Timber market actors' values on forest legislation: A case study from Colombia

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ABSTRACT

Tropical forest of the world is home of several species of flora and fauna and it serves as a source of income for thousands of people. To maintain the current forest covers is a complex endeavor, there is a wide variety of ecosystems that compete with other land uses, there is also large volumes of tropical timber sold in the market that serve to reduce poverty, and a large number of forest dwellers pursuing different benefits from the forest. The objective of this study was to understand stakeholders´ values about Colombian forest legislation and its implications for legal timber trade. Participants of this study represented stakeholders from the three forest regions that produce 71% of the total timber from natural stands. By using Q methodology, a technique that combines qualitative and quantitative methods to systematically study subjectivity, four distinct perspectives were found. These perspectives show the complexity to enforce the law because this does not include regional particularities, there are high levels of bureaucracy as a product of the previous factor; there is also a lack of quality in the forest management plans and government transparency. Although the management of natural resources of Colombia is decentralized, forest legislation is part of a comprehensive national legal system that does not consider the wide variety of forest types that require different forestry practices and serve several social needs. This implies that effective compliance with forest law rests on a devolution of the legislation that could include particularities of each forest productive region.

1. Introduction

Tropical rain forest is one of the most important ecosystem of the world, it hosts > 80% of the terrestrial biodiversity and provides a large amount of timber products that constitute the only means of income for millions of people. Tropical timber trade contributes to the economic development of nations; 33 tropical countries annually produce around 13.2 M of cubic meters of tropical timber to be sold to a 37 consumers countries (ITTO, 2014). Since 1990 there has been an increasing demand of tropical timber of about 35% with an expecting increase in the future (Sloan and Sayer, 2015). Although several efforts have been done to maintaining a healthy forest cover, this has declined in low income countries, and most rapidly in the tropics (D'Annunzio et al., 2015; Keenan et al., 2015). According to D'Annunzio et al. (2015) South American tropical forest will continue depleting for the next 15 years due to population growth that will demand more forest products and land for agriculture.

Studies have showed that industrial agriculture and timber harvesting are the major factors of tropical deforestation and degradation, respectively (Hosonuma et al., 2012). Notwithstanding the large amount of knowledge about the causes of deforestation, other factors have been overlooked due to their complexity to be measured, and the cross-sectoral nature of the benefits and services offered by forest and for what a myriad of constituencies compete (Daw et al., 2011; Ostrom et al., 2002). Some other factors that play a significant role in deforestation are the concentration of resource's ownership and benefits (Larson et al., 2006), poor coordination among institutions, economic growth (Kissinger et al., 2012), and the lack of consistency of current policy objectives with stakeholders´ attitudes (Nijnik et al., 2016). The presence and combination of those factors reflect weak governance systems around forest conservation and management.

Forest governance refers to all formal and informal public and private regulatory structures, the interactions between public and private actors and their effects on the forest (Giessen and Buttoud, 2014). Thus,

evaluating and monitoring forest governance is a complex task because of the wide variety of stakeholders pursuing their own benefits at state, market, and society realms (Lemos and Agrawal, 2006). In addition, stakeholders actions take place at different levels and scales (Gibson et al., 2000) making agreement difficult, and sometimes causing governance fragmentation (Howlett et al., 2010). Thus, strengthening forest governance at national, regional, and institutional instances is needed to reduce deforestation and degradation (Rayner et al., 2010).

Although the last two decades have been very prolific in terms of forest legislation, and some agreements leading to reduce deforestation and forest degradation have been signed (i.e. REDD +), illegal logging (one of the causes of deforestation) is still an issue, even in the presence of a regulatory system for concessions, permits, and authorizations for harvesting (Finer et al., 2014). Illegal harvesting and its related trade influences timber prices at all stages of the chain of commercialization (Reboredo, 2013), and thus, legal markets are affected. To combat illegal timber trade, countries have adopted various policy and economic instruments that along with a set of guidelines to enhance governance have been recommended by the international community under the umbrella of the United Nations. PROFOR/FAO (2011) presented a framework to measure forest governance, this framework includes a list of the major pillars and principles that define good forest governance. Similarly, Secco et al. (2014) developed indicators to measure the quality of forest governance at the local level. Nevertheless, countries´ needs are complex and differ from region to region, implying that a generic set of governance indicators would serve to determining institutional legitimacy, but the level of importance of those indicators resides on the context in which stakeholders participate (Cadman et al., 2016). Consequently, stakeholder participation is a necessary condition for effective governance, and thus, instrumental to halt illegal logging; however it is not sufficient. There are different forms and levels of participation that not necessarily consider value pluralism; as a result, stakeholders become only passive recipients of information or voters (Rowe and Frewer, 2004).

In regard to forest management, stakeholders pursue different benefits[1] that are associated to their cultural and social values (Ananda and Herath, 2003; Raymond et al., 2014; Ives and Kendal, 2014; Rodriguez-Piñeros et al., 2012; Loucănová et al., 2017). The fact that > 50% of forested land is under government and common property (White and Martin, 2002) suggests that there are different sets of values contending when managing the forest (Davis et al., 2017). Understanding forest stakeholders' values is essential to resolve points of conflict, it helps to allocate resources for management, and anticipates public response to decisions (Kenter et al., 2015). Thus, participatory approaches that includes the plurality of values are needed (Cooper et al., 2016; Irvine et al., 2016).

While there are significant number of studies addressing forest policy and its implication on timber trade, there is no empirical evidence of timber market actors' values. This study aimed to understand stakeholders' values associated to Colombian regulation for harvesting, transportation, and transformation of timber, and their implications on timber trade. By using Q methodology, a method to study subjectivity, we gathered qualitative and quantitative data from timber market actors of three of the four timber producing regions of Colombia. Thus, the contribution of the study is two-folded: it presents a methodology that systematically allows to uncover values that are held collectively by timber market actors, and empirically identify some of the reasons for what timber logging and trade are outside the law. This is of particular importance for the Environmental National System (SINA for its Spanish acronym) institutions and some international organizations, such as the European Union, IUCN, and WWF among others that have implemented programs and projects to reduce illegal trade in Colombia

by strengthening the forest governance system.

This paper is organized in six sections; first, we present a brief theoretical framework, follow by a description of the Colombian forest legislation and its role on timber trade, in the second section. Then, in the third section, we explain the methodology and the rationale for its election to later move to the fourth session of results. Statistical results show typologies that represent stakeholders' values that are further discussed and contrasted with existing literature in the fifth section to finally draw some conclusions presented in the sixth section.

2. Theoretical orientation

2.1. Stakeholders' values and deliberation

In 1983 The World Commission on Environment and Development urged countries to increase public involvement in decision-making to facilitate equity in the allocation of the resources. Since then, participation and most explicitly deliberation has been a necessary condition, even mandatory as in the case of EU, in most of the development projects and environmental policy planning (Luyet et al., 2012; Newig and Koontz, 2014). Public deliberation has proved to be efficient due to its ability to ensure transparency and inclusiveness (Cadman and Maraseni, 2011) that lead to increase trust and effectiveness (Rawlins, 2008; Wellens and Jegers, 2014), and therefore, compliance (Stern, 2008). Deliberative forums serve as platform to exchange knowledge between experts and the public, understand public discourse, and reconcile values (Sagoff, 1986; Dryzek and Pickering, 2017; Kenter et al., 2016).

There is an increasing number of studies about deliberative and participatory approaches for natural resources, environment, and forest valuation that advocate the inclusion of stakeholder values in decision-making (Kenter et al., 2011; Luyet et al., 2012; Song et al., 2013; North et al., 2014; Martín-López et al., 2014; Raymond et al., 2014; Cooper et al., 2016; Dryzek and Pickering, 2017; Edwards et al., 2016; Kenter et al., 2016; Schulz et al., 2017). Since it is very hard to judge environmental policies to be socially acceptable and implemented if people's discourse is unknown; including stakeholders in policy processes is therefore important, it increases the ability to understand peoples´ view points and to form a common understanding of an issue (Lennox et al., 2011) that would further lead to reach consensus and obtain the desire outcomes (Reed, 2008; Yaffee and Wondolleck, 2000).

During deliberations stakeholders compete for their different views to be heard (Winter, 2005) and by doing that they can explore, generate, form, elicit, and shared values that are meaningful for them (Dietz, 2013; Irvine et al., 2016); this is what Irvine et al. (2016) call the *idea* of share values, which brings together pre-formed individual values and values that are shared or form through social process. Since values are good predictors of behavioral intension (Steg et al., 2014), assessing them in the context of forest legislation and management will help us to understand illegal logging. Thus, understanding shared values and how people allocate them in their decisions about forest management and conservation is the essence of forest governance (Carmenta et al., 2017).

3. Materials and methods

3.1. Background of study site

The Republic of Colombia is considered one of the world's mega-diverse countries hosting about 10% of the biodiversity of the planet. In an effort to protect these resources, in 1959 the government of Colombia issued the 2nd Law (henceforth Ley 2da. 1959) in which around 60% of the continental territory was declared Forest Reserve Zone (Zona de Reserva Forestal - ZRF). Thus, 65 M hectares distributed in 7 regions (Amazonia, Pacífico, Central, Rio Magdalena, Serranía de los Motilones, Cocuy and Sierra Nevada de Santa Marta) comprised the

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[1] Livelihood subsistence, labor and employment, market for forest products, and spiritual places among others.