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Fair Fuels? Working Paper 4

# Transnational contradictions and effects of Europe's bioenergy policy

Evidence from Sub-Saharan Africa

## Fair Fuels?

Zwischen Sackgasse und Energiewende: Eine sozial-ökologische Mehrebenenanalyse transnationaler Biokraftstoffpolitik

# Edition Notice

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## Abstract

This paper discusses contradictions within and between the European Union's policies to address current climate, development and energy crises, and their possible transnational socio-economic, political economic and socio-ecological effects. For this purpose the authors apply a political ecological perspective to contemporary processes of land acquisitions that sheds light on the complexities of both global and local changes in land ownership relations currently taking place in Sub-Saharan Africa. Using the example of the EU, the paper delves into European bioenergy policy in the Renewable Energy Directive (RED) and the Policy Coherence for Development (PCD) framework. The authors argue that the RED has played an important legitimating role in ongoing restructuring of transnational geographies and socio-ecological systems that often negatively effect vulnerable societal groups in ways that directly conflict with Europe's development priorities and policies. The authors conclude that in order to support shifts to paths of more sustainable development within and outside its borders, European bioenergy policy must be fundamentally reformulated.

# 1 Introduction

The multiple social, economic and natural crises seen since the beginning of the 21st century have called into question many fundamental assumptions of how our natural and social worlds function and interact. The global financial, economic and debt crises have uprooted accepted ideas of what is needed to create and maintain economic prosperity and social wellbeing; increasing evidence and knowledge of the causes and consequences of global climatic change and the finiteness of fossil fuels have raised serious questions over the rationality of ever-increasing natural resources exploitation; and the stubbornness of global poverty and hunger has illustrated that effective strategies to poverty and social inequality have yet to arrive. The expansion of modern<sup>1</sup> bioenergy production and consumption over the past decade, especially related to biofuels for transport, has been in large part attributed to its perceived potential to alleviate pressure on certain natural, social and socio-ecological systems currently in crisis, e.g. climate change, energy security, peak oil and rural poverty (European Union 2009; Franco et al. 2010).

This article aims to provide an overview and theoretically inspired criticism of current attempts to use biofuels to overcome these crises. In particular, we utilize a political ecological perspective to explore increasing transnational contradictions and effects in European Union policies aimed at addressing the convergence of the climate, energy and development crises. We focus our analysis on two major pieces of recent European policy created to directly influence these crises: the Policy Coherence for Development (PCD) approach, established in 2005 to accelerate progress on the UN Millennium Development Goals to alleviate extreme poverty by 2015; and the European biofuels promotion policies of the early 21st century, especially the Renewable Energy Directive (RED) of 2009. We use evidence from international organizations, NGOs and academia to illustrate that in the context of Sub-Saharan Africa, the effects of the RED and PCD on the ground are proving to be in conflict with their respective crisis-alleviating goals.

Specifically, we argue that, while the PCD requires that all European policies provide positive socio-economic impacts upon the poorest and most vulnerable social groups, the biofuels provisions of the RED legitimate large scale land acquisitions in the global South to fuel European transport fuel needs that are perceived by many to have negative consequences for those same groups. Critics have labeled many of these acquisitions as land grabbing due to their supposed negative consequences for the well-being of marginalized social groups like smallholders and pastoralists who are often already reside on or cultivate the lands in question (Borras et al. 2010; Friends of the Earth 2010; Borras et al. 2011; Cuffaro/Hallam 2011; Matondi et al. 2011; Rahmato 2011). Based on this argumentation, we submit that without adopting a more holistic understanding of the development, energy and environmental crises as interlinked crises of the dominant societal relationships with nature (Brunnengraber/Dietz 2011), policies aimed at addressing these crises as compartmentalized problems will continue to fall short of their transformative aims.

While this paper presents a critical perspective on European biofuels policy, our argument is not that biofuels cannot play an important role in enabling more sustainable paths of societal and economic development under the proper conditions. Rather, we stress that while complimenting or

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<sup>1</sup> James Smith points out, that biofuels as such are not new and refers to the common usage of biomass like wood and oilseeds for energy production, applied in history and currently in the global South, especially in rural and marginalised areas and groups (Smith 2010). We use the term 'modern' here to differentiate between historical and social forms of bioenergy-usage and the more industrialised, politically promoted production of biofuels that emerged in the beginning of the 21st century.

replacing liquid fossil fuels with biofuels may be part of the solution, the underlying modes of production, consumption, mobility, and lifestyle which these fuels support must also be reevaluated. Indeed, increasing critiques of biofuels have emerged since the mid 2000s and have shown that the rapid expansion of large-scale, commercialized agrofuel<sup>2</sup> plantations produces new, transnationally embedded, but location specific social-ecological contradictions and adverse effects (e.g. land use change, food and water competition, human displacement and associated loss of livelihoods, labor rights infringements, and centralization of decision-making over land use and land ownership) (Monsalve et al. 2008; Holt-Giménez/Shattuck 2009; McMichael 2010; Molony/Smith 2010; Richardson 2010; White/Dasgupta 2010; Bowyer 2011; Matondi et al. 2011; Mendonça 2011; Rahmato 2011; Searchinger 2011). As part of our analysis, we argue that traditional north-south perspectives on biofuels that place the so-called global “South” in a dependent position compared to the “North,” are not able to grasp emerging South-South, and North-South-South dynamics. We therefore call for a more nuanced and actor-orientated perspective on the transnational effects of current global biofuels expansion (Dauvergne/Neville 2009).

The paper has the following structure: in the subsequent section we give a brief introduction to our political ecological perspective. This is succeeded by a discussion of Europe’s PCD approach and the RED which is legally mandated to foster inclusive, pro-poor development by the PCD framework. After illustrating coherency issues between these policies based on recent case studies and reports, the paper moves on to incorporate the emerging trend of large scale land acquisitions for commercialized production of agrofuel feedstock in Sub-Saharan Africa to our discussion of these policies. We use this trend to illustrate that unless very carefully regulated, agrofuels expansion may lead to restructuring of land use rights and decision-making processes over land that have negative social and ecological consequences. We then present how these restructuring processes are embedded in the aforementioned set of emerging North-South-South dynamics. Finally we summarize the analytical and political implications of our research perspective and findings.

## 2 Agrofuels from a political ecological perspective

A political ecological perspective of agrofuels production and consumption argues for increased attention to interlinkages across and between policy fields and scales, as well as the spheres of nature and society. It is characterized by two key elements: first, that the relationship between nature and society should be understood as dialectical, ie. they are not individual or isolated spheres but are understood as mutually constitutive (Castree 2001). From such a perspective society cannot be understood independently of nature, for social development is always dependent on the metabolism of nature, and conversely the metabolism of nature is dependant on the social appropriation, use and transformation of nature. Conversely, the idea of nature cannot be divorced from historically specific social conditions that have engaged, as we continue to do today, in specific forms of use and appropriation of nature. The natural world is not only utilized in the

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<sup>2</sup> In relation to this form of production we deliberately use the term agrofuels instead of biofuels. By agrofuels we refer to liquid fuels from crops grown and produced on a large agro-industrial scale. Most of the crop-based fuels, such as ethanol and biodiesel blended with conventional gasoline or diesel to power automobile fleets are currently produced on monocultural industrial plantations often run by agroindustrial companies (Holt-Giménez/Shattuck 2009).

context of production and consumption processes, but is changed irreversibly by humanity, as humanity is also changed irreversibly through its use of nature (Swyngedouw 2004). What follows then, is that one can understand nature as being socially produced. It is not simply something "out there" that always was and will always be, but is historical and subject to social construction processes, clearly illustrated by the example of anthropogenic climate change.

The practices of nature utilization and acquisition are dynamic over time and space and governed by processes of political-economic and political-institutional change, coupled with power relations and cultural differences. For example, the currently changing forms of land rights, practices, rules, ownership relations, and recent land deals for agrofuel production in Africa, Latin America or Asia are in many ways the result of colonial and postcolonial distribution politics and political-economic transformations. The increase in claims for land for the agrofuel production, one of the major issues we deal with here, does not occur in a space without history. In contrast, control over and access to land has, especially in the global South, long been of specific political, social, economic and ecologic relevance.

The second element of a political ecological perspective of agrofuels production and consumption is that its view of social-nature relations emphasizes their multi-scalar nature and transnational constitution (Bryant/Bailey 1997; Swyngedouw 2004; Wissen 2011). This means that changing local conditions of land use and land distribution are understood as being interlinked with political-institutional, political-economic and discursive changes at other scales of social action (national, global) and vice-versa. In the context of agrofuels policies, this means that issues of access to, use of, and control over natural resources such as land and water cannot be understood as purely local or national. They are hashed out on new levels of action, on different scales and through new constellations of power relations. They have become transnational and are structured by an array of interests and power relations on a broad spectrum of scales and levels of governance and action (Bryant/Bailey 1997). This paper applies this perspective to build on the arguments made by Pye and Leopold that new constellations of transnational geopolitical space and power are emerging between and amongst developing and developed nations as well as transnational capital, where land and its productive capacity have become a major new resource over which countries vie for control (see Pye 2010; Leopold 2011). From this perspective, current efforts to cope with the challenges of climate change, development, and energy production are seen as shifting expressions of social, political and economic power relations.

Works based on the concept of a societal relationship with nature and within the field of Political Ecology<sup>3</sup> look for mediating links between society and nature, meaning the totality of practices, institutional and organizational forms in which societies transform and regulate their relationships with nature (Görg 2004). This means analytically, one's gaze should be focused on the historically specific mechanisms used to determine the relationship between society and nature at a specific time and place. Accordingly, economic, scientific and political tools such as agrofuels employed to mitigate current crises must be judged not against their ability to drop-in to the current system, but against their transformative potential to move global society away from these crises. Such a perspective on an intertwined society-nature speaks as much against the assumption that ecological crises can be managed or overcome purely through the use of new technologies as it does against the tendency to view nature as independent of social power and power relations. Agrofuels, we feel, are particularly illustrative of this dual phenomena: the current rampant

<sup>3</sup> Political Ecology does not represent a coherent theoretical approach, but comprises a variety of disciplinary and theoretical approaches. Different approaches are for example a Neo-Marxist structuralist perspective (Watts 2000; Peet et al. 2010), a Feminist Political Ecology (Rocheleau et al. 1996), a so called Third World Political Ecology (Bryant/Bailey 1997) and a Poststructuralist Political Ecology (Escobar 1996).

expansion of their production not only changes forms of appropriation and exploitation of nature, but also signals a perpetuation and reproduction of specific forms of social production, and domination of nature.

Within the field of political ecology, environmental issues are understood as problems of distribution and are analysed in relation to societal power relations and relations of domination (such as gender relations) from the local to the global scale. From such a view the distribution of, the access to and the control over natural resources such as land are socially contested, and environmental changes are inherently political processes. Raymond Bryant and Sinead Bailey introduced the term “politicised environment” to describe these processes (Bryant/Bailey 1997).

Applying a political ecological perspective to current trends in agrofuels production and consumption demonstrate how the process of social production of nature is bound neither by space nor time but is dynamic and heavily influenced by shifting constellations of actors and power within political-economic and political-institutional organs of society. As such, we understand shifts in land use brought about by ongoing large scale land acquisitions in Sub-Saharan Africa discussed below as being closely tied to high-level political and economic decisions, the appearance of new actors acting on a transnational scale, and the shifting power relations in all of these areas.

### 3 EU Policy Coherence and its Renewable Energy Directive

Although first mentioned in the Maastricht Treaty of 1993, the European Union formalized the need to enhance policy coherency to address interactions between poverty, energy access, education, health and sustainable development within the European Consensus on Development in 2005. Significantly, it was agreed that a Policy Coherence for Development (PCD) approach would be applied to all EU and member state policymaking, aiming to coordinate diverse policy fields to accelerate progress on achieving the MDGs. This approach targets 12 domestic policy areas seen to impact on overseas development capabilities: trade, environment, climate change, security, agriculture, fisheries, the social dimension of globalization, employment and decent work, migration, research and innovation, information society, transport and energy (European Council 2005; European Union 2006). Since the adoption of PCD, the EU has continually noted the increasing relevance of the PCD approach to its policymaking, first with the release of an self-critical progress report in 2007 citing lack of capacity, awareness of the policy and conflicting political priorities (European Commission 2007), and a second evaluation in 2009 that, due to a lack of initial success, called for a reformed, strengthened PCD approach (European Commission 2009; European Union 2009).

This desire to redouble PCD efforts was motivated not insignificantly by extremely vocal civil society frustration with contradictions in the negotiations of Europe's Economic Partnership Agreements (EPAs) with the African, Caribbean and Pacific (ACP) groups of countries, which in the mid to late 2000s were railed for being overly focused on WTO compliance and largely ignoring the special needs of the developing countries for whom they were supposed to benefit (Ochieng/Sharman 2004). Academia also raised a number of red flags, with the journal *European Integration's* 2008 issue, “Mission Impossible,” dedicated solely to articles lamenting the lack of progress on PCD (Carbone 2008). Here too the trade issue loomed large, with Elgström and Pilegaard finding that the “disjointed character of EU policy making means that the negotiation



stance of the Union is fundamentally ambiguous and characterized by significant tensions and conflicts between policy objectives" (Elgström/Pilegaard 2008: 363).

Simultaneous to the bumpy start of the PCD approach, European bioenergy policy was being redrawn, with the Commission publishing the communication "An EU Strategy for Biofuels" in 2006 (European Commission 2006). Despite the fact that the Strategy's annexed Impact Assessment recognized essentially all of the issues currently weighing down the global agrofuels debate as eventualities (greenhouse gas balances, and competition over land, labor and capital both internally and overseas, and the food vs. fuel debate), the EU determined that these potential risks to be worth taking in light of the key legitimizing arguments that biofuels would: expel less greenhouse gases into the atmosphere than fossil fuels; provide added security against political and price shocks in an era of uncertain energy prices and supplies; and provide new and improved livelihoods for farmers at home and abroad (European Union 2009; Franco et al. 2010).

Though not without intense debate and controversy from civil society, the EU's biofuels plans survived a three-year policymaking process that took place alongside the 2008 economic/financial crisis, food vs. fuel debate, and escalation of climate change on the global agenda. They were eventually incorporated into the Renewable Energy Directive (RED) in 2009. By mandating that 10 per cent of transportation fuels come from renewable sources by 2020, the RED created an enormous artificial market for agrofuels, a group of products for which there had been very little previous demand. The EU also made explicit that developing countries would be expected to become major suppliers: "Member States with low endowments of the relevant resources will easily be able to obtain biofuels from elsewhere. (...) It is both likely and desirable that the target will in fact be met through a combination of domestic production and imports" (European Union 2009: 18). Arguments used by the EU to promote increasing biofuels production in the Global South, and especially in Sub-Saharan Africa were diverse: firstly, it was argued that the biophysical and climatic conditions in tropical and sub-tropical regions offer more productive growing areas than are possible in Europe; secondly, Africa was perceived to contain "large amounts of apparently vacant farmland" and to "neglect its agricultural potential" and was therefore considered to be "well suited for new rural investments" (Friis/Reenberg 2010: 6); and third, the commercial value of this land and the price of labor was extremely low, raising the expectation of low transaction costs and large returns (ibid.).

Here it is also important to recall that the formulation and maintenance of contemporary biofuels policies globally have been heavily influenced by corporate interests (Pye 2008, 2009; McMichael 2010; White/Dasgupta 2010). Indeed, as illustrated by the Corporate Europe Observatory's investigation of the policymaking process surrounding the RED (Corporate Europe Observatory 2009), civil society engagement in most phases leading up to the publication of the draft Directive in 2008 was extremely limited, while industry and business was highly influential. Their investigation illuminates that Biofuels TP, a body funded by the European Commission to assist in designing the biofuels portion of the RED, was dominated by corporate actors. Logically, the draft RED of 2008 and the revised version of 2009, were framed by discourses of competitive European growth, and was uncritical of many sustainability issues raised by civil society and even the scientific community. Leopold concludes that the primary reason for this lack of social and environmental rigor within the RED was that despite the recognizing the validity of environmental and social concerns over extensive expansion of biofuels production, the immense monetary and political capital that had been invested globally by the mid 2000s prevented these critical points from entering mainstream discourses around biofuels until the food crisis of 2007-2008, at which time the RED policymaking process had been nearly completed (Leopold 2011). The draft RED was published for public comment at the height of suspicions that biofuels had played a role in the food crisis (Mitchell 2008), and was accordingly heavily criticized by civil society for its incomplete

treatment of the possible direct and indirect social, economic, and environmental effects such a far-reaching policy could have (Ernsting 2009). By mildly strengthening sustainability criteria and assuring that certification schemes and second generation agrofuels would assuage remaining environmental concerns, the RED was passed and brought into force in December of 2010.

Although the food versus fuel debate focused not on environmental issues, but on social concerns, environmental criteria were included in the RED<sup>4</sup> while social criteria were left out, primarily due to concerns over compatibility with World Trade Organization law (something that can also be observed in the majority of certification schemes currently in preparation or in force [Vogelpohl/Hirschl 2011]). This decision however, has left many open questions over how the EU can reconcile the very socially oriented goals of the PCD Framework with that of the RED. By not explicitly addressing social issues, it becomes difficult to imagine a scenario in which the RED contributes significantly to achieving the MDGs by 2015, when they are to have been achieved. This is especially apparent when one considers the alarms currently being raised around the highly contested nature of ongoing land acquisitions in the global South for agrofuel production as discussed in the next section (Deininger et al. 2011; Rahmato 2011). With these points in mind it can be argued that, while endeavoring to generate momentum for a more system-wide transition to renewable energy use, in many respects the RED represents not a method to kickstart a socio-ecological transformation, but rather long term institutional support for the existing transportation methods, trade systems, and consumption and production patterns that have led the world into current climate, energy and development dilemmas we are struggling to overcome.

The following section considers evidence that corporate and state actors have begun a process of widespread land acquisition for agrofuels production in collaboration with governments in a broad selection of Sub-Saharan African nations. Through a review of the growing literature on the topic, we illustrate that these land transactions tend to restructure not only land ownership itself, but relations of landownership and land use, often resulting in displacement of peoples and traditional land-use forms (e.g. pastoralism), increased economic, food, and institutional insecurity, and are concerning the use and appropriation of land and water resources (Borras/Franco 2010; Friis/Reenberg 2010; Cotula 2011; Deininger et al. 2011).

## 4 Agrofuels and land transactions in Sub-Saharan Africa

With a background rate of less than four million hectares of average annual global agricultural expansion (Deininger et al. 2011), during the period of January 2008 to April 2010 alone, Friis and Reenberg found evidence that land deals (sale or long-term leases) totaling between 51 and 63 million hectares (roughly the size of France) had been finalized or were in negotiation in Sub-Saharan Africa alone (Friis/Reenberg 2010). These deals equate to between 5-10% of many of the nations' total geographic areas where deals are taking place, and in the cases of Mozambique and DR Congo respectively, 21.1% and 48.8% of their total agricultural land (Friis/Reenberg 2010). While many, including Friis and Reenberg, originally noted that often investors are governments of

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<sup>4</sup> Bowyer et al. 2011 nevertheless underline the persistent need to address the question of ILUC (Indirect Land Use Change) more prominently in the criteria for assessing whether biofuels deliver an important contribution for the EU climate change mitigation goals (Bowyer 2011).

food insecure areas of the world such as the Middle East and some Asian nations investing in food production beyond their borders, it must be stressed that it has been repeatedly shown that companies interested in land for agrofuel production bound for the EU make up a significant portion of these investments, with 31 agrofuels related land deals in 2009-2010 in Madagascar and Ethiopia alone (ibid). Indeed, in 2012, the International Land Coalition reported that three quarters of land deals in developing countries between 2000-2010 were for biofuels production (Anseeuw, et al. 2012).

The example of Ethiopia, Africa's largest recipient of international food aid (Bunting 2011), has been under particular scrutiny since it has become an exporter of agricultural products as a result of massive investments in the agricultural and bioenergy sectors. In particular, Ethiopia has begun producing rice for export to Saudi Arabia and concerning agrofuels production. UK-based Sun Biofuels has also acquired a 5,000 hectare plantation, while German based Acasis AG is leasing 56,000 hectares and has acquired concessions for another 200,000 for agrofuel production (Friends of the Earth 2010). In total, European investors have acquired land for agrofuels production in over a dozen African nations which the International Food Policy Research Institute's (IFPRI) Global Hunger Index currently lists as having "serious" or "alarming" chronic hunger problems (Friends of the Earth 2010; IFPRI 2010).

Other examples of transnational land deals for agrofuels production in Sub-Saharan Africa have been found in Tanzania and Mozambique. In Tanzania, over four million hectares of land have been leased or sold to agrofuels investors. The main feedstocks are currently jatropha, sugarcane and oil palm, and key investors have included European bioenergy companies such as Swedish Agro EcoEnergy (formerly SEKAB BT), UK-based Sun Biofuel, the Dutch company Diligent Tanzania Ltd and the Tanzania-Belgian start-up FELISA (Sulle/Nelson 2009). Although in 2009 only 640,000 hectares had so far been allocated, and of these 100,000 ha had been granted formal rights of occupancy, the current requests their continuing approval point to extensive changes in land use systems and social relations regarding access to and control over land [ibid.].

Issues of land use, land distribution and control over land have been central to Tanzania's history since the colonial era when land was first vested to the head of state, the British Governor until independence in 1961, and thereafter to the Tanzanian President. During colonial rule a dual legal system was established, with different entitlements for customary land rights holders and civil land rights holders, whereby the latter, primarily European settlers and companies, were granted official rights of occupancy (Shivji 2002). With the adoption of the Land Act and the Village Land Act in 1999, this formal discrimination of customary land rights was legally abolished. Nevertheless current decisions over land use, land acquisitions and investments in land are highly centralized and undemocratic in terms of who decides over access to, and acquisition of land that is formally under the control of local land users (ibid.). This brief history of land use and land use rights in Tanzania helps illuminate why many customary rights-holding land users are often negatively affected by large-scale land deals, either by being excluded from decision making over land, having access to water altered, or being completely displaced.

Land transactions in Tanzania are mainly contracted through the Tanzania Investment Centre (TIC), a government entity mandated with "identifying and providing land to investors, as well as with helping investors obtain all necessary permits" (Vermeulen/Cotula 2010: 906). Although seldom carried out, where community consultations take place, they tend to be dominated by community leaders and are one-off events where information flows are poor and agreements on investors' social obligations and promised local investments are not documented (ibid.). Although land transactions and the restructuring of control over land is not a new phenomenon in Tanzania, the new demand for agrofuels feedstocks might lead to a restructuring of land politics, land use

patterns and land use rights with questionable outcomes for local land users, that use their land based on customary and traditional land rights.

Mozambique is another country whose bioenergy sector has been expanding rapidly. Currently 4.8 million hectares have been planned for jatropha and sugarcane based agrofuel production destined for Europe and South Africa. Over 183,000 ha are currently allocated to jatropha plantations, and future expansion of sugarcane plantations is expected (Franco et al. 2010; Friends of the Earth 2010; Nhantumbo/Salomão 2010; Vermeulen/Cotula 2010). One of the main drivers for production of agrofuels in Mozambique is the export market to Europe (Nhantumbo/Salomão 2010), and accordingly most foreign companies attempting to invest in Mozambique's agrofuels production have been at least partly European based, such as failed attempts by ProCana, a private company with British interests, and Elaion Africa, a German company. Beyond these more or less traditional North-South relations between Europe and Mozambique, it is the new triangulation of transnational linkages that makes Mozambique a very interesting case for analysis. Mozambique represents a new dynamic in transnational politician economic relations in that Brazilian state and non-state actors are increasingly involved in the promotion of agrofuels in this country. Beginning in 2007, Mozambique and Brazil agreed to share resources on agrofuel production (Franco et al. 2010) in an agreement that aims on the one hand to help Mozambique to replicate Brazil's model of bioethanol production, and on the other hand serves Brazil's investment interests in the South, which in the case of Sub-Saharan Africa, appear to be at least partially to gain tariff-free access to the European ethanol market through Africa's preferential trade agreements with Europe. In 2010, this relationship obtained a new character when Brazil, the EU and Mozambique launched a triangular cooperation focusing on the "sustainable development of bioenergy" in Mozambique (EU Council 2010). This strategic partnership illustrates that emerging economies like Brazil are not just establishing new South-South relationships to compete with Northern interests in the South, but that "development and co-operation activities are increasingly becoming 'triangular' projects, involving 'North-South-South' dynamics" (Dauvergne/Neville 2009). Both Brazil and the EU have significant political and economic interests in this partnership. The EU seeks cheap and economic biofuel supply in order to meet its own targets and Brazil wants an economic doorway into the European and other markets such as China. Mozambique however, will need significant biofuels of its own in coming years because in June 2011, the Mozambican government approved a regulation requiring a mixture of ten percent ethanol with 90 percent gasoline and three percent biodiesel with 97 percent diesel by 2012, meaning large scale production needs to be ramped up quickly. Brazil's Petrobras Biocombustível is set to build at least one ethanol factory in Mozambique to facilitate this. Agricultural cooperation between Brazil and Mozambique goes far beyond agrofuels however and in August of 2011, the Mozambican government granted a 50 year renewable lease on 6 million hectares of land to Brazilian farmers for soy, maize and cotton.

These new geopolitical tendencies notwithstanding, such land acquisitions mustn't, of course, be negative, and many believe that there is a role for large-scale farming systems in sustainable rural agricultural development (Deininger et al. 2011). However, the nature of and speed with which these mammoth land deals have been undertaken does raise serious concerns about the buyers' and leasees' intentions and legal obligations towards the health of the land and people who in many cases are already living on it and from it. In the case of Sub-Saharan Africa, where 70 percent of these land deals have taken place in recent years, contracts are often negotiated in secrecy or near secrecy by African national governments and those interested in the land. They are therefore often very difficult to obtain, and although Friis and Reenberg analyzed 177 reported acquisitions for their study, a 2011 study of the contracts themselves led by the International Institute for Environment and Development (IIED) was only able to obtain 12 actual contracts for analysis (five of which were for agrofuel production), and cited lack of access to contract

information as a major hindrance to current efforts to better understand the affects on livelihoods and the environment these deals may be having (Cotula 2011). Among the more noteworthy findings of this investigation was that: many of these contracts last for 100 years; although they are for land which is labeled as “marginal,” or unoccupied, much of this land is in fact currently occupied and worked by farmers and pastoralists; they include limited or no detailed information on what the lessee is responsible for in terms of job creation or environmental protection; and they allow access to not only to the land, but often unregulated water use for extremely low rates, such as the case of Sudan which agreed to lease land for US \$0.07 per hectare per annum and Mali, which actually negotiated a contract giving land away for free (Cotula 2011).

As Friis and Reenberg note, drivers of these land deals do not operate in isolation (Friis/Reenberg 2010). The causalities of these acquisitions is indeed diverse: investors seeking new investment opportunities in the wake of a financial crisis that illustrated how uncertain 20th century style investing had become (Smaller/Mann 2009), nations looking to ensure food riots do not tear through their streets once more, the presence of highly fertile land for agrofuel and/or food production, etc. Who wins the upper hand in such struggles will be determined by the comprehensiveness of policy frameworks together with the ability to adequately enforce those policies.

## 5 Conclusions

This article's political ecological perspective on current attempts to use bioenergy to overcome modern climate, development, and energy crises was used to describe transnational contradictions and effects of European Union policies aimed at addressing these crises. Specifically, our theoretical perspective argues that perceiving these crises as independent phenomena has led to inherently incomplete policymaking because of the complex and interwoven societal relationship with nature. To illustrate this point, we juxtaposed the EU Policy Coherency for Development mandate that all European and member state policies should enhance progress on achieving the MDGs, with the example of biofuels provisions within the Renewable Energy Directive. This is a point implicitly recognized by the European Commission in its 2010 Communication “An EU policy framework to assist developing countries in addressing food security challenges” and its December 2011 PCD Report, which finds, among other issues, social protection and biofuels as key food security concerns, and the importance of reconciling incoherencies between European trade, agricultural and energy policies to achieving the MDGs (European Commission 2011).

The explicit exclusion of social criteria in the Directive was problematized in our discussion of examples from Sub-Saharan Africa of recent and ongoing land transactions, many of which are taking place to create agro-industrial agrofuel plantations for fuel export. These have been labeled by critics as “land grabs” as they ostensibly threaten the livelihoods of vulnerable and marginalized groups. Often carried out between European multinational companies and state actors of the country in question, these deals are criticized because of their intransparency and negative affects on marginalized and vulnerable social groups.

While we recognize that many actors, including companies from around the world, governments from the Middle East, Asia, Latin America and even other African nations have partaken in the recent rush for land in Africa to establish new agrofuel and food plantations, we argue that Europe plays a special role in this case. Due to the continent's long and intimate history with Africa, combined with its leadership and aspirations on environmental and social issues worldwide, the

explicit and implicit statements made by EU policy documents that agriculture in the developing world could and would benefit from the RED's mandate to radically increase in biofuels for transport, has had a legitimizing effect on ongoing large scale land acquisitions in the Sub Saharan Africa we see today. Simply put, the RED has opened the door not only for investments in agrofuel production for Europe, but has provided a signal to nations and economic actors around the world that long-term political economic incentives for them to promote and invest in agrofuel production exist.

While the EU may recognize a need to "Continue to work on the sustainability of biofuels and biomass, including on monitoring of impacts" (European Commission 2011, p107), it remains primarily committed to technocratic solutions of measuring GHG balances and improving crop yields for the poor, while largely ignoring that its RED fundamentally requires particularly large-scale, monocultural, mechanized investment to achieve the economies of scaled needed to produce first generation agrofuels at economically competitive prices. This reality is being borne out in agro-industrial and commercial production of agrofuels, which we have shown are seen by many as perpetuating or worsening existing social inequalities in many producing countries, compounding food insecurity problems, and running generally counter to the European development policy objectives. From our perspective, for biofuels to become an instrument for positive socio-ecological transformation around the world, a fundamental reformulation of current national and regional policies is needed in both the global North and South. Key elements of such reforms for both producing and consuming countries, would include: more meaningful consideration of the social dimensions of biofuels projects including meaningfully bringing developing country partners into some EU policymaking; improving democratic decision-making regarding agrofuel production and consumption; the promotion of decentralized and small-scale production schemes adapted to local land use contexts; and giving primacy to supplying local energy needs, which implies a reevaluation of the renewable transport fuel portion of the RED if WTO law remains a barrier to achieving this and other normative social goals.

Over the past decade, state sponsored research programs have increasingly required interdisciplinarity from scientists and their institutions, a transition which has often proven extremely challenging, but extremely valuable for those involved. Reaching across the chemistry-linguistics, or engineering-anthropology divides draws attention to the diversity of perspectives needed to create a complete picture of any given problem, and equally important, to understand the range of possibilities which exist to address it and the breadth of consequences these options may have. Accordingly, as this paper has shown, and indeed as is recognized by the EU in its PCD framework, this same diversity of expertise and experience is irrefutably required in policymaking to truly address issues of socio-economic and socio-ecological import.

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