



Certification of forest watershed services: A Q methodology analysis of opportunities and challenges in Lombok, Indonesia



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ABSTRACT

This study examines opportunities and challenges of applying *certification of forest watershed services* to a payment for watershed services (PWS) scheme. The certification has potential to mitigate the problem of incomplete information in a PWS scheme, but necessary enabling conditions remain untested, including stakeholder support. To examine stakeholder perspectives, Q methodology was conducted with intermediaries, buyers, and sellers of a PWS scheme in West Lombok, Indonesia. Stakeholders revealed interest in using certification as a capacity-building tool, towards which they indicated a willingness to bear associated costs. However, their preferences indicated confusion about the meaning of certification and skepticism as to its transparency, as well as a need for as-of-yet unavailable simple but scientific standards. The study contributes to analyzing the feasibility of certification as a tool for disclosure of information.

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1. Introduction

Since the early 1990s, forest certification schemes have emerged for sustainable timber production in managed forests, including the Forest Stewardship Council (FSC) (Auld and Bull, 2003; Cashore et al., 2006; Elliott and Schlaepfer, 2001). As a market-based mechanism, forest certification intends to disclose information on sustainable production of wood products to consumers so that consumers can support sustainable wood production (Rametsteiner and Simula, 2003; Teisl and Roe, 2000). A history of FSC implementation demonstrates that forest certification would also improve forest governance (Cerutti et al., 2011; Pettenella and Brotto, 2012) and stakeholder communication (Tsanga et al., 2014), but its implementation can be restricted by high certification costs and low certification demand (Durst et al., 2006).

There has long been interest in application of forest certification to ecosystem services management for sustainable forest management beyond timber markets (e.g., Griscom et al., 2014; Jaung et al., 2016; Rametsteiner and Simula, 2003; Vogt et al., 2000) as many studies indicate potential links between forest certification and management of various ecosystem services, including forest watersheds (Dias et al., 2015; Jaung et al., 2016). At

the same time, the application has been motivated by the expansion of ecosystem services markets, including a payment for watershed services (PWS) scheme (Brouwer et al., 2011; Ezzine-de-Blas et al., 2016; Landell-Mills and Porras, 2002; Wunder, 2015). For this reason, the FSC¹ has tested possibilities to expand its scope from timber to a PWS scheme.

An expansion of forest certification to a PWS scheme would result in a potential certification scheme, which this study defines as *certification of forest watershed services*. Forest watershed services generate a range of services, including improved water quality, increased water quantity, and reduced flood risk, and these services have been traded in PWS schemes (Brouwer et al., 2011; Landell-Mills and Porras, 2002; Escobar et al., 2013). In practice, however, many PWS schemes suffer from incomplete information on actual provision of promised services despite the important role of such information in achieving and assessing scheme outcomes, including effective conservation and cost efficiency (Brouwer et al., 2011; Hanley and White, 2014; Muradian et al., 2010; Wunder et al., 2008). Forest certification has been applied to mitigation of incomplete information on the quality of wood products (Rametsteiner and Simula, 2003; Teisl and Roe, 2000); thus, certification of forest watershed services has the

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¹ Forest Certification for Ecosystem Services (ForCES) (2016, April 10). Retrieved from <http://forces.fsc.org>. This study was conducted as a part of the ForCES project.

Table 1
Payment for watershed services (PWS) schemes with certification applications.

PWS location	Kapingazi River, Kenya ^a	Munich, Germany ^b	New York, the US ^c
Leading institutions	The World Agroforestry Centre (ICRAF)	Stadtwerke München (SWM, or Munich water utility)	New York City
Certification application	Implicit	Explicit	Explicit
Certification type	Organic certification / eco-label	Organic certification	Origin certification
Certification scheme	– Rainforest Alliance (RA) – UTZ certified (UTZ)	– Bioland – Naturland – Demeter	– Pure Catskills
Certification benefit to PWS	Social, economic, and environmental safeguards of upstream farms	Providing a monitoring and verification system for the PWS scheme	Promoting farm products from the PWS regions
Certification costs	Financial supports from various institutions, including Rainforest Alliance (RA), Solidaridad (UTZ), and WorldBank (UTZ).	SWM subsidizes farmers to join organic certification. Farmers need to pay a join fee to organic associations.	Farmers pay an annual fee to the Watershed Agricultural Council who manages the certification system.

^a Sources: Firmian et al. (2011), Mitei (2011), Schoonhoven-Speijer (2012), UTZ certified (2015).

^b Sources: Alpine Convention (2011), Barataud et al. (2014), Escobar et al. (2013), Grolleau and McCann (2012), Vlahos and Schiller (2014).

^c Sources: DEP (2014), Grolleau and McCann (2012), Pires (2004), Pure Catkills (2015).

potential to mitigate the problem of incomplete information in PWS schemes, such as information on quantification of watershed services and safeguards of forest watersheds.

Because certification of forest watershed services is a potential scheme, however, its enabling conditions have been unknown, including support and demand for its application in PWS schemes. The aim of this study is to examine opportunities and challenges of applying the certification scheme to PWS schemes by a Q methodology analysis (e.g., Brown, 1980) of PWS stakeholder perspectives in West Lombok, Indonesia. Since PWS schemes are a potential market for certification of forest watershed services, PWS stakeholders are considered as potential certification stakeholders, and their perspectives are assumed to affect certification implementation for several reasons. Consensus of certification stakeholders is a likely requirement in the establishment of standards, as it is in other voluntary certification schemes (AWS, 2014; Cashore et al., 2006; Kollmuss et al., 2010). Stakeholder insights are likely to influence designs and standardization processes of the certification scheme, as has been the case in developing the FSC standards (Auld and Bull, 2003; Balzarova and Castka, 2012; Cashore et al., 2006; Elliott and Schlaepfer, 2001). In addition, stakeholder perspectives are an indicator of potential demand for certification. Thus, an analysis of PWS stakeholder perspectives is an effectively means to identify market challenges and opportunities associated with developing certification of forest watershed services.

2. Certification in PWS schemes

Certification of forest watershed services faces challenges associated with limitations of forest watershed management, PWS schemes, and forest certification (Meijaard et al., 2011, 2014). First, forest watershed management is difficult to systematize due to the complex, heterogeneous, and site-specific nature of upstream and downstream management (Meijaard et al., 2011, 2014). This uncertainty is seen as likely to undermine a market mechanism, such as certification, and challenges the development of its standards. Standards development is further challenged by the limited extent of scientific expertise in quantification of forest watershed services and by the need to develop standards that are simple enough for application by upstream communities (or PWS service providers). Second, demand for by PWS schemes may be limited or non-existent (Meijaard et al., 2014). Many PWS schemes are financed by government or development agencies rather than service users such that decisions may be less influenced by market factors.

Third, certification of forest watershed services is subject to high certification costs and low uptake in tropical forests like forest certification (Meijaard et al., 2011). The high costs of forest certification act as a barrier to entry to small firms and landowners; only firms with high economies of scale could afford the costs without external support. Uptake of the certification scheme could be also less successful in tropical forests compared to temperate forests, according to the uptake of forest certification (Durst et al., 2006).

In contrast, potential opportunities for certification of forest watershed services can be envisaged from PWS schemes, where conventional certification schemes are already in place (Table 1). Such certification applications can be described as either *implicit* or *explicit*. An implicit application uses certification as a medium to build the enabling conditions for a PWS scheme, while explicit application utilizes certification as part of the implementation of a PWS scheme.

A case of implicit application is the PWS scheme in Kapingazi River, Kenya, led by the World Agroforestry Centre (ICRAF). The scheme aims to manage upstream watersheds of Kapingazi River, where a number of tea and coffee farms exist (Firmian et al., 2011). Before the PWS scheme was launched, some of these farms had already obtained agricultural certification, such as UTZ certified² and Rainforest Alliance (Firmian et al., 2011; Mitei, 2011; UTZ certified, 2015). It is expected that these certification schemes have benefited the PWS scheme by improving farmers' capacity to implement organic practice and by incorporating social and economic safeguards (Firmian et al., 2011; Schoonhoven-Speijer, 2012).

Cases of explicit application include the PWS schemes in Munich, Germany, and New York City, USA. The PWS scheme in Munich explicitly utilizes organic certification (e.g., Bioland, Naturland, and Demeter) as a monitoring and verification system (Alpine Convention, 2011; Escobar et al., 2013; Grolleau and McCann, 2012). Upstream farmers in Mangfall Valley in Munich can become eligible to receive full payment from the scheme when they join and maintain organic certification as reduced agricultural inputs by organic practice contribute to improving water quality (Barataud et al., 2014; Vlahos and Schiller, 2014). This financial incentive rapidly increased the number of certified farms from 23 in 1993 to 150 in 2010 (Barataud et al., 2014). By applying organic certification, the Munich PWS scheme did not have to establish a new system of monitoring and verification which involves high costs.

² UTZ means "Good" in the Mayan language (Ingenbleek and Reinders, 2013).

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