



# Landscape services as boundary concept in landscape governance: Building social capital in collaboration and adapting the landscape



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## ABSTRACT

The landscape services concept provides a lens to study relations within the social-ecological networks that landscapes are, and to identify stakeholders as either providers or beneficiaries. However, landscape services can also be used as a boundary concept in collaborative landscape governance. We demonstrate this by analysing the case of Gouwe Wiericke in the rural west of the Netherlands. Here, a collaborative landscape governance process started off with low levels of trust between farmers and regional governments, as a result of previous processes. The introduction of the landscape services concept helped to bridge social boundaries, which eventually resulted in collective action: farmers and governments reached an agreement on adapted management of ditches and shores to improve water quality and biodiversity. However, we propose that bridging the social boundaries was achieved not merely due to the landscape services concept, but also due to the fact that multiple boundaries were managed simultaneously, and additional arrangements were used in boundary management.

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## 1. Introduction

Landscapes are complex social-ecological systems: the result of and the medium for interaction between humans and nature. Because of biophysical and cultural variation, this interaction has different outcomes, reflected in a variety of land use patterns and landscape identities. Through ‘mediation’ by the landscape, stakeholders build up social and economic relations, such as between food producers and consumers or between land holders up- and downstream in a water catchment area. Because of this interrelatedness of spatial landscape patterns and social networks, in this article we view landscapes as social-ecological networks (Bodin et al., 2016; Cumming et al., 2010). An important concept for studying this interrelatedness is landscape services. Although this term had been used casually a few times in various meanings (e.g. Frede et al., 2002; Peerlings and Polman, 2004) as a concept related to ecosystem services it was elaborated by Termorshuizen and Opdam (2009). With the term ecosystem services it shares the notion that natural processes (either in areas protected for conserving ecosystems or in multifunctional areas) provide value to humans. The concept emphasizes that landscapes are heterogeneous systems, functionally and structurally adapted by human

users, which implies that the delivery of landscape services and their value depend on the heterogeneous pattern of the landscape, in particular the structure of the ecological network (Opdam, 2013). At the same time, the variety of landscape services aids the identification of stakeholders in the social-ecological network (Menzel and Teng, 2010). The landscape services concept implies that there are providers (the land owners and land managers) and beneficiaries of those services; the variety in landscape services implies that together these stakeholders represent a range of interests. Therefore, landscape services provide an angle for the description and analysis of social-ecological networks.

However, as we will demonstrate in this article, the concept of landscape services can have an additional role, namely in enhancing social capital in processes of collaborative landscape governance. Landscape governance deals with “the interconnections between socially constructed spaces and biophysical conditions of places” (Görg, 2007). Because of the emphasis on interconnections between the social and the biophysical, the idea of landscape governance suits the conception of landscapes as social-ecological networks well. Due to the variety of landscape services and stakes of providers and beneficiaries, a collaborative landscape governance process would include a variety of actors, most likely with diverging values, aims and conceptions of the preferred landscape (Faehnle and Tyrväinen, 2013; Morris, 2004; Opdam et al., 2015b). The diverging identities, stakes, values, aims and conceptions could hinder the build-up of social capital needed for collaboration. These differences represent boundaries between social groups that need

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to be bridged before collective action can be reached. In this article we examine the use of landscape services as a boundary concept, in order to support collaborative landscape governance.

Boundary concepts have been shown to contribute to interaction and collaboration between social groups (Metze, 2011; Mollinga, 2010), but in literature landscape services have rarely been considered as boundary concepts. Ecosystem services have been recognised as a boundary concept: in the sense of a product of boundary work in research and multi-level and multi-actor environmental policy making (Kull et al., 2015; Schleyer et al., 2015). This development and the use of the ecosystem services concept between various scientific disciplines and tiers and departments of government would explain its vagueness and ambiguity. Schleyer et al. (2015) suggested that ecosystem services could also prove suitable as a boundary concept in participative processes. Palacios-Agundez et al. (2014) and Herringshaw et al. (2010) describe participative landscape governance processes in which the ecosystem services concept was applied, but they did not study its functioning as a boundary concept. Opdam et al. (2015a) investigated how the ways in which ecosystem services were framed in collaborative landscape governance processes affected the outcome. Because of their interest in the effectiveness of providing information in such processes, they approached ecosystem services as multiple frames and not as a boundary concept. Opdam et al. (2015b) did investigate landscape services as a boundary concept in landscape governance. In particular, they analysed cases in which landscape services were combined with green infrastructure, as boundary concepts that evolved over the course of the governance process. Although they recognised the role of boundary concepts in landscape governance, they acknowledged that the boundary concepts had not been the only 'tools' in boundary management. Apart from this publication, there is still very little evidence on the possible role of landscape services as boundary concept in collaborative landscape governance. At the same time, it seems unlikely that the use of a boundary concept alone will suffice to manage boundaries in landscape governance processes. Therefore, insight is needed into the conditions of landscape services as a concept for contributing to boundary management, in order to support the process and outcome of collaborative landscape governance. Our research question is: under what conditions does landscape services as a boundary concept contribute to collaborative landscape governance?

We aim to answer this question by analysing a case of collaborative landscape governance in a rural area in the Netherlands. As action researchers we participated in this landscape governance process, in which landscape services were a leading concept. Landscape governance was aimed at creating a shift from single-purpose (dairy-farming) to multipurpose farming (delivering a range of landscape services). Farmers, as providers of landscape services entered a collaborative process with regional governments as beneficiaries. The collective action of farmers and regional governments comprised the following two components: the management of networks of ditches and banks was adapted in order to enhance the landscape services clean water and biodiversity,<sup>1</sup> and a scheme was created which organised the payment to the farmers in return for their efforts. We analyse how the landscape services concept, combined with other boundary arrangements, helped to develop the social capital needed to achieve this collective action. We also consider to what extent this collective action influenced the delivery

of landscape services by adapting the biophysical conditions in the ecological network.

In the following section we elaborate our conceptual approach of collaborative landscape governance, landscape services, social capital and boundary management. After that, we explain our research methods and the various roles we performed as action researchers in the landscape governance process. Our results are presented as a case narrative. In the discussion we address how boundaries were managed through combining landscape services as a boundary concept with a process of social learning and other boundary arrangements. In addition, we examine the outcome of the collaborative landscape governance process by evaluating whether landscape services were affected by adapting the landscape (Görg, 2007 p. 960).

## 2. Conceptual approach

### 2.1. Collaborative landscape governance

We depart from the presumption that landscape governance requires collaboration. Landscape governance needs to take into account the following characteristics of the social and/or ecological networks: the stakes, values and interactions in the social network; the biophysical conditions in the ecological network; and the interactions and interdependencies in the social-ecological network (Bodin et al., 2016; Görg, 2007). As a result, landscape governance is a very complex endeavour. The term 'governance' implies that governments are not the only actors in landscape governance: other actors participate in or even initiate the governance process (Buizer et al., 2015). Because governance requires more than one actor, collaborative approaches are needed to reach a consensus on actions to shape the desired landscape and to develop the accompanying governance arrangements (Bodin et al., 2016; Healey, 1997; Innés and Booher, 1999; Opdam et al., 2015b). For that reason, a kaleidoscope of collaborative arrangements has been developed, in which actors take various roles in partnerships and in other alliances (Kuindersma and Boonstra, 2010; Skelcher et al., 2005). Arrangements with a large role for self-governance by non-governmental actors receive increasing attention (Driessen et al., 2012; Sørensen and Triantafyllou, 2009; Westerink et al., 2016). In landscape governance this too makes sense: a self-governance perspective acknowledges the big say of landholders in the layout and management of their land. Self-governance implies that the boundary between self-governance and governmental intervention requires attention (Ostrom, 1990). In addition, self-governance means collaboration within the self-governing group. There are many examples of farmers collaborating in landscape management (Franks and Emery, 2013; OECD, 2013; Prager, 2015; Prager et al., 2012; Westerink et al., 2015). In order to develop a landscape with many landscape services, landholders as a group would need to negotiate the design of the landscape, the choice of management measures, landscape services and payments, jointly with their beneficiaries. These designs and negotiations, although based on conceptions of the preferred landscape, refer to the biophysical landscape and are therefore place-specific. In addition, the collective action resulting from the landscape governance process often changes the biophysical conditions in the landscape. For these reasons, analysis of landscape governance cannot ignore the biophysical landscape (Görg, 2007).

### 2.2. Landscape services

How humans benefit from ecosystems is expressed in the ecosystem services concept (De Groot et al., 2002; Gómez-Baggethun et al., 2010). However, in the context of collaborative

<sup>1</sup> We are aware that biodiversity could be categorized as 'natural capital' underlying the delivery, quality and reliability of ecosystem services (Jones et al., 2016). However, stakeholders in our case study considered biodiversity a landscape service in itself (see Section 4.2). We adopt their conception in this article.

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