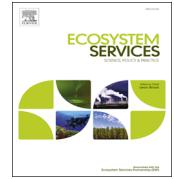




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Intermediaries to foster the implementation of innovative land management practice for ecosystem service provision – A new role for researchers



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ABSTRACT

Technological innovations in agricultural land use management can provide economic benefits and an important contribution to the provision of ecosystem services. However, the active implementation of management approaches regarding the provision of ecosystem services is not in the focus of economic actors because of the public good characteristic of most of these ecosystem services. Without economic intervention through additional payments to local land users or governmental regulation through certain rules it is challenging to develop and disseminate management innovations providing both economic benefits for local land users and environmental goals. In this paper, we examine a special case where technological innovation meets the provision of ecosystem services. We hypothesize that in such a case classical extension work is not enough and a new actor and governance form is needed. Therefore, we use a successful sustainable intensification example from Brazil to analyze the innovation intermediary of such kind of land management innovation. What type of organization is able to take over the responsibility of an innovation intermediary and what are the motivations of involved actors? What is the role of this actor during the whole innovation process, specifically regarding the implementation of an innovative land management practice? Based on interviews and participatory observations, we examined the role of a university based actor called Voisin Group (GPVoisin) in Southern Brazil's Encostas da Serra Geral Region during the innovation process. We found that this actor has some special features as it combines scientific knowledge skills to foster the innovation and its implementation with social skills and high intrinsic motivation that support the persuasion and decision making on the ground. GPVoisin combines the roles of a collection of agricultural researchers with that of knowledge facilitators. Thanks to this combination skills GPVoisin has earned a high reputation and could obtain acceptance for the introduction of an innovative land management approach, based on the idea of improving the ecosystem service provision by a technological innovation.

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1. Introduction

Land use management has important effects on the provision of ecosystem services (ES) and the maintenance and development of biodiversity (e.g. MEA, 2005). Specifically, agricultural land use can be described as one of the major global driver for land use change and related loss of ecosystem services and biodiversity (e.g. Tilman et al., 2001; MEA, 2005). Thus, it is of high societal relevance to develop and implement agricultural management systems that

use ecosystem services for food production without or with reduced negative impacts on societal demanded ecosystem services and biodiversity. Globally, one of the major challenges is to reduce deforestation caused by agricultural demand (Tilman et al., 2001; FAO, 2006). Sustainably increasing production on current agricultural lands has been proposed as solution to the conflict between expanding agricultural production and conserving natural ecosystems (e.g. Foley et al., 2005; Godfray et al., 2010; Phalan et al., 2013).

Therefore it is of high societal importance to find solutions on the ground to improve agricultural production systems (Defries and Rosenzweig, 2010). This task requires agricultural and ecological knowledge as well as social skills to develop and implement

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local adaptive land use management approaches. Due to the dependency of agricultural production itself from ecosystem services, innovative agricultural management solutions can improve or at the very least not reduce the agricultural production output (it does not incur costs) and at the same time improve ecosystem service and biodiversity provision. However, the potential actors have to consider the full range of benefits – from agricultural products and ecosystem services to have sufficient motivation and interest to develop and implement innovative agricultural management approaches. Those farmers who focus primarily on private goods may not have enough self-interest or motivation as well as ecological knowledge to develop but also implement ecosystem service friendly management systems. Due to the public or common good characteristic of ES and biodiversity market-based institutions and economic actors alone seem to be not adequate. The co-production of agricultural products and ecosystem services and biodiversity needs public and/or civil society engagement.

In our research we want to identify the role of such kind of innovation intermediary in the context of innovative sustainable agricultural management practice. Currently, nowhere the conflict over land has the magnitude observed in Brazil (Strassburg et al., 2014). Because of the high relevance of adapted agricultural management systems to avoid deforestation in Brazil we choose a successful example of sustainable intensified agriculture in the country. In our case study the intermediary from the civil society was specifically engaged in the implementation process of a new grazing management approach. This example was identified during an international research project dealing with community based ecosystem services management approaches in Latin America. Two research questions guide our current analysis.

1. What type of organization has the capacity and skills to take over the responsibility for the implementation process of an innovative agricultural management approach focusing on intensified grassland use and ES provision? What are the interests and motivations of the involved actors?
2. What are the roles of the intermediary organization during the whole innovation implementation process and what kind of activities are conducted?

Our research should deliver evidence how civil society can improve the development and implementation of sustainable agricultural management systems on the ground. A deeper understanding of the characteristics and role of relevant actors can be used to support such kind of intermediary and help to develop successful forms of ES management in the context of agricultural land.

The paper is organized as follows: chapter two gives an overview about the case study region and the relevant agricultural management practice. In chapter three we describe our analytical framework, used data and methods. In chapter four we present our results and discuss these in chapter five. We close our paper with a short conclusion.

2. Theoretical background

Three situations regarding the relation between an adaptive innovative agricultural management and ES can be distinguished: (1) trade-off relation (ES provision increase cost), (2) relation where improvement of ES provision does not reduce the agricultural production (ES provision do not increase costs) and (3) win–win situation (ES provision does reduce cost/raise return). While situation (1) calls for hierarchical institutions and governmental actors or economic incentive instruments such as payments for ecosystem services, in situation (2) and (3) cooperative

approaches and self-interest of farmers are the basis for the implementation. It is a real societal challenge to improve ES provision without increasing costs for agricultural producers. One of the main questions is that of “who initiates the development process of innovative agricultural management approaches?” and “who as an interest and motivation as well as capacity and skills to bring this innovation into practice?”.

As our case goes beyond technological innovations, the definition of innovation we follow is also quite broad. Innovation is defined as “the result of a process of networking and interactive learning among a heterogeneous set of actors, such as farmers, input industries, processors, traders, researchers, extensionists, government officials, and civil society organizations” (Klerkx et al., 2010: 390). This includes, that innovation does not exclusively refer to the invention, introduction and transfer processes of new technologies, but also to new, alternative ways of organizing and, in consequence, to institutional change. Innovations are not understood as a linear model in sense of scientists develop innovations, intermediaries disseminate these ideas and user put them into practice as e.g. Innovation Systems thinking (e.g. Hall, 2005; Röling, 1992; cf. Leeuwis and Aarts, 2011). “Innovations do not just consist of new technical devices, but also of new social and organizational arrangements, such as new rules, perceptions, agreements, identities and social relationships” (Leeuwis and Aarts, 2011: 22). This bears some challenges for the actors involved in innovation processes. In the literature the crucial role of intermediaries for pushing innovation is emphasized (Smedlund, 2006; Howells, 2006; Lomas, 2007; Klerkx and Leeuwis, 2008a, b, 2009; Klerkx et al., 2010, Meyer, 2010). As Klerkx et al. (2010: 398) highlight: “innovating actors need to continuously assess how they can realize their innovation goals within the ever changing institutional environment, looking for certain windows of opportunity and sometimes also trying to actively create such windows of opportunity”.

In literature, there is an amount of different names for these innovating actors, for example, third parties, intermediary firms, brokers, bridgers, bridging organizations, technology transfer intermediaries, information intermediaries, superstructure organizations, or boundary organizations (Howells, 2006, Klerkx and Leeuwis, 2009). Klerkx and Leeuwis (2008a, 2009: 850) call them “systemic brokers”, whose task is to connect the different components of the innovation system, to bridge between demand and supply in the agricultural knowledge infrastructure and to reduce systemic failures of institutions or networks. Other definitions which name them knowledge broker (e.g. Hargadon, 1998; Wolpert, 2002; Blondel, 2006; Lomas, 2007; Meyer, 2010) concentrate on social learning and miss out innovation, while definitions like innovation entrepreneurs mainly stem from an economic context and refer to the mediation of technologies and knowledge to firms and companies.

Klerkx and Leeuwis (2008a) also developed a typology of innovation intermediaries we use to classify our actor. For the typology, organizations are classified regarding to their function, coverage, funding, legal form and innovation focus and end up with five different types of innovation intermediaries: (1) Innovation consultants aimed at individual entrepreneurs; (2) Innovation consultants aimed at collectives of entrepreneurs; (3) Brokerage organizations that forge peer (inter-firm) networks; (4) Systemic instruments for the support of innovation at higher system level and (5) Internet-based portals and databases that display knowledge and information relevant to farmers and related parties. Hybrid forms of these different types are possible.

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