and the goals of the Convention of Biological Diversity for the year 2020 (García-Nieto et al., 2013).

According to the current approach to conservation in 'people and nature' framing (Mace, 2014), public policy, expressed in policy

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documents records, is an influential factor creating a feedback loop between ecosystems and human welfare (Díaz et al., 2015). Therefore, it is believed that official institutions, operating through policy documents such as strategic plans or national legislation (Mace, 2014) affect not only the environment but also the flow of ES that citizens benefit from.

Within European Union (EU) policies, the ES approach has been incorporated into several strategic documents. It is becoming one of the guiding and crucial design concepts, e.g., water efficiency measures in A Blueprint to Safeguard Europe's Water Resources. The ES concept is also present in other EU policy areas: biodiversity—Our life insurance, our natural capital: an EU biodiversity strategy to 2020; agriculture—Common Agricultural Policy towards 2020; marine management—Marine Strategy Framework Directive; forests—the new EU forest strategy; invasive alien species—EU Regulation 1143/2014 on Invasive Alien Species. Regardless of the coordination framework of the EU, the implementation of these policies is strongly dependent on the individual approach of EU member states (ARCADIS, 2011). Therefore, there are significant differences between member states in the implementation of the ES concept in their national policies, the development of national strategic frameworks for ecosystem restoration, and funding schemes (e.g., in forestry and agriculture) (Prager et al., 2012; Reed et al., 2014).

Piwowarczyk et al. (2013) analysed 63 strategic documents for the 10 largest Polish seaside cities to test how marine ES are perceived in urban planning and long-term management. The authors argue that although marine ES are acknowledged, their recognition in the strategic documents is partial and limited to the services which are already captured by the market mechanisms. The study of documents on urban green space planning in Berlin (Kabisch, 2015) showed that only the very recently developed informal strategies (e.g., Urban Development Concept 2030) explicitly relate to the ES framework. However, the stakeholders are aware of the ES term. Therefore, although policies including the ES concept have already been introduced at the European level, little is known about how the concept can be implemented in national environmental policies. In this study, we further explore the occurrence of the ES concept in policy documents (i.e., national strategies, legal acts, and decrees) using Poland as an example. We explore public policy in the form of principles, guidelines, and procedures developed by governmental bodies and officials following the approach, among others, of Anderson (1975), through the analysis of policy documents. Documents were treated as an initial component of public policy as they illustrate intentions and indicate purposive courses of action within the environmental governance domain (Hill and Hupe, 2014).

Poland constitutes an interesting example for analysing the adjustment of environmental policies because of the rapid socioeconomic transition in the last 25 years. As with other Central and Eastern European countries, Poland's environmental policies have undergone substantial changes (Cent et al., 2014; Kluvánková-Oravská et al., 2009; Niedziałkowski et al., 2015, 2013; Sasse et al., 2006). Poland's adjustment of its legal and administrative framework after the fall of Communism in 1989 and the EU accession in 2004 resulted in a transposition and implementation of the EU regulations. This has had an impact on the current shape of Polish environmental policy and governance (Grodzinska-Jurczak and Cent, 2011; Guttenbrunner, 2009). The concept of ES has entered scientific discussions in Poland relatively recently, mainly after 2000 (Kronenberg, 2014; Mizgajski, 2010; Rosin et al., 2011; Żylicz, 2010). However, the extent to which the ES concept has been applied in Polish policy documents has not been studied. While scientific debate is focused on the potential contribution of the ES concept to nature conservation, little is known about its actual influence on the policy making processes. This concerns not only the practical significance of the ES concept, but also poses a challenge at the point where science and policy overlap in their efforts to mainstream innovation and theoretical development. The aim of this paper is to contribute to the international debate on the application of the ES concept in

environmental policies at the national level by providing answers to the following questions:

1. To what extent is the ES concept implemented in the Polish policy documents and what categories of ES are applied?
2. What are the barriers to, and the potential for, the application of the ES concept in Poland?

2. Material and Methods

Our research comprises two parts: content analysis and in-depth interviews of experts. The quantitative content analysis (Graneheim and Lundman, 2004; Hsieh and Shannon, 2005; Krippendorff, 2004) was used for the analysis of Polish environmental policies. This research technique was implemented in a few previous studies on ES (Kabisch, 2015; Piwowarczyk et al., 2013), where it proved useful in providing detailed information on the concept analysed. However, the interpretation of these results required broader knowledge on the specific context of the studied cases. In order to provide a deeper explanation of the results and to complement the quantitative results of content analysis we conducted in-depth interviews with experts engaged in the development and implementation of the analysed policies.

2.1. Content Analysis of Polish Environmental Policy Documents

The subject of the analysis was Polish environmental policies comprising: (1) legal acts (a legal document issued by the legislature—in Poland by the parliament—which sets out broad outlines and principles in, for example, environmental protection); (2) national strategies (a long term plan issued by, for example, a ministry which sets out the direction of a policy for a sector such as forestry or spatial management); and (3) decrees (a legal document issued by the executive—in Poland this could be the Prime Minister—which specifies regulations for implementing acts). We selected major policy documents in the environmental domain and followed the snowball sampling procedure, adding other documents referred to in those already identified. In total, 46 documents relevant to the environmental policies in Poland were identified: 25 decrees, 11 strategies, and 10 legal acts.

The content analysis of the documents was conducted using deductive (Elo and Kyngäs, 2008) and interpretative (Ahuvia, 2001) approaches in quantitative data analysis. For developing coding categories, we used the categorization of ES provided by the Common International Classification of Ecosystem Services (CICES). It is the most detailed categorization available, defining 80 ES at five levels of generality, from the broadest one (sections: provisioning, regulating and maintenance and cultural ES) through divisions, and groups and classes within each section. Both the manifest (exact appearance of the ES term) and the latent references (parts of the text expressing the ES concept—conveying the understanding of environment using the concept of ES without using the exact term 'ecosystem services') to ES were coded. The smallest meaningful parts of texts, where basic meaning could be understood without reading a larger part of the text, were chosen to be the coding units. NVivo software was used for coding and retrieval of the coded text to support the analysis (Cong et al., 2014). A list of 30 keywords relevant to the ES concept was built in order to identify both manifest and latent references to the ES concept. In the first stage of the coding process, all 46 documents were analysed in NVivo for the occurrence of the keywords in order to localize all parts of the content that were relevant to the ES concept. As a result of the first content verification, all the irrelevant parts (i.e., specific names such as titles of documents or meta-language parts such as citations or descriptions of other documents) were removed from further analysis. The remaining phrases were coded, with the use of a five-level, CICES-based list of codes. The most detailed level possible was used to code each phrase. One unit of text could be coded with more than one coding category.

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