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Institutions and access to woodfuel commerce in the Democratic Republic of Congo

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ABSTRACT

A new generation of woodfuel studies focuses on the political dynamics behind access to the woodfuel trade, providing better insights into patterns of inclusion and exclusion and options for resource management. Institutional mechanisms that govern access are difficult to untangle in the context of informal trade. This paper analyzes institutions and how they regulate access to commercialize woodfuel in two areas in the Democratic Republic of Congo (DRC). A review of empirical data (surveys and interviews) and secondary data on wood energy value chains in the DRC is used to examine the ways that woodfuel institutions affect access to resources and to markets. The main findings are that existing formal mechanisms regulating access to the woodfuel trade are hardly enforced. Informal, socially embedded institutions generally govern access, and the trade is open to less privileged and rural actors. People who benefit from these informal arrangements have many vested interests, and current production patterns are unsustainable and not sufficiently mitigated by these institutions. New strategies are required that promote the positive aspects of informality, while supporting initiatives that contribute to long-term resource sustainability and meet the high levels of urban demand, given the lack of alternative energy sources.

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1. Introduction

Besides being highly dependent on woodfuel² to meet household energy needs, many people in developing countries benefit from woodfuel markets to generate at least some cash income (Mwampamba et al., 2013b; Schure et al., 2013a; Vedeld et al., 2007). This role of woodfuel as a revenue source is seen as deserving more attention (Arnold et al., 2006; Openshaw, 2010; Sankhayan and Hofstad, 2000). Although many people are considered to have relatively easy access to woodfuel commercialization, it is often not clear who benefits, because institutional mechanisms defining access patterns to resources and markets are often location specific and difficult to untangle in the informal settings in which they are commonly found (Arnold et al., 2003; Ribot, 1998; Wiersum et al., 2014). Unequal access to benefits and the

proportion of risk borne by different actors have resulted in skewed household income and the spatial variability of resources and markets (Drigo et al., 2002; Gazull, 2008; Luckert and Campbell, 2002). Poor people are generally excluded from trade, because strong competition and costly entry barriers mean that they have weak or unequal access to both resources and product markets (Belcher et al., 2005; Sunderlin et al., 2005). The fragile market access and weak bargaining power of producers in remote areas make them dependent on traders who provide credit, trade contacts, and transport (Sunderlin et al., 2005). Ribot's (1995a,b, 1998) extensive study on the distribution of benefits of woodfuel commercialization in West-African countries revealed that, because of political ties and forest policies, the greatest benefits accrue to merchants. Furthermore, commercialization of forest products can lead to the degradation of forest resources in the absence of regeneration or resource management. This unsustainable harvesting threatens poor people's subsistence use of these products (Belcher et al., 2005).

1.1. Institutions and access to woodfuel commercialization in the Democratic Republic of Congo: objective and research question

Addressing the full value chain, from production site through to the end consumer, helps to uncover the main challenges relating to access to a resource; how production, markets, and prices are regulated; and

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E-mail addresses: jolien.schure@wur.nl (J. Schure), verina.ingram@wur.nl (V. Ingram), bas.arts@wur.nl (B. Arts), p.levang@cgiar.org (P. Levang), emmamvula@gmail.com (E. Mvula-Mampasi).¹ Tel.: +31 317 486192.² Woodfuel refers to all types of biofuels originating directly or indirectly from woody biomass and includes fuelwood and charcoal. Fuelwood refers to wood in its natural state and residues from wood-processing industries where the original composition of the wood is preserved. Charcoal is the solid residue derived from carbonization, distillation, pyrolysis, and wood torrefaction (FAO, 2004).

practices of corruption (Chidumayo and Gumbo, 2013; Owen et al., 2013; Schure et al., 2013b). To assess these aspects, refined empirical studies are needed to consider: (1) the specific context (environmental, socio-economic, and political) (Arnold and Persson, 2003; Soussan et al., 1990); (2) access both to the resource and to the market (Bebbington, 1999; Tesfaye et al., 2011; Wiersum et al., 2014); and (3) the institutional mechanisms that shape livelihood outcomes for actors in the woodfuel trade (Arnold et al., 2003; Leach et al., 1999; Mearns, 1995; Mwampamba et al., 2013a; Ribot, 1998). This paper aims to contribute to this new generation of studies by examining institutions that govern access to resources and to markets in woodfuel value chains in two urban centers in the Democratic Republic of Congo (DRC).

The DRC produced an estimated 77.7 million m³ of woodfuel in 2011, representing 94% of its total roundwood production (FAO, 2013). The use of woodfuel (fuelwood and charcoal) is growing in cities because of population growth, the lack of alternative energy sources, high unemployment, and the weak implementation of forest legislation, and has become associated with forest degradation and deforestation (Marien, 2009; Schure et al., 2012). The Kinshasa and Kisangani woodfuel markets provide around 90% of their citizens' cooking energy needs. The volume of woodfuel for these two cities alone (5.0 million m³ in 2010) is 12 times greater than the official national timber production (400 thousand m³). An estimated 312,000 people are involved in woodfuel production and trade for the capital city Kinshasa, over 20 times greater than the workforce in the official forestry sector (15,000) (Schure et al., 2013a). Notwithstanding the significance of woodfuel use in the country, there is still a lack of understanding of its precise nature and the main mechanisms involved in its production and trade – mainly because woodfuel production and trade are largely informal with few official data available and scant attention paid to the sector by national policies. The large volume of woodfuel trade in urban centers, the numerous people involved and largely informal systems interacting with production, and trade patterns raise questions such as: who benefits from accessing woodfuel commercialization? And how do these access patterns work?

Comparing two woodfuel value chains with two contrasting resource and market conditions in the DRC, this paper aims to answer the research question: how do institutions shape access to woodfuel resources and to markets? It contributes to the theorizing of woodfuel as a livelihood resource, analyzing specifically how institutions shape access dynamics from the production to the consumption level. The research results elucidate whether producers are excluded from accessing markets and whether woodfuel institutions contribute to sustainable production.

1.2. Conceptual framework: institutions shaping access in woodfuel value chains

In woodfuel production and trade, numerous institutions and interacting factors influence whether and how actors in the value chain access resources and markets, and ultimately whether woodfuel production and trade contribute to their livelihoods.³ This study focuses on the dynamic character of formal and informal institutions that shape value chain actors' access to resources and to markets. Bebbington (1999) argued that access should be central to livelihood studies and that importance should be given to the institutional spheres of State, market, and civil society that govern how people can renegotiate rules and relationships of resource access, use, and transformation. Informal and formal institutions at different scales, mediated by power relations, influence access to resources and the resulting livelihood strategies and ecological change (Leach et al., 1999; Scoones, 1998). Markets are key institutions in the process of commoditization of resources (Leach

et al., 1999:240). Leach et al. (1999) use economic institutionalism (North, 1990, 1993) combined with social studies to conceptualize institutions in their environmental entitlement framework. North's (1993:3) economic perspective on institutions as mediating entities that determine transaction and transformation costs makes a clear distinction between institutions and organizations: "If institutions are the rules of the game, organizations are the players ... Institutions consist of formal rules, informal constraints (norms of behavior, conventions, and self-imposed codes of conduct) and the enforcement characteristics of both" (North, 1993:2) (carried out by first, second, or third parties in the form of self-imposed codes, retribution, social or legal sanctions). Leach et al. (1999) use this distinction between institutions, organizations, and the role of enforcement, but, instead of looking only at rules of the game, they consider institutions as the formal and informal "regularized patterns of behavior that emerge from underlying structures or sets of 'rules in use'" (Leach et al., 1999:237). This notion emphasizes the constructive and dynamic character of institutions in which rules are constantly being made and remade, shaping constraints or incentives to people's actions, and in which people's actions either strengthen or weaken institutions (Leach et al., 1999; Woodhill, 2008).

Using these constructs, this study defines woodfuel institutions as the formal and informal rules and regularized patterns of behavior between different actors in society and associated enforcement mechanisms that shape access to woodfuel production and trade.⁴ Informal or socially embedded institutions are upheld by socially shared, usually unwritten, conventions, created by, and enforced among, the actors involved. Formal or bureaucratic institutions can be considered as the rules enforced by an outside third party (often government agency or development organization), such as the rule of law and contracts (Cleaver, 2002; Leach et al., 1999; North, 1993).

The value chain is a concept used to link resources and market dynamics. "The value chain describes the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use" (Kaplinsky and Morris, 2001:4). It represents the arena where key actors (producers, traders, transporters, and vendors) move back and forth, possibly switching roles and locations, while employing their various tangible and intangible assets (capitals) to execute their activities. In Central Africa, urban citizens often depend on peri-urban products such as crops and woodfuel, and peri-urban or rural citizens trade these products in urban markets. Trade patterns in peri-urban areas reflect dynamic urban–rural interfaces with the mix of factors and actors exacerbating rivalry and conflict over space and resources, such that competing claims are constantly being structured and renegotiated. This occurs in a context of plural governance arrangements, with the degree of political and legal control in Central Africa tending to decrease as distance from the capital city increases (Trefon, 2011).

Access to natural resources and to markets reflects the ability of actors to participate and benefit from woodfuel commercialization. "Access to natural resources" is conceptualized as "natural capital" that people can acquire, influenced by both the vulnerability context and the "transforming structures and processes" that shape access (Ashley and Carney, 1999). Market access is "the ability of individuals or groups to gain, control, or maintain entry into exchange relations" (Ribot and Peluso, 2003:160). The ability to access markets, together with credit arrangements and relations with market actors (social capital) that help secure this access, represents a resource that people can use to support their livelihoods (Bebbington, 1999; Leach et al., 1999; Scoones, 2009).

The ultimate desirable outcome of access to woodfuel production and trade is poverty reduction for those involved and the more

³ These factors encompass, for example, the vulnerability context, private sector, government arrangements, and control over assets, such as budget and technology (Ashley and Carney, 1999; North, 1990).

⁴ Drawing on Leach et al.'s (1999) definition of institutions.

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