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Community Forest Management: An Assessment and Explanation of its Performance Through QCA

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Summary. — Community Forest Management (CFM)—ranging from community-based to co-management regimes—has become an influential approach in the management of forests around the world in the last couple of decades. In response to some of the adverse effects of state forestry and commercial timber production, CFM claims to improve local livelihoods and conserve forests. Many international organizations, donors, NGOs, and governments therefore advocate CFM. However, a vast body of literature reveals that the overall results are mixed. This paper contributes to this literature in two ways. By building upon neo-institutionalism in CFM studies, the paper uses a practice-based approach as a theoretical lens to better understand how and why CFM institutions are successful or not. In addition, the paper applies a Qualitative Comparative Analysis (QCA) methodology to conduct a systematic cross-case comparison, while allowing for some generalization. By analyzing a decade of CFM research at the Forest and Nature Conservation Policy (FNP) group from Wageningen University in the Netherlands, this paper compares and synthesizes ten CFM cases from Africa, Asia, and Latin America. It concludes that: (1) CFM does indeed present mixed results; (2) CFM performs similarly on social and ecological parameters; (3) overall, community-based organizations are strongly engaged in CFM; (4) such strong engagement though is not sufficient for CFM to perform; and (5) in particular, the presence of a "Community of Practice" that links local people to external forest professionals for mutual learning, based on respect and trust, makes a positive difference in terms of livelihoods and forest conditions.
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Key words — Community Forest Management (CFM), practice-based approach (PBA), Qualitative Comparative Analysis (QCA), Community of Practice (CoP)

1. INTRODUCTION

In the last couple of decades Community Forest Management (CFM) has become an influential approach in the management of tropical forests around the world (Arnold, 2001; FAO, 1978; Wiersum, 2009). About 15% of tropical forests fall under such a management regime today (RRI, 2014). For example, in the early 1990s India, Nepal, Mexico, Bolivia, and Tanzania pioneered different forms of CFM, and many countries, from Indonesia and Ethiopia to Congo Democratic Republic, followed later (Baynes, Herbohn, Smith, Fisher, & Bray, 2015; Charnley & Poe, 2007). As a response to colonial state forestry, commercial tropical timber production, and coercive conservation, the CFM approach aims to fulfill *both* local livelihoods and forest conservation, while building upon customary traditions and social forestry initiatives (Agrawal, 2001; Dressler et al., 2010; Umans, 1993). In general, CFM can be defined as the use, management, and conservation of forests by communities. Communities can have full, partial, or no ownership of such forests, and their management is often practiced in various degrees of collaboration with state forest agencies, donor organizations, knowledge institutions and/or companies. At one end of the spectrum, forest management is fully community-based and the forests are 100% owned by the community. Whereas at the other communities just participate in some of the state forest management practices in public lands. Because of this variation, several terminologies are used to refer to these practices (community forestry, community-based forest management, community-managed forests, collaborative forest management, participatory forest management, joint forest management, and forest co-management). We prefer the acronym CFM because, compared to other terminologies, it is the one used most in the literature (based on a *Google Scholar* search).

Over the years a vast body of scholarly literature on CFM has emerged, and one intriguing research question has been the performance of these initiatives. Does CFM deliver its promises on livelihoods improvement and forest conservation? And, what factors might explain its successes and failures? Based on many publications, review papers and research programs, the current consensus is that—overall—the results of CFM are mixed (Baynes et al., 2015; Charnley & Poe, 2007). Many projects have been reported as rather successful, while others have been considered failures (Persha, Agrawal, & Chhatre, 2011). Moreover, forests have generally benefitted more from CFM than people (Bowler et al., 2012), and the relatively well-off have often gained more from these projects than the poor (Kumar, 2002). In understanding why CFM might work, scholars have found many factors particularly relevant: (1) Biophysical factors, like micro-climate and landscape morphology; (2) Demographic factors, such as community size and population growth; (3) Economic factors, like the generation of additional income for communities through CFM; (4) Institutional factors, such as clear rules and rights related to forest ownership, access, use and management; (5) Socio-political factors, such as the presence or absence of cultural, political and social capital; and (6)

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External recognition, like support by governments, donors, universities, etc. (Agrawal & Chhatre, 2006; Baynes et al., 2015; Blomley et al., 2008; Charnley & Poe, 2007; IFRI, 2015; Mustalahti & Lund, 2009; Ostrom, 1990; Pagdee, Kim, & Daugherty, 2006; Poteete & Ostrom, 2004).

The above findings have mainly been produced by either qualitative case studies (i.e., Mustalahti & Lund, 2009; Pagdee et al., 2006), or by quantitative data analysis (i.e., Agrawal & Chhatre, 2006; IFRI, 2015; Persha et al., 2011). Although both methodological approaches have been very helpful in assessing and understanding the performance of CFM they both have their shortcomings. Comparison of qualitative case studies is difficult to make given their context dependencies, whereas quantitative analyses have to overlook local complexities. By applying a Qualitative Comparative Analysis (QCA) this paper employs a third alternative, using both qualitative data and quantitative logics to allow for both cross-case comparison and some generalization, as well as to identify causal pathways through a statistical method that goes beyond multi-case-study approaches. This paper applies a QCA to ten case studies in six countries. The case studies have been selected from a research program at the Forest and Nature Conservation Policy (FNP) group of Wageningen University in the Netherlands. Over the last decade, this group has produced several PhD theses, and research papers on CFM cases from tropical countries all over the world (Bolivia, Ecuador, Ethiopia, India, Indonesia, Tanzania and Vietnam). In understanding a group of cases in depth, QCA attempts to unravel the relationship between conditions and outcomes over a range of cases, thus assessing the degree to which specific configurations best explain the results. We will apply a fuzzy-set QCA (fsQCA) in this paper, details of which will be explained in the methodological section.

In addition to the QCA methodological approach this paper will also put a theoretical lens central stage that differs from most CFM literature. Whereas the latter particularly builds upon neo-institutionalism (Agrawal, 2001; Ostrom, Burger, Field, Norgaard, & Policansky, 1999; Quinn, Huby, Kiwasila, & Lovett, 2007; Wollenberg, Merino, Agrawal, & Ostrom, 2007), this paper—although definitely indebted to neo-institutionalism too (Forsyth & Johnson, 2014)—prefers practice theory. Whereas neo-institutionalism emphasizes the design of a robust institutional arrangement as a precondition for CFM to succeed, practice theory assumes that CFM works best when it can align itself with socially-embedded logics that predates the CFM initiative, for example through engagement with local practices and social learning (Arts, Behagel, van Bommel, de Koning, & Turnhout, 2013). Three practice-based factors are hypothesized as being crucial for CFM performance in this paper (to be justified in the theoretical section below): (1) active engagement of community-based organizations (CBOs); (2) the practicability of CFM rules and regulations for forest users; and (3) the emergence of a "Community of Practice" through which information is shared, trust built and practices learnt (here the term "community" is used broadly; it involves relevant stakeholders inside and outside the villages and forest lands; this includes local people, state forest agencies, donors, NGOs, etc., jointly constituting a learning network; hence, not just a "community" *stricto sensu*).

The paper is structured as follows. First, the theoretical foundation of the paper is justified, particularly the choice of practice theory. Some crucial conditions for CFM to perform are deduced from this theory and further operationalized for the QCA. The latter is elaborated upon in the section that follows. We explain why we chose this methodological approach and which version and technique we apply (fuzzy-set QCA; R software). In the results section we present our findings. Finally, our results are discussed in light of the broader CFM literature.

2. THEORETICAL FRAMEWORK: THE PRACTICE-BASED APPROACH (PBA)

(a) *Neo-institutionalism and practice theory*

Much academic research and literature on CFM is built upon neo-institutionalism to analyze, understand and explain the success and failure of such initiatives (Agrawal, 2001; Ostrom et al., 1999; Quinn et al., 2007; Wollenberg et al., 2007). Neo-institutionalism in the CFM literature can be characterized by (at least) three features. Firstly, it assumes, like any institutional theory, that human behavior is guided by rules, norms, incentives and sanctions (or "institutions"), and that, as a consequence, human behavior can also be redirected and changed by introducing new institutions (Giddens, 1984; Schmidt, 2008). In other words, humans are depicted as *rule-followers*. Secondly, neo-institutionalism puts much emphasis on the *robustness* of institutions (Anderies, Janssen, & Ostrom, 2004; Ostrom, 2009a). Institutions need to be well-established and well-embedded in societies and communities in order to have the desired effects. In CFM literature, this second characteristic has led to research and debates on which conditions CFM institutions are likely to succeed under (Agrawal, 2001). As a consequence, authors produced lists of relevant "design principles" for institution building, such as clear demarcation of the forest, rules that fit local conditions, participatory decision making, sanctioning for non-compliance, and conflict resolution among others (see for example Dressler et al., 2016; Ostrom, 1990, 2009b). Thirdly, the question of how to *measure* the effects of CFM institutions has also dominated the literature (Agrawal, 2001). Much of the research in the early 1990s was qualitative in nature and focused on single case studies. Since then ever more quantitative, comparative large-N studies on CFM have been published (IFRI, 2015; Persha et al., 2011; Poteete & Ostrom, 2008; Wollenberg et al., 2007).

Recently scholars have begun to emphasize new topics, such as institutional flexibility and the diverse routes available to achieve the effective management of forests and natural resources. For example, Ostrom et al. (2002) state that flexibility can be an important asset in the construction of new institutions for the commons, as these institutions would be better able to adapt to changing circumstances. In a similar vein, Van Laerhoven and Ostrom (2007) have begun to highlight the issues of complexity, uncertainty and dynamics in the regulation of common properties. They underline the need to develop new approaches to deal with these challenges. Such approaches should move away from rather static and narrow views of institutions and build more dynamic frameworks, which include theoretical insights from various disciplines (Bardhan & Ray, 2008; Forsyth & Johnson, 2014; Ostrom, 2009b).

Two relatively new approaches in the field of CFM that claim to do so are critical institutionalism (Cleaver, 2002; Cleaver & de Koning, 2015; De Koning, 2011) and the practice-based approach (Arts, Behagel, Turnhout, de Koning, & van Bommel, 2014; Arts et al., 2013; Ayana, Vandenabeele, & Arts, 2015; Van der Arend & Behagel, 2011). The core concept of critical institutionalism is "institutional bricolage". The assumption is that humans do not truly follow rules, but improvise upon them according to

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