



Biofuels and Land Appropriation in Colombia: Do Biofuels National Policies Fuel Land Grabs?

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ABSTRACT:

Biofuels driven land grab is often identified with land transactions conducted in developing countries by transnational/foreign companies/governments for the production of biofuels/feedstock for exports. This captures only partially the dynamics of biofuels land grabs and misses different processes and elements at play in the local and national settings. An important dynamic is the increasing appropriation of land by local and national elites/corporations to produce biofuels/feedstock for the national market and exports, which often come accompanied by agrarian political struggles. National biofuels policies are key elements that need to be analysed in light of their influence on this dynamic. Colombia illustrates this influence by the way in which land appropriation for cultivation of feedstock has taken place since national policies were adopted to promote biofuels. In this paper, agrarian political struggles related to biofuel-feedstock cultivation and policies for the promotion of biofuels in Colombia are analysed from a political ecology perspective by exploring how policies influence access to and control over rural land by local/national elites and corporations. This analysis contributes to identifying whether this land grab dynamic and the related political struggles are linked to agrarian structures rooted in historical vested power relations or are forms/products of new agrarian structures

Introduction:

Since the global land grab started to be publicly documented and reported (GRAIN 2008), the related literature has considered the increasing global demand for biofuels as one of the drivers (Cotula et al 2009, Oakland Institute 2009, Borras and Franco 2010, Zoomers 2010, World Bank, 2011). These publications refer mostly to land transactions conducted by transnational or foreign companies or governments in developing countries for the production of food or biofuel feedstock. However, this framework captures only partially the dynamics of land access and land use in the context of biofuels. As shown by Borras and Franco (2010), a broader typology of dynamics can be found by unpacking the category of land use change.

Country/local specific agrarian structures, policies that support particular models of rural development, and national/local socio-politic, economic and cultural factors lie behind the different dynamics of land access and land use in the context of biofuels. Moreover, the interplay between national biofuels policies and these factors and dynamics has an influence on patterns of biofuels development and access to land. The work of Borras and Franco (2010) and other publications that approach the specific subject of biofuels in light of its impacts on land access for rural populations, account for an increasing use of land by local and national elites/corporations to produce biofuels or biofuels feedstock for both the national market and exports (Cotula et al 2008, Colchester 2006, Fernandes 2010). The factors at play in this dynamics may differ from those related to biofuels driven land transactions by transnational corporations and foreign governments.

Therefore, an understanding of the land and agrarian issues associated with the increasing demand and production of biofuels that goes beyond the global land framework requires empirical research on the questions mentioned above. Cotula et al (2008) developed a conceptual framework functional to empirically examine “each of the linkages from biofuels expansion through to land access and land use impacts in turn”. This framework considers that the interplay of mediating factors such as the type of feedstock, the policy environment, land tenure arrangements, policy implementation, power asymmetries and business models, among others, is related to different outcomes for land access and land use. However the framework provides no

theoretical tools to analyse the dynamics at play in the process of gaining, controlling and maintaining access to land in the context of biofuels feedstock production. The theory of access developed by Ribot and Peluso (2003) provides the theoretical basis to conduct this type of analysis.

By analysing the case of Colombia in light of Cotula et al (2008) framework and Ribot and Peluso's theory of access this paper sheds light on dynamics of land access and land use in the context of biofuels that differ from those documented in the current literature on the global land grab. The case of Colombia illustrates a dynamics where local and national elites and corporations are increasingly demanding and using land to produce biofuels feedstock (sugarcane and palm oil) for the national market and exports since the adoption of national policies to promote biofuels. This dynamics and its effects for rural people's access to land are inextricable connected with the development and characteristics of the existing sugar and palm oil agro-industries, and with the biofuels enabling policy environment they benefit from. The analysis is based on a desk study of secondary data published by the industry, the government, non-governmental organizations and research institutions, and primary data collected during field work in January and February 2010.

The paper is organized as follows: it starts identifying the linkages between the spread of biofuels in Colombia and the increasing use and demand of land by national corporations to produce the related feedstock. Special attention is given to country specific factors underlying this dynamics, and mediating factors such as the model of production and the enabling policy environment. In the second section we analyse land access effects associated to biofuels crops expansion. Then we proceed to use concepts of Ribot and Peluso's (2003) access framework to analyse how the biofuels enabling policy environment intertwine with mechanisms by which access to land is gained, controlled, maintained or lost by different actors in Colombia. The last section contains the conclusions.

1. Dynamics of biofuels production and land use in Colombia: identifying the linkages

Since 2002 the government of Colombia decided to strongly support the use and production of biofuels. The law for the promotion of ethanol had been already adopted in 2001 (Law 693 2001) while the current law to incentive biodiesel was approved in 2004 (Law 939 2004). These legal instruments constituted the first steps of an ambitious biofuels strategy that estimates more than 7 million hectares of land as the potential area for biofuels crops (palm oil and sugarcane). To support this strategy the government resorted to existing policy tools that supported private investment and adopted new legal instruments specifically aimed at stimulating biofuels consumption and production (See Box 1). Instruments to stimulate production include incentives for both the agricultural and industrial processes. Sugarcane and palm oil were identified as the most promising crops for ethanol and biodiesel production, respectively.

Box 1 Enabling policy environment for biofuels in Colombia

	Agricultural production	Industrial production	Consumption
Policy Guidelines Biofuels (CONPES 3510/2008)	Income Tax exemption (Palm Oil plantations)	Tax free zones	Obligatory blending Targets
Policy Guidelines Palm Oil (CONPES 3477/2007)	Agricultural subsidies -For irrigation and drainage - For plantations (Palm oil) - For technical assistance - others	Tax exemption - VAT for imported equipment (ethanol distilleries)	Tax exemption
	Agricultural soft credit	Price regulation (minimum income for the producer)	

The package of incentives has resulted in an increasing production of sugarcane based ethanol that currently reaches 1.075.000 litre per day (Fedebiocombustibles 2011a), while the production of palm oil biodiesel reached 173.000 tonnes in 2009 (Fedebiocombustibles 2011b). Ethanol and biodiesel producers are mostly big players of the existing sugar and palm oil agro-industries. The five ethanol distilleries operating in the country are owned by five of the thirteen sugar mills that control 100% of the national sugar production - *Incauca*, *Providencia*, *Risaralda*, *Manuelita* and *Mayaguez*. This five distilleries produce 100% of the sugarcane based ethanol of

the country (1.050.000 liters per day). They are owned by corporations of national capital that introduced ethanol production into an existing and well established sugar agro-industry concentrated in the region of the Cauca River Valley, which dates from 1901 (CEPAL 2002).¹ In the case of biodiesel, six out of the seven biodiesel production plants in operation are investments of national capital in which large palm oil producers have a substantial shareholding. Palm oil production is also controlled by a well established agro-industry that started to develop in the 1940s (Aguilera 2002).

This accelerated growth of the biofuel industry has been subject to a lot of criticism due to its actual and potential negative impacts in terms of social and environmental sustainability (Mingorance 2006, Alvarez 2007a and 2008, Censat Agua Viva and PCN 2008, Houldey 2008, Pérez-Rincón 2008; Pérez-Rincón and Alvarez, 2009, PCN et al 2010). Colombia is mentioned in dramatic terms in most of the recent literature dealing with the social impacts of biofuels and Jean Ziegler - the former UN Special Rapporteur on the right to food - included the advance of oil palm cultivation for biodiesel in Colombia as a case of special concern in two of his reports (UN 2007 and 2008). Displacement, land dispossession, and violent appropriation or misappropriation of land, have been at the core of the controversy. The increasing use of land for sugarcane and palm oil production has been reported by governmental and non-governmental organizations as related to negative impacts on access to land.

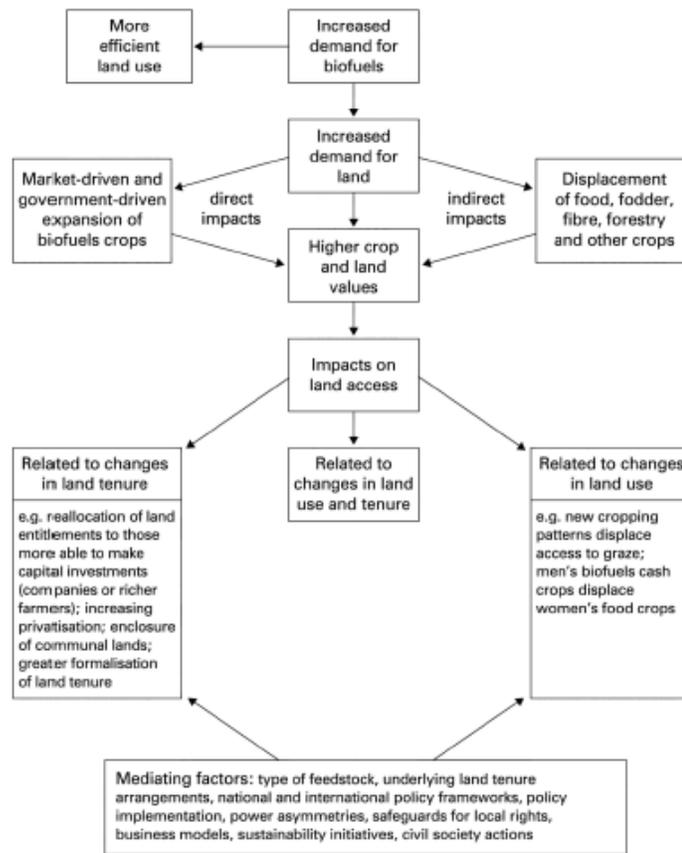
Most part of this literature reports effects of palm oil and sugarcane expansion on access to land that are not inherent to biofuels production, but are related to particular characteristics of the palm oil and sugar agro - industries which have their origins at former times. The agrarian structure, the paths of agrarian change and the model of rural development that are specific to Colombia have had an influence on the development of these industries. Thus, these factors have influenced also their model of production and the patterns of land use and land access along their history. These factors shape also the way by which they currently gain, control or maintain access to land in order to extend and adapt their agri-businesses to produce new processed

¹ The Cauca River Valley crosses the territory of three provinces: *Valle del Cauca*, *Cauca* and *Risaralda*. *Valle del Cauca* province is the one that has more territory within the Valley. Three of the ethanol distilleries are located in this province.

outputs such as biofuels. Therefore, to establish the specific linkages between biofuels spread and land access there is a need to investigate how the factors underlying the boost of the biofuel industry are related to dynamics of land use and land access present in the palm oil and sugarcane agri-businesses. Since the biofuel industry is policy driven, the national biofuel policy environment is a key element that needs to be analysed in light of their influence on this dynamics.

The framework developed by Cotula et al (2008) provides conceptual tools to carry out an empirical analysis of dynamics of biofuel expansion and land access (see Figure 1). It departs from an identification of the linkages between the increased demand for biofuels and specific dynamics of land expansion or land use for feedstock production (in this section). The next step is the identification of the linkages with land access outcomes (next section of this paper). This framework considers that different mediating factors shape land use and land access outcomes of biofuels spread. These mediating factors include the type of feedstock, the policy environment, land tenure arrangements, policy implementation, power asymmetries, business models, safeguards for local rights, sustainability initiatives, and civil society actions.

Figure 1 Conceptual linkages between the spread of biofuels and land access



Source: Cotula et al 2008

Drawing on this framework, we found a clear relation between the increasing demand for biofuels and an increasing demand for land, mediated by policies aimed at promoting biofuels in Colombia. This relation is reflected in the increasing use of land to produce sugarcane and palm oil since laws to promote ethanol and biodiesel were adopted in 2001 and 2003. The establishment of obligatory blending targets constitute an important mediating factor in this process (see Box 2).

Box 2 Obligatory blending targets in Colombia

	Ethanol	Biodiesel
By January 1 2008	10%	5%
By January 1 2010		10%
Since January 1 2012	All the gasoline-based motor vehicles up to 2000 cm ³ manufactured, assembled, imported, distributed or commercialized in Colombia must be able to run on 85% ethanol -15% gasoline blend. Models before 2012 can run on 10% ethanol and 90% gasoline blend.	All the diesel-based motor vehicles up to 2000 cm ³ manufactured, assembled, imported, distributed or commercialized in Colombia must be able to run on 20% biodiesel – 80% fossil fuels blend.

Land planted with sugarcane in the Cauca River Valley passed from 186.500 in 2001 to 208.200 hectares in 2009 (Asocaña 2010), while land planted with oil palm passed from 150.000 hectares in 2002 to 365.000 hectares in 2009 (Castro 2010). According to the information provided by the industry and the government, 115.000 hectares of palm oil are destined to the production of biodiesel for the domestic market (Fedebiocombustibles 2011b), while 40.000 hectares of sugarcane are destined to ethanol production (Fedebiocombustibles 2011a).

These numbers show a limited expansion of sugarcane cultivation by comparison with palm oil land expansion. This is explained by two factors: firstly, the sugarcane industry has reached high levels of productivity leading to a more efficient use of land (Toasa 2009). Secondly, ethanol producers reoriented the use of sugarcane production due to the lack of available land for use by sugarcane producers in the Cauca River Valley. As cultivation of sugarcane reached saturation in the region (Londoño 2009), an important part of the sugarcane used to produce sugar for exports is now diverted towards ethanol production (Biocombustibles 2010, Toasa 2009).

However, a large amount of additional land cultivated with sugarcane will be required to meet future demand for ethanol considering that production of ethanol by the five distilleries located in the Cauca River Valley is not enough to meet the demand created by the current 10% obligatory blending target. Their production covers just an 8% mix (Asocaña 2010).

Land planted with oil palm is also expected to increase as only 173.000 tonnes of biodiesel were produced in 2009, while the installed capacity is for 516.00 tonnes per year (Fedebiocombustibles 2011b). Moreover, the association of palm oil producers

plans to reach 743.000 hectares of oil palm by 2020 as part of its strategic vision (Fedepalma).

This dynamics of land use and land demand related to biofuels production in Colombia cannot be understood without looking at the structure and development of the sugarcane and palm oil agro-industries. Moreover, this aspects need to be analysed taking into account specific socio-economic factors such as the model of rural development, the agrarian structure and paths of agrarian change in which these agro-industries are embedded.

Historical inequitable distribution of land in Colombia dates from the colonial times (Kalmanovitz and López 2006, Reyes 2009). It paved the way for a dualistic agrarian structure in which small farmer agriculture coexists with a dominant capitalist agriculture (Jaramillo 2002). Capitalistic agriculture uses large land holdings in the most fertile lands and has access to resources and technical assistance (Jaramillo 2002). Both sugarcane and oil palm are crops of capitalistic agriculture (CEDE 2006) and they have been cultivated mostly under the agro-industry model. Since the 60s decade different governments have privileged and promoted capitalist agriculture considering it the driving force of rural development. They have favoured the agro-industry and promoted the production of crops with potential for exports (Kalmanovitz and López 2006). Sugarcane and oil palm were considering promising crops. Therefore, they were beneficiaries of different instruments and stimulus aimed at boosting agriculture (CEPAL 2002, Aguilera 2002). As a result, sugar and palm oil production were already highly developed existing agro-industries by the time the biofuels policy instruments to promote ethanol and biodiesel were enacted.

They are organized as agro-industrial complexes in specific rural locations where the agro-climatic conditions favour the cultivation of these crops. The model of agro-industrial complex is adopted to obtain the maximum efficiency and profitability. Sugar mills and palm oil extraction plants should produce continuously at the maximum of their capacities in order to obtain the highest profit possible. This requires ensuring the production of enough raw materials that comply with certain specifications of quality and quantity to make the industrial process more efficient and profitable. Therefore, large amounts of land are needed to obtain enough palm oil fruit and sugarcane for the industrial processes. The production of raw materials takes the

form of large monoculture plantations to ensure financially viable production of the amounts required, and to facilitate the control of the agricultural process by the sugar mill or the palm oil extraction plant. Finally, plantations need to be as close as possible to the industrial plant in order to optimize transport and administrative costs. In the case of palm oil, the proximity of the plantations to the industrial plant of oil extraction is also necessary because once harvested the palm oil fruit must be processed within 48 hours (Vermeulen and Goad 2006). This does not necessarily mean that the lands on which plantations are located are owned by sugar mills and palm oil plants. They have property rights of some of these lands, but they also rent lands or resort to other contractual mechanisms to guarantee access to the raw materials such as supply contracts with producers.

The major implication of agro-industrial complexes in terms of access to land is the territorialisation of entire rural localities. By territorialisation we mean the process by which the agro-industrial complex absorbs the agricultural and economic activities of the region where the complex is located. This process leads to high levels of land concentration. In Valle del Cauca Province (part of Cauca River Valley), where the sugar complex is located, 5.1% of the registered landowners are in possession of 60,9% of the land. (de Roux et al 2008). In the case of palm oil industry, a large share of the planted area (75%) corresponds to plots that exceed 200 hectares. Thirty four percent corresponds to plots between 200 and 1000 hectares, while 41% corresponds to plots that exceed 1000 hectares (Castro 2010). As the sugarcane and palm oil complexes continue to grow to support the new biofuel industry, the process of territorialisation are reinforced and accentuated with the corresponding effects on land access.

2. Effect on access to land: the linkages.

The increasing demand for biofuels is leading to an expansion of the sugarcane and palm oil agro-industrial complexes that demand land for the production of raw materials. This dynamics furthers former processes of territorialisation associated to sugarcane and palm oil expansion that have had effects on access to land for peasants, indigenous and Afro-Colombians. In this section we use the concept of access

developed in the field of political ecology in order to analyse the land access outcomes of biofuel crops expansion.

Access to resources has been a central subject in the political ecology literature. Ribot and Peluso (2003) developed a framework for access analysis building upon previous works of other political ecologists – Blaikie 1985, Bryant 1992, Peet and Watts 1996. They define access as the ability to derive benefits from things including resources. This definition corresponds with the notion of land access provided by Cotula et al as “the process by which people, individually or collectively, are *able* to use land, whether on a temporary or permanent basis”. Land use “concerns the products and/or benefits obtained from use of the land as well as the land management actions carried out by humans to produce those products and benefits” (Cotula et al 2008: 8-9). Therefore, access is about any possible means that shape who benefits from things, including “means not intended to impart property right or that are not socially sanctioned in any domain of law, custom or convention”, such as discursive manipulations, relations of production and exchange, and even socially and legally forbidden acts or means (Ribot and Peluso 2003: 156). Ribot and Peluso’s theory places access in a political and economic framework where mechanisms (processes, relations and means) to gain, control and maintain access are mediated by power relations.

This concept of access is suitable to analyse access to land in rural areas in Colombia where access is not only determined by property rights but mainly by other social and contractual arrangements, as well as illegal mechanisms such as violent eviction and forced displacement. Due to the high levels of land ownership concentration, a small number of peasants are in possession of formal land titles. Conversely, a great number of rural dwellers have been able to exploit small plots by reaching agreements with landowners of medium or large farms called *fincas* or *haciendas*. In other cases, they exploit plots within *haciendas* or *fincas* that have been abandoned by landlords, or they use public lands that belong to the State. Indigenous and Afro-Colombians struggled during decades to obtain the recognition of their territorial rights. Currently, their lands are subject to a special regime of protection, but they still have to fight for maintaining access.

As interest in land by other actors grows (agro-industry, armed illegal groups, mafia or a combination of them), they use their own means to gain, maintain or control access over lands used and inhabited by peasants, indigenous and Afro-Colombians. As explained by Ribot and Peluso (2003:160), the mechanisms by which actors are enabled to gain, control and maintain access can be rights-based or illegal. In Colombia, the National Commission for Redress and Reconciliation (CNRR) elaborated an encompassing typology of mechanisms and means of land dispossession that includes both rights – based and illegal means (CNRR 2009). Moreover, the Constitutional Court has established that there is a relationship between access to land and forced displacement; and presented evidence that land struggles are resolved by violent means by i) illegal and/or legal armed forces, ii) legal and/or illegal actors with economic interests such as the agro-industry, and/or iii) a combination of both (Constitutional Court 2009).

Both right-based and illicit mechanisms of access have been used in the process of territorialisation associated with the expansion of sugar cane and palm oil agro-industrial complexes. Land struggles of indigenous, peasants, and Afro-Colombian communities in the Cauca River Valley have been related to the expansion of sugarcane cultivation in the region. (Alvarez 2007b, Mondragón 2007a). For example, the government had promised to buy lands in Cauca province and give them to the indigenous communities in recognition of their territorial rights and as reparation for an indigenous massacre. The communities, however, continue their struggle to have access to those lands as they were leased to the sugar/ethanol industry to expand sugarcane cultivation (Mondragón 2007b; Revista Semana, 2008a). An extensive work of Mingorance (2006) documents how illicit mechanisms of access to land have served to the expansion of palm oil complexes. This history constitutes a key element to understand the actual and potential effects on land access of sugarcane and palm oil expansion in connection with biodiesel and ethanol production.

The further territorialisation of rural areas by sugarcane and palm oil complexes associated with an increasing demand for biofuels is leading to different dynamics that affect access to land. These dynamics may involve right-based or illicit mechanisms of access. We have identified three dynamics: First, lands that were considered not valuable have started to gain value as long as they can be used for

cultivation of biofuel crops. Second, public lands are territorialised. Third, actors who have access and give other uses to the land start to be integrated into the agro-industrial complex.

The first dynamic corresponds to linkages between biofuels spread and land access effects identified by Cotula et al (2008): the increasing value of land due to higher demand and to higher rates of return in agriculture. This dynamic has at least two effects. First, actors with power (economic, political, armed) start to be interested in cultivating biofuels crops in areas where agro-industrial complexes are growing and use both right-based and illegal mechanisms to have access to land. Some recent cases illustrate this effect. In the Chocó province eviction and internal displacement of Afro-Colombians were operated by paramilitary forces, followed by land grabbing by palm oil industries who took over the land left by the displaced people for purposes of growing oil palm to supply the growing biodiesel market (Defensoría del Pueblo 2005, ICHR 2008, Mingorance et al 2004;). Twenty-four palm oil businessmen are under criminal prosecution accused of this practice (Revista Semana, 2010). In other region, governmental agencies neglected land rights of small scale farmers and gave land titles to people connected to political elites interested in the business of biofuels production in violation of a law aimed at protecting small landholders (Revista Semana 2007, Revista Semana 2008b). In the south of Bolívar province, 123 families of small scale farmers dispute against a palm oil company their right to remain and cultivate the land they have occupied for several years in a large estate named *Las Pavas*. The company claims the property of the land that it intends to use it for palm oil plantations to supply biodiesel production (Molano 2009, Soler and León 2009). An environmental strategic evaluation of the biofuels policies identified the speculation wave resulting from policies promoting biofuels, which affects the most vulnerable population (MAVDT and Instituto Humboldt 2008).

A second effect is the lost of land access by peasants who exploit small plots owned by others. As the landowners gain interest in planting biofuels crops they claim back the plots and peasants lose access. A case study in the municipality of *Simití* (south of Bolívar province) shows that when cultivation of oil palm became a booming business between 2000 and 2008, those who had lands decided to devote them to biofuels crops motivated by the expected profits. As a result, the social arrangements through

which landowners gave access to landless peasants for agriculture disappeared and the later lost access to land. (Alvarez-Aristizabal 2009)

The second dynamics is the territorialisation of public lands as agro-industrial complexes grow. The cases of *Simití* and *Las Pavas* mentioned in the previous paragraph demonstrate the territorialisation of communal marsh lands and savannahs by palm oil plantations (Soler and León 2009, Alvarez-Aristizabal 2009). This affects access to land by landless peasants who used those lands to cattle and grow some crops

The third dynamics of territorialisation associated with an increasing demand for biofuels is the integration of actors who have access to land into the agro-industrial complex. This integration is taking the form of “production alliances”, especially in the palm oil sector. Through this mechanism small farmers and Afro-Colombians enter into agreements with large palm oil producers to provide them with palm oil fruit produced in the plots they exploit. As the agro-industry absorbs the local economy, small farmers and Afro-Colombians enter into these alliances to be able to gain or maintain access to land. The theory of access explains this process as the transfer of some benefits from the subordinate actors to those who control, in order to maintain access (Ribot and Peluso 2003: 159). This dynamics is reflected in the increasing amount of land that is being planted with palm oil under the model of “production alliances” in the last ten years. While in 2000 land planted under alliances represented 1.4% of the total land used for palm oil cultivation, in 2009 the percentage raised to 18.7% (Castro 2010). The alliances that involve Afro-Colombians in the pacific region are of special concern because of the social and ecological effects on collective territories. The case of the alliance that involves Afro-Colombians of the collective territory of *Guapi Abajo* has created divisions among the Afro-Colombian communities (Carvajal 2010) and represents ecological risks (MAVDT and Instituto Humboldt 2008).

3. Mechanisms of Access and the enabling policy environment:

In the previous sections the linkages between the spread of biofuels and the increasing demand and use of land in Colombia have been identified. We also identified the

relation between the dynamics underlying land use for biofuels crops (producers, modes of production and mediating factors) and the actual and potential outcomes for land use and land access. However, a complete picture of the linkages between the spread of biofuels and land access requires an analysis of the mechanisms at play in the process of gaining controlling and maintaining access to land. To do so, we refer to the structural and relational mechanisms of access identified by Ribot and Peluso (2003) in connection with the Colombian biofuels enabling policy environment.

As explained before, impacts of sugarcane and palm oil industries expansion on access to land are reflected in a territorialisation of rural areas affecting peasants, indigenous and Afro-Colombians. Therefore, an increasing growth of sugarcane and palm oil complexes driven by an increasing demand for biofuels is reinforcing and perpetuating the territorialisation pattern and its effects on access to land. However, this outcome would be the same if the increasing demand for sugar and palm oil were driven by other factors, such as population growth or scarcity of these commodities in the international market. This raises the question of what makes the spread of biofuels distinctive in terms of its effects on land use and land access. We tried to resolve this question by analysing the main driver behind the biofuels expansion – the enabling policy environment - in light of its influence on mechanisms shaping access to land.

In Ribot and Peluso's framework structural and relational mechanisms such as technology, capital, market, labour, knowledge, authority, identities and social relations are political-economic and cultural frames that mediate the ability to benefit from resources, i.e access to resources (Ribot and Peluso 2003: 164). All these mechanisms can be influenced using policy instruments. By doing so, policies may strengthen or weaken the ability of different actors to have access to a resource. In the case of Colombia, policies and legal instruments supporting the development of the biofuel industry have influenced some of these mechanisms (capital, market and technology), strengthening access to land for the agro-industry and weakening access for peasants, Afro-Colombians and indigenous.

Market is one of the structural mechanisms of access identified by Ribot and Peluso. The ability to benefit from a resource can depend more on access to markets than on property rights (Ribot and Peluso 2003: 166). Agro-industries are those who benefit

the most from the use of land for palm oil and sugarcane cultivation, even when they don't own the land. This is because they have the ability to place in different markets value added products resulting from processing the raw materials cultivated in the land. Biofuel enabling policies strengthen this ability by influencing the market through obligatory blending targets and price regulations. Besides the increasing blending targets described in section one, the government has also established a formula to calculate the price of biofuels. Since biofuels producers are at the same time palm oil and sugar producers, the formula is designed to guarantee that the use of the raw materials for biofuels production is more profitable than direct them to supply other markets. This mechanism aims to make possible the achievement of the blending target. The combination of these two interventions (blending targets and price regulation to guarantee a minimum income for the producer) creates an increasing secure and profitable domestic market for palm oil and sugarcane. Therefore, in the case of Colombia, the biofuels policies give a unique advantage to palm oil and sugarcane production by comparison with other commodities and cash crops.

Capital is one of the access mechanisms more influenced by biofuels supporting policies. Access to capital relates to access to finances and equipment. It can be used to pay for ownership (access control) or to pay a rent in order to maintain or gain access to a resource (Ribot and Peluso 2003: 166). Credit is one form of access to capital. However access to capital can be obtained through other forms of financial advantages as subsidies and fiscal exemptions. The policy environment that enables biofuels development in Colombia contains several sources of access to capital. The governmental subsidies and tax exemptions that incentive palm oil plantations are especially relevant for their impact on access to land

The tax exemption operates as follows: the produces of new or renewed palm oil plantations are totally exempt from income tax for a period of ten years since the plantation starts to be productive (Law 939, 2004). By 2007 this incentive had contributed to the plantation of 14.582 hectares of oil palm (Corredor 2008). This measure has several implications. The exemption constitutes an incentive for those with purchasing power because those who are subject to declare and pay income tax are companies and individuals with medium and high levels of income. Therefore, it stimulates demand for land and the consequential raise of land prices. As a result,

small farmers who have titles sale or rent their lands to oil palm producers. If they don't have titles they are squeezed out. They lose access to land when they are tenants exploiting plots in lands that belong to others and the owners decide to plant palm oil to benefit from the tax exemption. This effect has been documented in the case study about the municipality of *Simití* mentioned in section two.

Through the agricultural subsidy called rural capitalization incentive (*ICR*) the government reimburses a percentage of the agricultural credit that a producer has acquired with a bank to invest in certain agricultural activities. One of those activities is planting and maintaining late-maturing crops such as oil palm. Sixty four percent of the area planted in 2007 (16.500 hectares) was supported with agricultural credits and *ICR* (Corredor 2008). The percentage of reimbursement varies according to the type of producer: the larger the producer, the lower the percentage to be reimbursed. However, larger producers can benefit of higher percentages of the subsidy when they enter into "production alliances" with small producers. They can benefit from the same reimbursement percentage that applies to small producers when 50% of the total land planed for the investments is cultivated by small producers. The rules of the subsidy establish that large producers must demonstrate land ownership while small producers can benefit from the subsidy demonstrating possession or agreements with the landowners. However, large palm oil producers can benefit from the subsidy when they establish alliances with small producers that don't have land titles. This makes easier for the palm oil industry to have access to land in geographical areas where land acquisition is difficult or insecure because of the informality in land tenure. These characteristics of the subsidy explain why in the last years the number of palm oil plantations using the scheme of "production alliances" has grown and the dominant pattern of land investment in the alliances is 50% large producer and 50% small producers (Castro 2010).

Technology is also a mechanism that mediates access to resources. Access to technology to improve agricultural processes has given the agro-industries an advantage over the small farming agriculture to expand palm and sugarcane monoculture cultivation. They have access to special seeds, agricultural inputs such as fertilizers and herbicides, and systems of irrigation and drainage. They also have their own research centres - *Cenicaña* and *Cenipalma* - where special knowledge has been developed to improve agriculture production and harvesting. The package of

governmental measures that create an enabling environment for biofuels production includes also incentives that enhance access to technology. The government established the National Plan for biofuels research development and innovation (Plan Biocom). The governmental agency for science, technology and innovation – Colciencias – coordinated the formulation of the plan. It also manages its execution and funds. Colciencias reported 198 research, development and innovation projects on biofuels by 2008. Most of them focused in ethanol and biodiesel (86%). Projects focused on raw materials represent the largest share (44%).² Other incentives aimed at improving access to technology are subsidies under the *Agro Ingreso Seguro (AIS)* programme established in 2007 by the Ministry of Agriculture and Rural Development. This programme includes subsidies for irrigation and drainage and the subsidy for technical assistance. In 2009 journalists unveiled a list of companies and members of local and national elites that benefited from subsidies from the *AIS* programme. Some sugarcane and palm oil producers were included in that list as beneficiaries of subsidies for projects of irrigation and drainage. Some of them are also ethanol and biodiesel producers, such as *Manuelita* (ethanol and biodiesel), *Mayaguez* (Ethanol) and *Oleoflores* (biodiesel)(Lewis 2009a and 2009b).

The subsidy for technical assistance benefits producers whose total assets don't exceed an amount equivalent to about 100.000 Euros (MADR – no date). This threshold induces sugar/ethanol and biodiesel producers to look for alliances that integrate small farmers in the production complex. At the same time, it is high enough to facilitate the integration of medium landowners into the complex. As medium landowners decide to use their lands for sugarcane or oil palm production, small farmers who exploit small plots within those lands will see affected their access to land.

A resulting conclusion from the previous analysis is that the development of the biofuels industry in Colombia is grounded in the support to the palm oil and sugarcane agri-businesses. Thus, the policy and legal enabling environment necessarily contributes to strengthen the mechanisms that mediate access to land for these industries in order to facilitate the growth of the sugarcane and palm oil agro-

² Projects focused on biofuels production process represent 29%, 10% are about the final product and 18% about residues and by-products.

industrial complexes. This leads to further processes of territorialisation with substantial effects on land access as explained in section two.

4. Conclusion

The analysis presented in this paper on the basis of the conceptual framework developed by Cotula et al (2008) shows the linkages between the increasing demand for biofuels for the national market and the increasing use of land to grow the most used feedstock, i.e sugarcane and palm oil. The important role played in this dynamics by national policies was also established. Moreover, the character of the producers, their model of production and their role in the processes of policy making and policy implementation were found to be important mediating factors explaining effects on land use and land access.

In the case of Colombia, the main biofuel producers are well established agro-industries organized under a model of sugar and palm oil production complexes that control monoculture plantations of sugarcane and oil palm. The patterns of development of these agro-industries have been influenced at turn by the agrarian structure, the paths of agrarian change and the model of rural development in which they are embedded. These factors are explanatory variables of the effects that the sugar and palm oil industries have historically had in dynamics of land access and land use in the rural areas where they are located. Biofuel production is just an extension and adaptation of these industries' businesses to the production of a new industrial output. Therefore, as the agricultural basis is the same, their land access and land use patterns in the context of biofuels production don't differ from those to produce sugar or palm oil. However, these patterns may be reinforced or changed, and their effects may be exacerbated due to the specificities of the biofuels enabling policy environment.

On the basis of Ribot and Peluso's (2003) theory of access and their framework for access analysis, this paper shows that the effects of the increasing demand for biofuels production on land access in Colombia are inextricably related to the enabling policy environment. Biofuels policies set forth obligatory blending targets that determine the demand for both biofuels and land to grow biofuels crops. Furthermore, the biofuels enabling policy environment has substantially influencing whom and how different

actors have access to land as it has shaped different mechanisms by which access is gained, controlled and maintained.

Thus, this paper illustrates biofuels driven dynamics of land access and land use that have not been analysed in the global land grab literature. By applying tools of access analysis to examine these dynamics and the related mediating factors we have found that in the case of Colombia: i) they are linked to an agrarian structure rooted in historical vested power relations, ii) they reinforce this structure and iii) the national policies to promote biofuels influence structural mechanisms that shape access to land, favouring access for the agro-industry, and iv) by doing so, biofuels policies contribute to exacerbate the negative effects of the agrarian structure for peasants, indigenous and Afro-Colombians. We expect that the new elements of analysis presented in this work contribute to future empirical research on biofuels driven dynamics of land use and land access.

REFERENCES:

- Aguilera, M.M. 2002. Palma Africana en aa Costa Caribe: Un semillero de empresas solidarias. *Documentos de Trabajo Sobre Economía Regional*, 31. Cartagena, Colombia: Banco de la República.
- Alvarez, P. 2007a. La Política del Gobierno colombiano en la promoción de agrocombustibles. *Revista Semillas*, 34/35, 27-31.
- Alvarez, P. 2007b. Los agrocombustibles en boga: el caso del etanol en Colombia. *Revista Semillas*, 34/35, 44-51.
- Alvarez, P. 2008. Una mirada sobre la transformación del campo: el caso de los agrocombustibles en Colombia. In Moncayo, H.L. et al. (eds.), *La cuestión agraria hoy. Colombia: Tierra sin campesinos*. Bogotá, Colombia: Instituto Latinoamericano de Servicios Legales Alternativos (ILSA).
- Alvarez-Aristizabal, A. 2009. *Efectos del monocultivo de la palma de aceite en los medios de vida de las comunidades campesinas. El caso de Simití – Sur de Bolívar*. Master Tesis. Bogotá, Colombia: Pontificia **Universidad Javeriana**.
- Asocaña. 2010. *Informe Anual 2009- 2010*. Cali, Colombia: Asocaña.
- Blaikie, P. *The Political Economy of Soil Erosion in Developing Countries*. London, UK: Longman.
- Borras Jr., S. and Franco, J. C. 2010. Towards a broader view of the politics of global land grab: rethinking land issues, reframing resistance. *ICAS Working Paper Series 001*. Amsterdam: Transnational Institute (TNI).
- Bryant, R.L. 1992. Political Ecology- An Emerging Research Agenda in Third World Studies. *Political Geography*, 11, 12-36.
- Carvajal, D.V. 2010. *El proyecto palmero en el territorio colectivo de Guapi Abajo: análisis del choque de intereses y su afectación sobre el proceso de toma de decisiones*. Master Tesis. Bogotá, Colombia: Universidad Colegio Mayor de Nuestra Señora del Rosario.
- Castro, A. 2010. *Negocios Inclusivos con Proveedores de Bajos Ingresos - El caso de las Alianzas Estratégicas Productivas en palma de aceite en Colombia*. Power Presentation for the international conference the Inclusión Económica, Políticas Públicas y Desarrollo Local. Quito, Ecuador. 16-17 December 2010.
- CEDE (Centro de Estudios sobre Desarrollo Económico). 2006. *Caracterización de la Agricultura Familiar en Colombia - Informe 1*. Bogotá, Colombia: CEDE.
- Censat Agua Viva and PCN (Proceso de Comunidades Negras en Colombia). 2008. *Agrocombustibles: Llenando tanques, vaciando territorios*. Bogotá, Colombia: Editorial Bochica.

CEPAL. 2002. El conglomerado del azúcar del Valle del Cauca, Colombia. *Series Desarrollo Productivo*, 134. Santiago de Chile: CEPAL.

CNRR (Comisión Nacional de Reparación u Reconciliación). 2009. *El Despojo de Tierras y Territorios. Aproximación conceptual*. Bogotá, Colombia: CNRR and Instituto de Estudios Políticos y Relaciones Internacionales (IEPRI) – Universidad Nacional de Colombia.

Colchester, M., et al. 2006. *Promised land. Palm oil and land acquisition in Indonesia: Implications for local communities and indigenous peoples*. Moreton-in-Marsh, UK: Forest Peoples Programme and Perkumpulan Sawit Watch.

Corredor, A. 2007. *Programa de Economía y Estadística 2007*. Power Point presentation for the XXXV Nacional Congress of Palm Oil Producers. Bucaramanga, Colombia: Fedepalma. Available at: http://www.fedepalma.org/congreso/2008/presentaciones/9_Economia_Sectorial.pdf (Accessed 5 March 2011)

Corte Constitucional. 2009. *Auto 004/09*. January 26, 2009. Colombia: Corte Constitucional .

Cotula, L., N. Dyer and S. Vermeulen. 2008. *Fuelling exclusion? The biofuels boom and poor people's access to land*. London: IIED; Rome: FAO.

Cotula, L., et al. 2009. *Land grab or development opportunity? Agricultural investment and international land deals in Africa*. London: IIED; Rome: FAO and IFAD.

de Roux, G.I., Álvarez, A.A., Sánchez, A., Echeverri, V., Malpud, C. and Lozada, M.Y., 2008. *Hacia un Valle del Cauca incluyente y pacífico. Informe Regional de Desarrollo Humano 2008*. Cali, Colombia: Programa de las Naciones Unidas para el Desarrollo (PNUD).

Defensoría del Pueblo. 2005. *Resolución n. 39. Violación de los Derechos Humanos por Siembra de Palma Africana en Territorios Colectivos de Jiguamiandó y Curvaradó – Chocó*. Bogotá, Colombia: Defensoría del Pueblo.

Fedebiocombustibles (Federación Nacional de Biocombustibles de Colombia). 2010. Mitos y realidades de los biocombustibles en Colombia. ¿Cuáles son las críticas frecuentes al sector de los biocombustibles en Colombia?. *Biocombustibles Hoy*, n. 30, p. 2. Available at: <http://www.fedebiocombustibles.com/files/boletin30.pdf>

Fedebiocombustibles (Federación Nacional de Biocombustibles de Colombia). 2011a. *Cifras Informativas del Sector Biocombustibles – Etanol Anhidrido de Caña*. Available at: [http://www.fedebiocombustibles.com/files/Cifras%20Informativas%20del%20Sector%20Biocombustibles%20-%20ETANOL\(16\).pdf](http://www.fedebiocombustibles.com/files/Cifras%20Informativas%20del%20Sector%20Biocombustibles%20-%20ETANOL(16).pdf) (Accessed 5 March 2011)

Fedebiocombustibles (Federación Nacional de Biocombustibles de Colombia). 2011b. *Cifras Informativas del Sector Biocombustibles – Biodiesel de Palma de Aceite*. Available at:

[http://www.fedebiocombustibles.com/files/Cifras%20Informativas%20del%20Sector%20Biocombustibles%20-%20BIODIESEL\(13\).pdf](http://www.fedebiocombustibles.com/files/Cifras%20Informativas%20del%20Sector%20Biocombustibles%20-%20BIODIESEL(13).pdf) (Accessed 5 March 2011)

Fedepalma. No date. *Visión de la palmicultura colombiana al 2020*. Available at: <http://www.fedepalma.org/vision.htm>. (Accessed 5 March 2011)

Fernandes B. M., Welch C. A. and Gonçalves E.C.. 2010. Agrofuel Politics in Brazil: Paradigmatic and Territorial Disputes. *Journal of Peasant Studies*, 37(4), 793-819.

GRAIN. 2008. *SEIZED! The 2008 land grab for food and financial security*. Barcelona: GRAIN.

Houldey, G. 2008. *Fuelling Fear: the human cost of biofuels in Colombia*. London, UK: War on Want.

Inter-American Court of Human Rights (ICHR). 2008. *Resolution of February 5, 2008. Medidas Provisionales respecto de la República de Colombia. Asunto Comunidades del Jiguamiandó y del Curvaradó*.

Jaramillo, C.F. 2002. *Crisis y Transformación de la Agricultura Colombiana 1990-2000*. Bogotá, Colombia: Banco de la República y Fondo de Cultura Económica

Kalmanovitz, S. and López, E. 2006. *La agricultura colombiana en el siglo XX*. Bogotá, Colombia: Fondo de Cultura Económica

Lewis, J.E. 2009a. Estas son las 15 familias que están en boca de todos en el Congreso por los subsidios millonarios de Agro Ingreso Seguro. *La Silla Vacía*. Available at: <http://www.lasillavacia.com/historia/5090>. (Accessed 5 March 2011)

Lewis, J.E. 2009b. Estos son los 51 beneficiarios de Agro Ingreso Seguro que aportaron a campañas de Uribe. *La Silla Vacía*. Available at: <http://www.lasillavacia.com/historia/5033?page=2>. (Accessed 5 March 2011)

Londoño, L.F. 2009. Incentivos para Incrementar Producción de Biocombustibles en Colombia. Experiencia de esta Industria desde el sector Azucarero. In *Biocombustibles Fuente de Desarrollo Sostenible para Colombia*. Bogotá, Colombia: Ministerio de Minas y Energía. Available at: <http://www.minminas.gov.co/minminas/downloads/archivosEventos/4828.pdf>

MADR (Ministerio de Agricultura y Desarrollo Rural). No date. *Instructivo técnico del incentivo a la productividad para el fortalecimiento de la asistencia técnica (IAT)*. Bogotá, Colombia: MADR

MAVDT (Ministerio de Ambiente, Vivienda y Desarrollo Territorial) and Instituto Humboldt. 2008 *Evaluación Ambiental Estratégica de Políticas, Planes y Programas de Biocombustibles en Colombia con Énfasis En Biodiversidad*. Bogotá, Colombia: MAVDT and Instituto Humboldt.

Mingorance, F., Minelli, F. And Le Du, H. 2004. *El cultivo de la palma en el Chocó. Legalidad Ambiental, Territorial y Derechos Humanos* HREV (Human Rights Everywhere).

Mingorance, F. 2006. *The flow of palm oil Colombia - Belgium/Europe A study from a human rights perspective*. HREV (Human Rights Everywhere). Available at: http://cbc.collectifs.net/doc/informe_en_v3-1.pdf.

Molano, A. 2009. *Las Pavas, crónica de un desalojo*. Bogotá, Colombia: El Espectador, August 1, 2009. Available at: <http://www.elespectador.com/impreso/articuloimpreso153956-pavas-cronica-de-un-desalojo>

Mondragón, H. 2007a. Cómo encadenaron a la madre tierra y a la gente en el Norte del Cauca. *Revista Semillas*, 34/35, 36-43

Mondragón, H. 2007b. El ingenio voraz y los indígenas. El negocio del agroetanol. *Revista Semillas*, 34/35, 52-56.

Oakland Institute. 2009. *The Great Land Grab. Rush for World's Farmland Threatens Food Security for the Poor*. Oakland: Oakland Institute

Peet, R. and Watts, M.J. 1996. Development Theory and Environment in an Age of Market Triumphalism-Introduction. *Economic Geography*, 69, 227-253

Pérez-Rincón, M.A. 2008. Los Agrocombustibles: ¿sólo canto de sirenas?, Análisis de los impactos ambientales y sociales para el caso colombiano. In Censat Agua Viva and PCN, 2008. *Agrocombustibles: Llenando tanques, vaciando territorios*. Editorial Bogotá, Colombia: Editorial Bochica.

Pérez-Rincón, M. and Alvarez, P. 2009. *Deuda social y Ambiental del Negocio de la Caña de Azúcar en Colombia*. Bogotá, Colombia: Grupo Semillas.

PCN et al. 2009. Report: *Misión internacional para la verificación del impacto de los agrocombustibles en 5 zonas afectadas por los monocultivos de palma aceitera y caña de azúcar en Colombia: impactos sobre los territorios, los derechos, la soberanía alimentaria y el medio ambiente*. Bogotá, Colombia: Censat Agua Viva.

Reyes, A. 2009. *Guerreros y Campesinos, el despojo de la tierra en Colombia*. Grupo Bogotá, Colombia: Editorial Norma.

Revista Semana, 2007. *El tierrero del senador*. April 21, 2007. Bogotá, Colombia: Revista Semana.

Available at: http://www.semana.com/wf_InfoArticulo.aspx?idArt=102372

Revista Semana, 2008a. *El Cauca está que arde*. June 14, 2008. Bogotá, Colombia: Revista Semana.

Available at: http://www.semana.com/wf_InfoArticulo.aspx?IdArt=112749,

Revista Semana, 2008b. *Amigos del senador, ¿vecinos del paramilitar?*. July 19, 2008. Bogotá, Colombia: Revista Semana. Available at: http://www.semana.com/wf_InfoArticulo.aspx?idArt=113716

Revista Semana, 2010. *El 'dossier' de los palmeros*. May 21, 2010. Bogotá, Colombia: Revista Semana. Available at: <http://www.elespectador.com/impreso/articuloimpreso-204419-el-dossier-de-los-palmeros>

Ribot, J.C and Peluso, N.L. 2003. A Theory of Access. *Rural Sociology*, 66(2), 153-181.

Rojas, J.C. 2008. *Plan Colombiano de Investigación, Desarrollo e Innovación en Biocombustibles - Plan Biocom*. Power Point presentation for the event “Biocombustibles Colombia 2008”. Bogotá, Colombia: Colciencias. Available at: http://www.biocombustiblescolombia.com/2008/memorias/Colciencias_JCarlos_Roja_s.pdf (Accessed 5 March 2011).

Soler, J.P. and León, D. 2009. *Impactos ambientales de la expansión de Palma Aceitera en el Magdalena Medio, hablan los pobladores – Estudio de Caso Las Pavas*. Magdalena Medio, Colombia: Asociación Campesina de Cacaoteros de Buenos Aires - ASOCAB and Programa de Desarrollo y Paz del Magdalena Medio. Available at: <http://www.iniciativaambiental.net/descargas/download/fileid/35>

Toasa, J. 2009. *Colombia, a New Ethanol Producer on the Rise?*. Washington DC: Economic Research Service USDA.

UN (United Nations), 2007. A/62/289.

UN (United Nations), 2008. A/HRC/7/5.

Vermeulen, S. and Goad, N. 2006. *Towards better practice in smallholder palm oil production*. London, UK: IIED.

World Bank. 2011. *Rising global interest in farmland : can it yield sustainable and equitable benefits?*. Washington DC: World Bank.

Zoomers, Annelies. 2010. Globalisation and the foreignisation of space: seven processes driving the current global land grab. *Journal of Peasant Studies*, 37(2), 429-447.