The changing constellation of power and resistance in the global debate over agrofuels

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ABSTRACT:

This paper begins by briefly sketching a political economic history of agrofuels in Brazil, the EU and US, representing the three largest agrofuel consumers and producers in the world. Through a neo-Gramscian analysis of the food vs. fuel debate of 2007-08, at which time agrofuels were framed not only as environmentally questionable, but as potential violators of the human right to food as well, this paper shows that, valid as environmental concerns over agrofuels may have been, they alone were not enough to convince governments to rescind the significant financial and political support that had been bestowed upon the agrofuels industry up to that point. It was only with dramatic rise in food commodity prices over the course of 2007 and 2008 and the subsequent framing by NGOs and intergovernmental organizations of agrofuels as infringing not only upon the health of our planet but directly and dramatically upon the health and well being of humanity, that policy space for truly critical discussion of agrofuels came to fruition, but significantly, even this only occurred in the European context. In the Americas, human rights and environmental issues were deflected using economic development and energy security rationales, paving the way for continued agrofuel production, which today is being pursued more heavily than ever before.

1. INTRODUCTION:

Agrofuels[1] have become one of the most hotly debated topics in politics and civil society today, crosscutting a variety of issue areas including energy security, agricultural policy, environmental protection, transportation and mobility, bioengineering, and rural development. Within a span of just a few years it has increasingly been recognized that these technologies, once thought of as having the potential to be a saving grace for our global energy needs, present a truly complex web of possible threats to the environment and human livelihoods. Although many of these issues had been raised decades before the current agrofuels boom had begun (see Göricke and Reimann 1982), by the time these concerns had been widely recognized politically, significant public and private resources had already been invested in what became an enormous industrial agricultural project worth billions of dollars annually to businesses and governments the world over.

Once these issues took hold politically however, most notably in the immediate aftermath of the "food vs. fuel crisis" of 2007-2008, an extraordinary burden was suddenly placed upon policy makers to come up with policies which would satisfy the concerns of a plethora of commercial and governmental stakeholders in various sectors who expected to receive returns on previous investments (agriculture, forestry, car manufacturers, food, paper and biotechnology industries, the agrofuels industry itself, oil companies, government funded R&D, etc.), as well as relegitimize this industry for the growing number of concerned civil society and governmental actors which did not want to see a product which had been touted as environmentally and developmentally friendly begin to worsen carbon dioxide outputs, destroy rainforests and make basic foodstuffs unaffordable for the world's poor.

Perplexingly, despite the significant build-up of bad press, critical science and outcry from civil society seen since late 2005,[2] and the bankruptcy of much of the

[1] The term agrofuels is used in place of the more common biofuels, as the latter implies a natural, positive relationship between the product and the natural environment and does not reflect the monocultural, agro-industrial production discussed in this paper.

[2] Indeed, despite significant positive press in the US and EU in recent months, at the XIIIth World Forestry Congress in Buenos Aires in October, 2009, where over 6,000 scientists, policy makers, experts, and members of civil society met to discuss forest related issues, there was anything but consensus on agrofuels' potential to serve as a sustainable alternative fuel-energy.

industry in the United States since 2008, agrofuels policies in major producing and consuming countries currently promote, and indeed mandate, their usage more than ever before. This paper, while also looking marginally at Brazil and the U.S., offers a preliminary exploration of the political economy of agrofuels policy in the EU. In particular, the paper asks why, despite their being originally framed (primarily) as a political project to improve energy security in the Americas and to decrease the environment footprint of Europe, does production of first generation agrofuels continue to receive massive political support even as civil society groups are exceedingly critical of their environmental and social potential, and improving scientific and economic understanding increasingly confirms their inability to adequately fulfil these goals? Using a neo-Gramscian foundation for the political economic analysis presented here, I argue that, despite the official rationale for North American and European agrofuels projects slipping slowly away, continued increases in first generation agrofuel production are being mandated largely because capital interests have co-opted agrofuels discourses and politics on both sides of the Atlantic, to the point where environmental science and energy security justifications can no longer be used to effectively steer this industry.

This paper progresses as follows. In the second section, the neo-Gramscian theoretical framework used here will be elaborated. The third section looks into the historical formation and initial discursive framings of agrofuels in the three contexts, followed by an analysis of what I label the food vs. fuel rift in section four. Section five brings the discussion up to date with emerging issues in the agrofuels debate are set to shape the future development of this industry, that of certification schemes for sustainable agrofuel production and second generation fuels and finally the conclusion offers some final statements.

2. NEO-GRAMSCIANISM & THE AGENCY OF NON-STATE ACTORS

Although there are at least three strands of neo-Gramscianism, which is not so much a complete theory itself but rather a set of coherent theoretical fragments, the basis of all Gramscian political economic thought, and the more nuanced neo-Gramscian perspective (which brought Gramsci's discussion out of its original national context and onto the transnational stage), is its unique conceptualization of

the term hegemony. Rather than simply understanding hegemony in purely realist terms, i.e. to mean the dominance or supremacy of one actor or group over another, hegemony in the Gramscian sense is equated with the establishment and perpetuation of a dominant class through the embedding of the interests of this class in fabric of society. The hegemonic group or ideology must do much more than simply dominate others; it must foster widespread societal appeal and acceptance, handling resistance through compromise and co-optation of naysayers. More concretely, Stephen Gill, one of the primary architects of neo-Gramscian thought, describes the Gramscian conceptualization of hegemony as…

> … a pattern of rule that combines both coercion and consent, in ways that advance a political and class project...that always involves the need to confront and to incorporate significant elements of opposition, whilst seeking to marginalize or to depoliticize political, cultural, or strategic alternatives. (Gill, S. 2003, pp13)

This strategic and compromise filled marginalization and/or de-politicization of alternatives is a complex task requiring the mass mobilization of political, economic and social forces. Indeed, the role of civil society actors such as the media, religious organizations, NGOs, academia, etc. (together the educators of society), is key to the ideological reproduction of core hegemonic ideals. Through these avenues, the aim of this project is to manipulate news, moral debate, and science in a way which serves to promote and reinforce the specific socioeconomic and sociopolitical framework, goals, and ideals at the core of the hegemonic project. Dissenting voices struggling against co-optation illustrate the dual character of civil society according to Gramsci (Levy and Newell, 2002). While civil society actors may chastise and attempt to resist discourses arising out of the hegemonic project (through protests or other political activities), by working within the rules, norms, and other boundaries set up by the hegemonic project, these actors in fact serve to further legitimize the very system they seek to contest (picture anti-globalization protesters who communicate on mobile phones, try to be seen on international television, pay a multinational for internet service to maintain their website, made while sitting on a chair from Ikea, with software from another multinational). For clarification, an organization may pose an ideological challenge in the form of protesting a law or lawlessness in some area, and indeed it may affect a change in the system- a compromise- fully or partially satisfying the challenging organization in question but without affecting a

fundamental shift in hegemonic ideology. If complacent with this success, the former voice of opposition is passively co-opted by the very ideology it had formerly fought against. In this way civil society acts dually as a source of resistance and reinforcement at the same time. Later, the discussion of NGO opposition to agrofuels will provide examples of this phenomenon.

Hegemony is exercised through an "historic bloc's" ideological presence in and control of state apparatuses, economic might and the aforementioned societal consent (Levy and Newell 2002). Numerous authors, beginning with Cox (1987) have analyzed the influence of transnational class networks as emergent an historic blocs, in shaping the development of global capitalism from Gramscian and neo-Gramscian perspectives. Although multiple conceptualizations have evolved over the past decade as a means to understand the structural, instrumental and discursive power of these networks, this paper specifically utilizes the Amsterdam school's approach initially popularized by authors Bastiaan van Apeldoorn and Kees van der Pijl.[4] The centrality of actor agency to political economy in their view has placed the transnational capitalist class (TCC) at the focus of much of their scientific endeavors. The TCC is not a single group of individuals and cannot even be considered a unitary actor (see footnote 30), but is an informal collection of (often temporarily) ideologically motivated actors whose primary goals revolve around the promotion of the interests of capital and the reproduction of its societal and political import (Apeldoorn 2000). In understanding the agency of these networks in terms of shaping global politics, the approach emphasizes that this agency has evolved through their ability to create and provide forums for TCC members to socialize and articulate their interests, which in turn also allow them to establish collective class strategies and integrate themselves into national economic and political structures (van Apeldoorn 2004).[5] Although these policy shaping bodies such as the ERT and the Biofuels TP,[6] and high profile events like the World Economic Forum's annual meetings in Davos seem to give this group names and faces, the reality is that much of the influence of this group comes from a

[4] In comparison to the Amsterdam approach, a more sociological approach to analyzing the transnational capitalist class has also been developed by Leslie Sklair (Sklair 2001).
[5] Examples of such organizations are the Trans-Atlantic Business Dialogue, the European Roundtable of Industrialists, the World Trade Organization, the IMF, etc. (see e.g. Cox 1987, Sklair 1997, van Apeldoorn 2000)
[6] An industry based policy advising body similar to the ERT, discussed later in section 3

more hidden element which wishes to stay out of the limelight,[7] and that a distinction between who is working as a governmental actor and who a representative of the TCC is often impossible to make due to the revolving door type of movement within these circles. MPs are often also business leaders or former businessmen themselves and other business leaders are friends, neighbors or relatives of active politicians- these two groups have an inherent interrelationship with one another that makes any analysis of the interests of these groups as separate entities highly problematic.

Crucial to acknowledge is the power these networks have in terms of enacting their agency, wherein three forms of power can be identified: direct, structural, and discursive. These powers of capital are seen as driving forces behind the formation and consolidation of the current neoliberal world order. The direct power of capital is best illustrated, inter alia, by the ability of firms' to choose how to distribute profits and tasks amongst subsidiaries, i.e. where to build, as well as close, production, marketing and distribution sites.

The structural power of capital is more coercive and involves the tactical maneuvering of firms to get what they want by performing risk analyses of the business environment in a country or region for example (Gill and Law 1998). Such risk analyses have the effect of playing governments off of one another to gain concessions, and at the same time they constrain governments by restricting their freedom to pursue certain economic environmental and social policies without losing their attractiveness as production or business locations (ibid). These decisions directly impact the global division of labor and tasks, in essence, serving to create the multiple nodes making up the global value chain. The position of local firms (be they subsidiaries of foreign multinationals or home-grown firms) in the global value chain has significant impacts on national economic development, in terms of affecting income distribution (both within the country and around the globe) and the capacity for technological development, which enables firms to not only climb but also retain a position on the value chain. In attempting to ensure economic growth and development, governments are often forced surrender their political sovereignty over decision and policy making processes in order to meet and satisfy the needs and

[7] Although I have used the ERT as an example of a the face of the TCC, its actions are still very much out of the public eye in most cases despite the fact that it has played and continues to play a massive role in shaping European policy. For example, the ERT is essentially credited by many for the pushing through of the European Monetary Union, which established the common market and common currency, although at the time its actions received very little attention from civil society or the media (van Apeldoorn 2000).

demands of business. The TCC has played an instrumental role in providing ideological and institutional pressure for such decisions (van Apeldoorn 2000).

In his empirical analyses of the agency of the European Roundtable of Industrialists (ERT)[8] on European governance, Bastiaan van Apeldoorn (2000), argues that the well recognized democratic deficit in the of the EU and the increasing influence of social forces attached to the TCC in European politics are essentially a result of what Stephen Gill has called the *new constitutionalism* of the neoliberal globalization project, i.e. "the politico-legal dimension of the wider discourse of disciplinary neoliberalism" which serves to "separate economic policies from broad political accountability in order to make governments more responsive to the discipline of market forces and correspondingly less responsive to popular-democratic forces and processes" (van Apeldoorn 2000, p160). There are numerous examples of this type of decoupling of economic policy from governmental accountability which have paralleled the rise of the neoliberal hegemonic project over the past 25-30 years, such as: floating exchange rates, the surge in politically independent central banks, the utilization of market based solutions to environmental and other problems of the "commons," the liberalization capital and service markets, privatization schemes, as well as the negotiation and implementation (both at the national as well as transnational economic governance level) of regulatory policies to support the growth of capital. The entrenchment of neoliberal ideology into law around the globe (sometimes with popular consent, but often more coercively, with little public support), has enabled the neoliberal globalization project to weave capital interests neatly into the daily workings of not only politics and economics, but to a certain extent, into society itself, co-opting and coercing resistance as it goes. Indeed, despite an obvious conflict of interests, as alluded to in the quotation in footnote 15, most international agreements and legislation involving environmental standards are too drafted by business related interest groups (Gleckmann 2004). As is discussed in section 4, the case of agrofuels has been no exception.

[8] This is an organization seen as epitomizing the TCC. It is composed solely of the CEOs of major European industrial powers, and according to one of its former Chairmen, Wisse Dekker, is "more than a lobby group as it helps to shape policies. The Round Table's relationship with Brussels is one of strong co-operation. It is a dialogue which often begins at the very early stage in the development of policies and directives." (van Apeldoorn 2000, p160)

Besides the explicitly identifiable structural and direct powers of capital interests, the more subtle and implicit discursive power is indeed at the very heart of a critical analysis of power, as is illustrated by this statement by Doris Fuchs:

> Actors strategically use discourse to shape norms and ideas; for instance by employing symbols and story-lines, and by strategically linking issues and actors to established norms and ideas…, actors are embedded in a social setting determined by discourse, and while they may shape that discourse, they are at the same time enabled and constrained by it. (Fuchs 2005, p84)

Important to understand here is that power does not only imply the ability to pursue interests, but also entails the capacity to create these interests and guide those of other actors (ibid). Additionally, by molding discourse in their favor, actors exercising discursive power create legitimacy for their position- essentially the co-optation of Gramsci's hegemony. Implicit in this worldview is the idea of social constructivism, this is notion that ideas, and correspondingly knowledge, cannot be isolated from the social contexts (practices and structures) in which they are formed, discussed, and acted upon. Individuals, organizations, firms and governments all base their decisions and actions upon an understanding of reality based on a specific worldview. The next section builds upon the neo-Gramscian framework of agency, society and power presented here through a discussion of the agrofuels politics in Brazil, the EU and US.

3. CREATING, THEN RE-CREATING A MARKET: SHIFTS IN AGROFUELS PRODUCTION AND USE RATIONALE

Although used for more than one hundred years in varying capacities as fuel additives or fuel in its own right, the modern market for plant based ethanol and diesel was essentially created as a response to the oil shocks of the late 20th century beginning with 1973 oil crisis, which brought fuel ethanol to the forefront of energy politics of the Americas (Keeney 2009). As alternatives were sought to dependency on OPEC countries for energy needs, the Brazilian government began its National Alcohol Program (Programa Nacional do Álcool) popularly called Pró-Álcool in 1975, with sugarcane ethanol being developed as a key domestic source of fuel. The program provided the initial drivers for the development of the industry: guaranteed purchases from the government owned oil concern Petrobas, attractive loans for agro-

industrial ethanol producers and processers, and state set, fixed gasoline and, much lower, ethanol prices (Lovins, 2005). Whereas in Brazil, the main agent forming the energy security storyline within agrofuels discourse was the state, in the U.S., this was primarily formed by a single economic actor, agricultural giant Archer Daniels Midland (AMD), which began heavily lobbying the U.S. government with the same argument that corn ethanol should be developed as a fuel source to safeguard against future shocks. As a result, in the U.S. in 1978, the Energy Tax Act exempted gasoline with at least a 10% ethanol blend from the $0.04 per gallon federal excise tax with more ethanol friendly legislation following in 1980 setting the stage for a future of massive levels of state assistance to the industry (Keeney 2009). In addition to the energy security arguments seen in both countries, rural economic growth became a key argument used by lobbyists to promote the industry as well. Resultant agrofuel support came in the form of research funding, subsidies, other tax breaks, consumption mandates and protectionist tariffs- all of which still heavily underwrite U.S. agrofuel production but have mostly been dismantled in Brazil since the mid 1990s, save research funding initiatives and blending mandates for diesel and gasoline (Giersdorf 2009). In both Brazil and the United States, powerful agricultural lobbies hold significant influence over the political developments in the bioenergy sector.

Development of European agrofuels began much later, with national and regional policies first appearing in earnest in the mid to late 1990s with European motives differed to those of the U.S. and Brazil. France, Germany, Spain and Sweden created successful agrofuel support programs mostly through long-term tax incentives during this time, aiming marginally on the one side at improving rural economic situations, but primarily at boosting the environmental friendliness of their fuel consumption (van Thuijl, E. and Deurwaarder, E.P. 2006). Other countries, such as The Netherlands and the U.K. remained more reluctant and, citing economic and environmental concerns about agrofuels, did not begin promoting them in earnest until 2002 and 2003 respectively; and even then, both countries were and have remained extremely mindful of the type of agrofuels they promote (ibid). In 2000, an EU level Green Paper 'Towards a European strategy for the security of energy supply' began a more comprehensive regional policy, culminating in the EU 'Directive on the promotion of the use of biofuels or other renewable fuels for transport' in 2003, mandating a 2% agrofuels target for 2005 and a 5% target for 2010 as part of Europe's efforts to meet it's Kyoto protocol commitments (EC 2003),

which served as a major impetus for countries lagging behind to begin promoting agrofuel production and consumption domestically. It follows then, with the alternative green (but nonetheless state-led) storyline framing the discourse in Europe, that support of the industry would be based on fundamentally different criteria than agrofuel production in the Americas, which at the time was essentially only concerned with quantity, whereas Europe, at the beginning, was looking at quality.

Despite these initial differences across the Atlantic and the hesitancy of the U.K. and the Netherlands, after the signing of the Kyoto Protocol in 1997, Europe and the Americas began to converge, and agrofuels were sold to the global public at the turn of the millennia as a near panacea for global transport energy concerns. With climate change scientists raising ever louder warning cries about CO_2 outputs, agrofuels began to be seen not only as a source of energy security in times of tight oil, but as a hope for a more environmentally friendly future (IEA 2004).[9] On both sides of the Atlantic, governments and industry alike began touting the multiple benefits of agrofuel production. Able to be used in most modern auto engines with little modification, these fuels were the first technology based solution which, it was thought, would allow the consumption based, highly mobile, Western lifestyle to continue and indeed grow, unabatedly. Initially optimistic energy balance statistics combined with the consistent increases in already record high oil prices worked to the benefit of agrofuel producers, who were turning out what was suddenly perceived as an environmentally friendly, financially sound and geopolitically secure alternative to gasoline and diesel.

With seemingly everything pointing towards a bright future for these fuels, governmental promotion of them ballooned at the turn of the century and correspondingly, production boomed. Bioethanol (which substitutes gasoline) production capacity in the United States leapt from approximately 10.2 billion liters in 2003 to 34.1 billion liters at years end 2008, placing the US at number one in global bio-ethanol production, far ahead of Brazil, the world's second largest producer at 22.5 billion liters in 2008.[10] Putting this in a global perspective, in the decade between 1991 and 2001, ethanol production increased from approximately 16 billion liters a

[9] IEA 2004 provides a comprehensive literature review of environmentally minded agrofuels studies carried out up to that point. Although providing an overall positive outlook for their energy balances and CO_2 outlook, the publication does give space to the limited critical science which was already available in 2004.

[10] US numbers: http://www.ethanolrfa.org/industry/statistics/
Brazilian numbers: http://www.unica.com.br/dadosCotacao/estatistica/.

year to only 18.5 billion liters. From 2001 to 2007 however, production tripled to nearly 60 billion liters per year (Steenblik, 2007, p9). Germany is the world's largest producer and consumer of biodiesel, with a total production capacity of about 2 billion liters in 2007 although both Indonesian and Malaysian palm oil biodiesel are set to surpass her production capacity in the near future.[11]

By allowing the environmental aspect to be added to the discourses surrounding agrofuels, the coalitions of actors framing the discussion had opened up their doors to a new set of primarily civil society actors, who by their very nature were and are generally critical of environmental exploitation. Through their analyses of these environmental arguments presented by governments and industry, NGOs and university scientists began to shift focus away from increasing sheer production capacities to ensure energy security, and towards the establishment of a scientific justification and legitimation for increasing these production capacities. Government programs supporting agrofuels suddenly found themselves needing more funding for research and development in order to not only find out if these concerns were indeed valid, but to come up with ways to overcome them.

In their discussion of government-funded science, Cozzens and Woodhouse, scholars in the field of Science, Technology and Society (STS), illustrate how states can not only influence science in the short term, but indeed how political decisions can lay the groundwork for entire new fields of scientific inquiry, such as the U.S. wartime examples of atomic and oceanographic research. They categorize these fields as being within the "public interest." On the border of research in this category are issues like agrofuels, where, due to today's convoluted geopolitics of energy, both very public national energy security issues, and very private business interests, are at stake (whereas in the oceanography and nuclear sectors, commercial importance did not play such a large role until much later, and is in many cases still state supported; and in the case of oceanography it still does not play much of a role other than perhaps for oil exploration) (Cozzens and Woodhouse 2001). As noted above, government funding of agrofuels science has grown exponentially in recent years and continues to do so. In the case of the United States, agrofuels subsidies are expected to total nearly US$ 100 billion for the 2006–2012 period (Steenblik 2007). In addition to the subsidies, tariffs, consumption mandates, there is also direct funding for

[11] http://www.ufop.de/downloads/Keypoints_260107.pdf

science, such as the $375 million allotted by the US Department of Energy (DOE) in June of 2007 for the establishment of three bioenergy research centers, and industry loans and grants such as the $385 million the DOE gave in direct grants to six commercial agrofuel refinery projects in early 2007, many of which were bankrupt 12 months later.[12] Combined, government assistance for agrofuels amounts today to an astounding 75% of all renewable energy funding in the U.S. (Shattuck 2009). With such large sums going into this industry, to both prove and improve them environmentally, the human rights/food security issues discussed below had been pushed to the back burner despite the fact that they had been left essentially unaddressed since 1982, when concerns over food security and Brazil's Pró-Álcool program had already warranted the authoring of a book by Göricke and Reimann entitled (my translation from German) "When Fuels Replace Food: how a mistaken alternative energy policy is spreading hunger."[13]

The funding and general government support of this industry has not only been political in the sense that it distributes public resources to a specific cause, but also because it leads to discursive pressure, molding both directly and indirectly what people think is or is not important, and their understandings of what is good/bad for the country or safe/dangerous for the environment (Hetzer 2009, Cozzens and Woodhouse 2001). That being said, it would be wrong of course to think that this government support is simply that, only government support. The agricultural lobbies of Brazil, the EU and US are all infamously strong and influential, evidenced by UNICA's (the Brazilian sugarcane producers' lobby) winning of the worst EU Lobbying Award 2008,[14] ADM's direct and well documented influence in the creation of a U.S. market for ethanol in the wake of the first oil crisis, as well as the continuing existence of Europe's Common Agricultural Policy (CAP) and the similar protectionist agricultural policies of the U.S., boosting the price competitiveness of domestically produced agrofuels despite their higher real economic, environmental and social costs (Koplow 2006, 2007 and Steenblick 2007).

[12] See http://media.cleantech.com/1385/not-everyone-applauds-new-u-s-biofuel- and http://media.cleantech.com/node/803 respectively.
[13] Original German title: "Treibstoff statt Nahrungsmittel: Wie eine falsche energiepolitische Alternative den Hunger vermehrt".
[14] http://www.worstlobby.eu/2008/vote/info/5/

Furthermore, focusing on the European front, Biofuels TP is an industry organization that was invited by (and mostly funded by[15]) the European Commission to assist in drafting Europe's agrofuels strategy up to and beyond 2030 (EC 2006). There has been a lack of civil society representation on the Biofuels TP steering committee, something which the European Environment Bureau (EEB) has ridiculed to no avail (Corporate Europe Observatory 2007).[16] The Biofuels TP's mission statement up to mid 2007 was as follows:

> to contribute to the development of cost-competitive world-class biofuels technologies, to the creation of a healthy biofuels industry and to accelerate the deployment of biofuels in the European Union through a process of guidance, prioritisation and promotion of research, development and demonstration.[17]

Although it mentions sustainability elsewhere in its literature, when one considers that this EC approved policy advising body had both a mission statement and leadership focused primarily on economic aspects of agrofuels production, it is perhaps less striking that many actors felt that sustainability issues did not shine through in the EC's draft Renewables Directive released in January of 2008.[18] Having approved the makeup of this group and ignored calls for its diversification despite its prior knowledge of the impending ecological and human costs of expanding its agrofuels policy, the Commission actively pursued an approach to agrofuel legislation that marginalized environmental and social concerns (Corporate Europe Observatory 2007). Indeed, it was only in early 2008, with the wake of the food vs. fuel crisis addressed below, and initial scientific and civil society outcry over the draft Renewables Directive,[19] that the Biofuels TP, the organization tasked with directing EU agrofuels policy, updated their missions statement to read as follows: "The mission of the European Biofuels Technology Platform (Biofuels TP) is to contribute

[15] http://www.biomatnet.org/secure/FP6/S2047.htm
[16] The precise breakdown of steering committee membership of current Biofuels TP is as follows: oil and automobile industries have three members each, the biotech industry has two and energy, farming, food and forestry each have one. The there are also four research or university representatives. For more information see: http://www.biofuelstp.eu/steering.html
[17] http://www.biofuelstp.eu/downloads/070601_bftp_leaflet.pdf
[18] For an excellent summary of issues and positions within the European context, see: http://www.euractiv.com/en/transport/biofuels-transport/article-152282
[19] For a good summary of the perceived problems surrounding this draft legislation, see: "Commission scientists blast EU biofuels policy" at: http://www.euractiv.com/en/transport/commission-scientists-blast-eu-biofuels-policy/article-169668

to the development of *sustainable*, cost-competitive, world-class biofuels technologies…"[20] (my emphasis).

For a long time, agrofuels could easily have been categorized as what Pielke (2007) has described as tornado politics: they were an issue that could claim political legitimacy through logic and technocratic knowledge. Energy security is good, there are not many who would argue otherwise, and for years, environmental science too was largely in favor of increased agrofuel production. In the next section however, it will be shown that beginning with more advanced environmental science and snowballing with the food vs. fuel debate, agrofuels went from tornado, to abortion politics: i.e. they became issue that entered the realm of morality, where no degree of science could create universal approval or legitimacy for a particular action or position (Pielke 2007).

4. RE-CREATION GOES AWRY: A RIFT IN THE AGROFUELS STORY

Over the years leading up to the image crisis now affecting agrofuels, massive governmental support for the agrofuels industry had created ample potential for greenwashing wherein any industry capable of using, or which participated in the production of, agrofuels had began using them as a marketing tool to push a new image of corporate social responsibility and guilt free consumption.[21] As mentioned in the last section however, all this began to change however as results of numerous studies carried out on the environmental sustainability and social aspects of these fuels began pouring out of universities, civil society organizations, critical governments, and intergovernmental organizations on what seemed like a daily basis beginning in early 2007,[22] just after George Bush announced a realignment in U.S. agrofuels policy in his January State of the Union Address: that energy security and dependency on foreign oil was one of the nation's major challenges and was to be

[20] http://www.biofuelstp.eu/newsletter.html

[21] One excellent example is Virgin Airlines first biofuel powered flight in Feb. 2008, which has now been repeated by a number of other airlines, some even testing biodiesel in their aircraft: http://news.bbc.co.uk/1/hi/uk/7261214.stm.

[22] Some of the more important of these publications include: Biofuelwatch (2007), Braun (2007), Doornbosche and Steenblik, (2007), Fargione et al. (2008), FAO (2007), Searchinger et al. (2008) The Royal Society (2008), and Worldwatch Institute (2007).

addressed by aggressive investment in, and mandatory production increases of, corn based ethanol.[23]

Significant issues related to agrofuels which this waterfall of critical research brought to light included:

- the role agrofuels played in the global food crises of 2007-08 (Mitchell 2008),
- evidence that the true energy balance of many agrofuels is actually negative (The Royal Society 2008),
- that in many countries they cannot be economically viable without government assistance (Doornbosche and Steenblik 2007, CBO 2009),
- that in attempts to improve the energy and economic characteristics of agrofuels, heavy use of genetically modified plants is planned (Shattuck 2009), and finally
- that they directly and indirectly lead to environmental destruction due to land-use changes (Fargione 2008, Searchinger et al. 2008).

It was the focus on the food vs. fuel issue that evolved as a result of dramatic increases in the price of cereals in 2007-08 that eventually came to dominate discussion over agrofuels. Beginning first as an outcry from concerned NGOs, it quickly moved into the mainstream media with dozens of newspaper and online news articles taking on the topic in late 2007 and early 2008 with titles like: "Will biofuel leave the poor hungry?,"[24] "The Clean Energy Scam,"[25] and "After the Oil Crisis, a Food Crisis?"[26] Political cartoonists began parodying the issue with disturbing images of hungry children next to flashy new cars being told by the driver: "You'll have to reduce your consumption."[27]

This deluge of negative press forced political leaders to address the issue. For instance, though noting that agrofuels were not the only factor aggravating food commodity prices (changing tastes, increasing consumption of animal proteins in nations such as China, oil price increases etc.), the head of the UN's Food and Agriculture Organization, Jacques Diouf, called the more than 40% increase in the FAO's price index in 2007 "unforeseen and unprecedented" and noted that the conversion of food crops to fuel crops ranked high on his list of problem areas.[28] And

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[23] Text and audio of the speech can be found at: http://www.americanrhetoric.com/speeches/stateoftheunion2007.htm

[24] http://news.bbc.co.uk/2/hi/business/7026105.stm

[25] http://www.time.com/time/magazine/article/0,9171,1725975,00.html

[26] http://www.time.com/time/business/article/0,8599,1684910,00.html?iid=sphere-inline-sidebar

[27] http://www.globecartoon.com/

[28] Other areas of concern are decreased crop yields due to initial global warming effects and increasing demand for meat as global wealth increases (International Herald Tribune 17 Dec., 2007). http://www.iht.com/articles/2007/12/17/europe/food.php

in October 2007, Jean Ziegler, U.N. special rapporteur on the right to food, made headlines when he described agrofuels farming practices as a "crime against humanity" and called for a 5 year moratorium on agrofuels production so that sustainability and human safety issues could be resolved, a sentiment which he repeated many times during his tenure and which had a major impact on the food vs. fuel discourse.[29] These comments were sparked by the escalation of food price shocks into food riots, which took place in 31 nations all together and are attributed with toppling Haitian Prime Minister Jacques-Édouard Alexis in April of 2008.[30]

Stavros Dimas, the EU's Environment Commissioner commented that policymakers "had not foreseen all the problems" that the EU's agrofuels policy brought with it and that it must be rewritten.[31] Louis Michel, the EU Development Commissioner went even further a week before, agreeing that an international moratorium on increasing agrofuel targets was justified due to the impacts on food security in developing countries.[32] The World Bank, IMF, and indeed even some business leaders raised warnings as well, with the chief executive officer of agricultural giant Cargill, Warren R. Stanley, noting his concerns about corn ethanol's imminent competition with food and feed production in June of 2006, months before it became a political hot-button issue.[33]

While these impassioned words were filling the newsrooms and political podiums all over the world, none of the largest producer and consumer nations, namely Brazil, Germany, and the United States, shared the sentiment that agrofuels were behind the price jumps seen at the time. In Brazil, President Lula vehemently denied, and still denies, that his nation's sugarcane ethanol has serious negative environmental or food security effects. Instead he stated that: "Food is expensive because the world wasn't prepared to see millions of Chinese people, millions of Indians and Africans eating three times a day" (van Loon 2008) but more passionately, he blamed Western agricultural policies like those of the U.S. for

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[29] BBC News Online, 27 Oct. 2007. http://news.bbc.co.uk/2/hi/americas/7065061.stm
[30] AFP (2008). "Haiti PM ousted over soaring food prices", Available at: http://afp.google.com/article/ALeqM5hL0HvIfNZQ2nMgFdy9dSKLZ7t2Gw
[31] BBC News Online, 14 Jan. 2008. http://news.bbc.co.uk/1/hi/world/europe/7186380.stm
[32] Inter Press Service News Agency (IPS), 11 Jan. 2008. http://www.ipsnews.net/news.asp?idnews=40762
[33] For World Bank and IMF criticisms see: "Poor go hungry while rich fill their tanks" The Guardian: http://www.guardian.co.uk/business/2008/apr/11/worldbank.fooddrinks1 And for Cargill's worry see: "Boom in Ethanol Reshapes Economy of Heartland." New York Times, www.nytimes.com/2006/06/25/business/25ethanol.html

inducing artificial agrofuel competitiveness and therefore demand for food-based agrofuels.[34] Chancellor Angela Merkel of Germany shared a very similar opinion, but said rather, that it was not the agricultural policies of the West that were to blame, but rather, somewhat confusingly, that "inadequate agricultural policies in developing countries" were causing fluctuations and increases in food prices.[35] At the same time (April of 2008) in the U.S., President Bush was steadfast in his standard rationale supporting corn ethanol, that it is an issue of national energy security and that environmental problems are only growing pains until the industry moves on to second generation technology; and, although recognizing that ethanol played a role increasing food prices, he sidestepped the real question by shifting the discussion to U.S. food donations by stating that:

> …85 percent of the world's food prices are caused by weather, increased demand and energy prices -- just the cost of growing product -- and that 15 percent has been caused by ethanol… And the truth of the matter is it's in our national interests that our farmers grow energy, as opposed to us purchasing energy from parts of the world that are unstable or may not like us. In terms of the international situation, we are deeply concerned about food prices here at home and we're deeply concerned about people who don't have food abroad. In other words, scarcity is of concern to us. Last year we were very generous in our food donations, and this year we'll be generous as well…[36]

Not every producing nation was so sure that the food vs. fuel issue could be brushed aside, however. British Prime Minister Gordon Brown in November of 2007, even before the publication of the Royal Society's cautionary report "*Sustainable biofuels: prospects and challenges*," announced that "I take extremely seriously concerns about the impact of biofuels on deforestation, precious habitats and on food security. The UK is working to ensure a European sustainability standard is introduced as soon as possible… and we will not support an increase in biofuels over current target levels until an effective standard is in place."[37] He followed this up in April of 2008 with a letter to the G8 stating his government's concern that corn and

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[34] "Brazil Lula defends biofuels from growing criticism": http://uk.reuters.com/article/homepageCrisis/idUKN16470054._CH_.242020080416 and "Brazil president defends biofuels": http://news.bbc.co.uk/2/hi/science/nature/7351766.stm

[35] "Bad policy, not biofuel, drive food prices: Merkel" http://www.reuters.com/article/environmentNews/idUSL1721113520080417?feedType=RSS&feedName=environmentNews

[36] George Bush's press conference transcript of 29 April 2008: http://georgewbush-whitehouse.archives.gov/news/releases/2008/04/20080429-1.html

[37] Gordon Brown's speech on Climate Change, 19 Nov. 2007. http://www.number10.gov.uk/output/Page13791.asp

sugar based ethanol were inflating food commodity prices around the world (van Loon 2008).

In 2009, despite the continued production and use of agrofuels, they are for the most part no longer seen as *the* green technology of the future. It is now widely understood amongst politicians, industry and the media that current agrofuels production in many areas of the world is not environmentally sustainable and in others, not socially sustainable, and in many cases, generally not even economically sustainable. Never before had a booming industry, with significant national and international regulatory and public financial support, and also backed by powerful business lobbies gone from hero to discursive zero with the speed and ferocity that agrofuels did from 2007-08.

According to Keck and Sikkink, key to the success of activist networks in the past, similar to those fighting for the repeal of blind agrofuels support, has been the strategic framing of issues focused on human pain and suffering (Keck and Sikkink 1998, see also Sell and Prakash 2004). Although it is arguable that the emergence of critical science in general at approximately the same time as the food crisis began played a significant role in the attention received by agrofuels in 2007-08, the immediate political action required to stave off the possibility of being blamed for exacerbating an already desperate global food scenario proved to be an "exceptional moment" (Hay 2001) in agrofuels history, in which control of the growing contradictions and crises presented by agrofuels left state hands and was put into those of a critical group of civil society actors for public debate.

As Hay notes: "In the absence of wide-scale public debate about such policy failures and fiascos that manages to link policy contradictions to a more generic sense of crisis…the narration and definition of the problem is likely to remain internal to the state apparatus itself" (Hay 2001, p200). In this case, using the commodity price increases, food shortages, and ensuing riots as ammunition to refocus the agrofuels discourse away from environmental issues, civil society, intergovernmental organizations, the media, as well as some more critical governments such as the U.K., jumped on this new, humanitarian food vs. fuel storyline as a means to garner and leverage public and political attention, pulling discursive control out of the hands of the then nearly hegemonic promotional agrofuels discourse. The extreme changes in perception that this shift in discursive control brought about were unprecedented, with

one consulting group's analysis of 30 industry leaders going so far as to conclude that despite the massive political and financial capital already invested in it's success, the agrofuel "industry's future is highly uncertain because of political risks…" and because "Biofuels producers… misjudged government sensitivity to food price inflation and environmental concerns; and failed to find industry solutions to sustainability challenges…" (F&C Investors 2008, p3).[39] In addition, statements like that noted before by Stavros Dimas that policymakers had not foreseen the possible issues agrofuels brought with them, inadvertently carried more ammunition for agrofuel naysayers. In this case, a 2006 Commission working paper had explained that indeed, it had been well understood that both environmental and social problems would possibly arise if the EU further promoted extensive agrofuel production and consumption:

> …increased use of biofuels in the EU will be accompanied by an increased external demand for biofuels and their feedstocks, which is likely to have various effects on developing countries... In addition, there are substantial CO_2 losses if grassland is ploughed up or forest cleared. These losses can be expected to outweigh CO_2 gains from biofuels for many years. (EC 2006, pp29-30)

The same document goes on to elaborate upon food security issues, stating that: "when biofuels are promoted as agricultural produce, they may compete with food crops for land, labour and capital." (EC 2006, p31) This statement is caveated however with the following: "At present, however, there is little understanding whether this competition will actually arise." (ibid)

In not adequately addressing the probable environmental costs of their environmental program, in addition to the possibility of rising commodity prices and their consequent negative effects on human welfare, European lawmakers had taken a calculated risk and formed their policy largely on the basis of the opinion of an industry organization. As a result of the food vs. fuel debate taking off only a few months before the publication of the draft EU Renewable Energy Directive in January

[39] F&C Investors analyzed 30 multinationals involved in agrofuels in attempts to ascertain opportunities and constraints to the further success of this industry. The companies considered were, by economic/regional category: *European companies:* Argent Energy, BP, D1 Oils, Eni, Ensus, Marks & Spencer, Neste Oil, Petrotec, Royal Dutch Shell, Statoil Hydro, Tesco, Total, and Verbio AG. *Emerging markets companies:* Brasil Ecodiesel, China Sun Bio-Chem Technology, Clean Energy Brazil, CNOOC and Petrobras. *US companies:* Archer Daniels Midland, Aventine Renewable Energy, Bunge Ltd, Chevron, DuPont, Global Ethanol, Marathon Oil, Metabolix, Pacific Ethanol, Potash Corporation, Tesoro and Verasun Energy

of 2008, the document was met with extraordinary criticism from civil society[40] and both in-house and external scientists.[41] The directive was reviewed over the course of the year and eventually, in June of 2009, a significantly redrafted version was passed, which included a reduced mandate for agrofuels consumption, slightly more concrete sustainability criteria, and the requirement that a "major review" of European agrofuels policy take place in 2015.[42] This version too was inevitably met with hostility from critical civil society groups, as fundamentally the legislation remained unchanged: an enormous increase in agrofuels consumption was mandated, no concrete rules were set up to define what would qualify as sustainable and what not, and as was feared, before any certification system could be designed, the Directive has already fueled massive environmental destruction to clear areas for agrofuels production in developing nations, spurned by the promise of increasing, and enormous demand for agrofuels both at home and abroad in the future.

This piecemeal style of appeasement attempted by parliamentarians can be thought of as a type of path dependency brought about an attempt to co-opt resistance to the EU's agroenergy plans, and of the new composition of their coalition and the new discursive locations which this discussion must take place to have legitimacy, i.e. within civil society.

In contrast to the European case, Brazil and the U.S. have not changed their positions in any significant manner. In part, this was due to the scientifically disputed role that agrofuels were indeed playing in observed commodity price increases. Statements from various officials and reports from different organizations, all coming to different conclusions, made the situation very confusing for decision makers, something that often occurs in environmental controversies (Sarewitz 2004). For example, the World Bank released a working paper which estimated that "70-75 percent (of the) increase in food commodities prices was due to biofuels and the related consequences of low grain stocks, large land use shifts, speculative activity and export bans." (Mitchel 2008, p17). An OECD report came up with much lower numbers, and predicted future increases of only a few percentage points increase over

[40] "Biomass and Biofuels in the Renewable Energy Directive" http://www.biofuelwatch.org.uk/docs/RenewableEnergyDirective.pdf
"Inadequacy of the Renewable Energy Directive";
http://www.birdlife.org/eu/EU_policy/Biofuels/eu_biofuels5.html
[41] "Commission scientists blast EU biofuels policy":
http://www.euractiv.com/en/transport/commission-scientists-blast-eu-biofuels-policy/article-169668
[42] "EU agrees 10% 'green fuel' target in renewables deal": http://www.euractiv.com/en/transport/eu-agrees-10-green-fuel-target-renewables-deal/article-177812

the next decade.[43] Finally, at an FAO food crisis meeting in Rome in June of 2008, U.S. Agricultural Secretary said that agrofuels were responsible for "only 2-3% of the food price increases."[44]

Another reason for the lack of action in the Americas is that the food crisis began to subside late in 2008 after the drastic fall oil prices from over $150 to under $40, and the simultaneous ramping up of the global financial/economic crisis. These two phenomena led to, on the one side significant cost reductions for distribution and production as fuel prices lowered and on the other side, reduced demand as the crisis took hold.

In the Brazilian case, a third reason for the lack of significant policy changes in light of the agrofuels crisis is that sugarcane remains the only first generation agrofuel to have a generally undisputed positive energy and carbon balance due to the superior growing conditions and advanced processing and distribution capabilities which exist in the Brazilian context. And to boost rationale for continued production even more, President Lula justifies his nations production not only for domestic reasons but as the source of valuable technological and methodological innovation that can be cheaply copied in other national contexts and indeed, he has created programs for technology transfers programs for poor countries, labeling agrofuels an "historic opportunity" for his and other developing nations, stating: "When we think of ethanol, our goal is to help the poor. The world must become cleaner, and the world needs jobs."[45]

North of the equator, the lack of change through the end of the Bush presidency in January of 2008 can primarily be explained by the administration's careful promotion of the energy security argumentation rationale. In accordance with the ethanol goals outlined his aforementioned 2007 State of the Union Address, aptly titled Energy Independence and Security Act of 2007 (renamed from the original CLEAN Energy Act of 2007)[46] was drafted in the Summer and signed into law in December of 2007, managing to avoid being re-evaluated in light of the, at that time, still emerging food vs. fuel debate. In 2008, the United States sidestepped the issue (though not without criticism) by providing a massive food aid package, promising

[43] http://www.oecd.org/document/28/0,3343,en_2649_34487_41013916_1_1_1_1,00.html
[44] "Bioenergy: Fuelling the food crisis?": http://news.bbc.co.uk/2/hi/europe/7435439.stm
[45] "The High Price of Clean, Cheap Ethanol": http://www.spiegel.de/international/world/0,1518,602951,00.html
[46] The original draft bill is available at: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_bills&docid=f:h6ih.txt.pdf

$770 million in food crisis relief funding in May of 2008.[47] Although the Obama administration has made significant promises to pursue a genuinely green energy policy, to date the situation remains essentially unchanged on the agrofuel front, save an apparent promise by President Obama to President Lula that over time he could see the current $0.14 per liter tariff on Brazilian ethanol removed but that "it's not going to change overnight."[48] This would be a significant move as it would mean that in order for the U.S. not to be flooded with much cheaper Ethanol from Brazil, it would have to see major efficiency increases at home, which are unlikely to arise through the continued production of first generation agrofuels.

5. FUTURE OUTLOOK

Calls for regulation of sustainably produced agrofuels have come from the European Union, the State of California, and large environmental groups within the United States and Brazil. The EU and California have begun to legislate requirements for production and use of agrofuels in their jurisdictions, both of which have implications for producers abroad as well, and are currently facing potential NAFTA and WTO retaliation despite careful framing of these requirements to avoid such problems.[49]

Although environmental groups may be relatively unified in their recognition of agrofuels as a major social and environmental issue, a number of competing agrofuel storylines exist within their ranks and correspondingly, their specific reactions to the situation have been fragmented. Many NGOs, including influential groups like Greenpeace and the World Wildlife Fund have fought very hard for the inclusion of substantive criteria on social and environmental issues in agrofuels regulation, whereas other more critical organizations feel that this willingness to support these regulations in principle (although they may still have substantive problems with proposed programs and legislation) is an example of playing into the hands of capital interests by offering companies a way to legitimize their possible

[47] "Bush offers $770m for food crisis" http://news.bbc.co.uk/2/hi/americas/7378807.stm
[48] "Brazil's Lula presses Obama on Doha": http://ictsd.net/i/news/bridgesweekly/43442/
[49] "New California fuel rule may violate NAFTA: lawyer" http://www.reuters.com/article/environmentNews/idUSTRE53O0NO20090425?feedType=RSS&feedName=environmentNews

abuse of the environment in producing these fuels. These critical groups instead have made numerous calls for moratoriums on production of agrofuels and incentives for the industries involved. That of EcoNexus for example, a call for a moratorium on incentives for and imports from large-scale agrofuel plantations, has accumulated the support of 212 NGOs from all over the world to date.[50]

The most prominent global regulatory initiative attempting to regulate agrofuel production and consumption, voluntary Roundtable on Sustainable Biofuels (RSB), is an amalgamation of national and multinational companies such as the Brazilian Sugarcane Industry, British Petroleum, Bunge, the Federation of Swiss Oil Companies, Petrobas, and Shell Oil, and large civil society organizations such as the International Union for the Conservation of Nature, the Natural Resources Defense Council, and the World Wildlife Fund. The goal of the RSB is to create a third party certification system similar to those in other industries such as the Forest Stewardship Council (FSC) or Fair Trade coffee. Importantly, it's set of draft standards, Version Zero,[51] were drafted with heavy stakeholder involvement, are very comprehensive, and address many social issues including human and labor rights, food security and rural development. That being said, most RSB standards remain weaker than their FSC forbearers, others seem more or less unfeasible,[52] and the lack of methods for delivery (and therefore of realization) of these goals represents a rather large stumbling block for the time being. A final issue that has received heightened attention in recent months, that of the indirect effects of the industry on other sectors and areas of production and consumption,[53] is one that RSB does not address and indeed it is not yet understood how a system like RSB's could deal with these complex issues as of yet since the *in*direct nature of these issues generally preclude certification schemes from associating these types of changes to any particular producer or other actor (Shattuck 2009). This disclaimer notwithstanding, despite vociferous industry lobbying and even letters from the scientific community to

[50] http://www.econexus.info/biofuels.html#org
[51] http://www.bioenergywiki.net/images/f/f2/Version_zero.pdf
[52] For example, principle 9b states that "Biofuel production shall not deplete surface or groundwater resources." This is an extraordinary expectation considering that the growing of the feedstock plants, combined with processing, can use hundreds of liters of water per liter of agrofuel output, as was outlined by the University of Colorado and UNESCO in Ring 2007.
[53] The now famous 2008 article by Searchinger et al. in Science established that indirect land use effects caused by agrofuel production actually lead to more total CO2 production than gasoline per liter of fuel.

prevent its inclusion,[54] beginning in 2011, California's new Low Carbon Fuel Standard mandates the use of indirect land use change calculations in its requirement for fuel producers to lower the carbon intensity of their products by 10 percent by 2020. The controversy around this issue has not yet come to a close and it will be interesting to see how it plays out discursively in combination with Obama's announced, but not yet mapped out, green agenda since California's move globally represents the first effort to lower the carbon content of the fuels it consumes. Both the Environmental Protection Agency in the US and DGTREN in the EU have begun investigating methodologies for measuring indirect land use change as well, but both are still in the information gathering phase and it is not planned to integrate these calculations into green house gas balance estimates before the end of 2010 in either case.

Coming back to certification, at the moment, support for certification initiatives is far from universal, with governments largely supportive of sustainability certification efforts as are most large industrial players- they want to be seen as green and to have a standard set of rules by which they are to do business globally. Civil society however is again divided along the same discursive lines, only some NGOs support sustainability criteria and certification in principle, such as those involved in the RSB, whereas more critical groups many other groups are highly critical of these efforts, such as GRAIN and Friends of the Earth who have also called for moratoriums on agrofuels production.[55] Shattuck (2009) summarizing both sides of the primary arguments quite well in her closing statements:

> Looking at existing models such as the FSC… suggests that sustainability initiatives for biofuels are highly unlikely to stop the destruction wrought by the agrofuels industry… In the best case scenario, the RSB will create islands of sustainability in the midst of a largely destructive sea… (but) Regardless, the RSB will provide a veneer of sustainability to an industry that desperately needs it. (p130)

In addition to concerns over regulating the agrofuels we have already today, most NGOs feel just as critically about the supposed benefits of those a few years off: the second generation agrofuels. Second generation agrofuels have long been touted

[54] http://www.arb.ca.gov/lists/lcfs-general-ws/28-phd_lcfs_mar09.pdf

[55] . www.natureandpoverty.net has created a database of NGO position papers, policy notes and advocacy letters on agrofuels that lists over 56 documents, including updated positions from some NGOs as their new information forced them to update their views.

as the saving grace of the agrofuels industry, just as the agrofuel industry was once touted as the saving grace of modern Western mobility. Promoters, including the governments of EU member states, the U.S. and Brazil, the industry itself, and a large academic following, claim that second generation fuels will, as listed by Smolker and Tokar (2009, p102):

1) be available very soon, and
2) not compete with food production because they will
3) utilize abundantly available, inedible plant material, including wastes and residues and energy crops that can be
4) grown on widely available "marginal" and “idle” lands,
5) providing opportunities for the poor, and
6) achieve improved energy and greenhouse gas balances.

Detractors of second generation agrofuels have used very similar storylines to those used against present technologies because they hold that these new fuels will present many of the same problems as those we are dealing with today. They will require new land unless we produce less of something else- leading to either higher commodity prices in other sectors or the clearing of land to make room for new agrofuel crops.[56] The technology required to produce them is complicated and expensive, precluding smallholders, and most developing countries in general, from realistically seeing much benefit from this new technology. Above all however, is the claim that, in the case of the U.S., it is illogical to be currently placing 75% of renewable energy funding in such controversial technologies while other safer, more widely accepted technologies such as wind, solar, geo-thermal, etc. receive a mere pittance (Shattuck 2009).

Due to the enormous amounts of longstanding public and private funding already dedicated to the development of these technologies however, and together with the backing of dominant discourse coalitions, the concerns voiced by civil society have done little to stymie the enthusiasm of politicians and scientists thus far. Indeed, support for this next technocratic solution has been growing, with start-up

[56] As the Gaia Foundation (2008, p3) explains, “These marginal lands do not exist on the scale people think. In Africa, most of the lands in question are actively manages by pastoralists, hunter-gatherers and sometimes dryland farmers.”

companies over the U.S. and Europe vying to be the first to come up with a marketable method and feedstock for the next "green" fuel.

6. CONCLUSIONS

This paper has sketched a brief political economic history of agrofuels Brazil, the EU and US, representing the three largest agrofuel consumers and producers in the world. Through an analysis of the food vs. fuel debate of 2007-08, at which time agrofuels were framed not only as environmentally questionable, but as potential violators of the human right to food[57] as well, this paper shows that, valid as environmental concerns over agrofuels may have been and remain to be, they alone were not enough to convince governments to rescind the significant financial and political support that had been bestowed upon the agrofuels industry up to that point. It was only with dramatic rise in food commodity prices over the course of 2007 and 2008 and the subsequent framing by NGOs and intergovernmental organizations of agrofuels as infringing not only upon the health of our planet but directly and dramatically upon the health and well being of humanity, that policy space for truly critical discussion of agrofuels came to fruition in the European context. In the Americas however, human rights and environmental issues have been deflected using development and energy security rationales, and agrofuel production is today being pushed heavier than ever before.

That being said, as a new category of commodified nature, the newly gained infamy of agrofuels has re-opened discussions on what environmental issues are exactly. In particular, building upon the socio-environmental momentum of climate change, and despite the continued enthusiasm seen for the development of second generation agrofuels, the social aspect of the agrofuels debate has created an air of caution regarding apparent quick fixes to environmental problems, especially when said apparent answer lies not with a microchip or solar cell, but with part of the natural environment. One hurdle that to date has not been adequately dealt with politically however, is the level of international cooperation required to begin an

[57] The Universal Declaration of Human Rights Article 25(1) states that: "everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing..."

earnest attempt at certifying environmentally sustainable production and consumption of these fuels, which is of different type than the cooperation required for environmental issues of the past such as illegal logging or acid rain. Cooperation must be socio-political, and will be challenging economically as an entire supply chain will have to be monitored: it will not enough to simply establish at the plantation that a crop was grown with minimal effects on the local environment, the certification of agrofuels will have to take place, repeatedly over the entire production process, as carbon and energy balances can be shifted into the negative through shoddy processing or inefficient distribution as well (Shattuck 2009).

Despite the lack of major changes seen in the big producer and consumer countries to date, the food vs. fuel debate did indeed create a discursive Pandora's box for agrofuels politics in many ways. Although environmental questions and critiques had actually arisen first, they had not alone built up enough momentum to move the fortress of confidence and support already surrounding this technology. The introduction of the food vs. fuel issue by civil society and intergovernmental organizations however, required actors across the board (political, industrial, civil society) to suddenly take positions and make statements on this issue. It was nearly impossible to do this however, without also addressing other criticisms of these fuels as well, such as land use change, carbon and energy balances, biodiversity loss, water consumption, etc. Indeed, the food vs. fuel debate served an important role by proving the political space to open a critical dialogue amongst politicians, and between politicians and other actors, for the reassessment of the agrofuels industry that did previously exist. That being said, it is still very much unclear whether the thus far largely positive and largely hegemonic discourses surrounding agrofuels in many governmental and industry contexts have been dampened enough to see realistic rethinking of current policies towards this technology in the run-up to the negotiation of a follow-up agreement to the Kyoto Protocol in Copenhagen this winter.

Bibliography

Beisheim, Marianne (2005). "NGOs und die (politische) Frage nach ihrer Legitimation: Das Beispiel Klimapolitik," in Brunnengräber et al. (eds.) NGOs im Prozess der Globalisierung: Mächtige Zwerge – umstrittene Riesen. Bonn, Bundeszentrale für politische Bildung.

Biofuelwatch (2007). "Agrofuels – towards a reality check in nine key areas". http://www.biofuelwatch.org.uk/docs/agrofuels_reality_check.pdf Checked 25/05/09.

Braun, Joachim von (2007). "The World Food Situation: New Driving Forces and Required Actions." International Food Policy Research Institute. IFPRI Food Policy Report No. 18. http://www.ifpri.org/pubs/fpr/pr18.pdf Checked 25/05/09.

Casson, Anne and Obidzinski, Krystof. 2002. "From New Order to Regional Autonomy: Shifting Dynamics of "Illegal" Logging in Kalimantan, Indonesia." World Development Vol. 30, No. 12, pg2122-2151.

Congressional Budget Office (2009). "The Impact of Ethanol Use on Food Prices and Greenhouse-Gas Emissions" http://www.cbo.gov/ftpdocs/100xx/doc10057/04-08-Ethanol.pdf Checked 25/05/09.

Corporate Europe Observatory (CEO) , (2007). "The EU's agrofuel folly: policy capture by corporate interests" Briefing paper, June 2007. http://www.corporateeurope.org/agrofuelfolly.html Checked 25/05/09.

Cozzens, Susan and Woodhouse, Edward (2001). "Science, Government, and the Politics of Knowledge," in Jasanoff, Sheila/ Markle, Gerald/ Peterson, James/ Pinch, Trevor (eds) (2001). Handbook of Science and Technology Studies. Sage, pp533-553.

Doornbosche, Richard and Steenblik, Ronald (2007). "Biofuels : Is the cure worse than the disease?" OECD. Working paper SG/SD/RT(2007)3/REV1. http://www.oecd.org/dataoecd/15/46/39348696.pdf Checked 25/05/09.

European Commission (EC) (2008). Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources. European Commission, COM(2008) 19 final. 2008/0016 (COD) http://ec.europa.eu/energy/climate_actions/doc/2008_res_directive_en.pdf Checked 25/05/09.

European Commission (EC) (2006) "An EU Strategy for Biofuels: Impact Assessment" European Commission, COM(2006) 34 final. Commission Staff Working Document, Annex to the Communication from the Commission,

Commission of the European Communities, Brussels, SEC(2006) 142. http://ec.europa.eu/agriculture/biomass/biofuel/sec2006_142_en.pdf Checked 25/05/09.

European Commission (EC) (2003) "DIRECTIVE 2003/30/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport." Euprean Commission L 123/42. Available at: http://ec.europa.eu/energy/res/legislation/doc/biofuels/en_final.pdf Checked 25/05/09.

F&C Investors (2008). "Biofuels and sustainability: an investor perspective," http://www.fundnets.net/fn_filelibrary/file/co_gsi_reo_research_biofuels.pdf Checked 25/05/09.

FAO (Food and Agriculture Organisation) (2001). "Food Outlook (Global Market Analysis)" No. 1, June 2007, http://www.fao.org/docrep/010/ah864e/ah864e00.htm Checked 25/05/09.

Fargione, Joseph et al. (2008). "Land Clearing and the Biofuel Carbon Debt," Science Vol. 319. no. 5867, pp. 1235–1238.

Fischer, Frank (2003). Citizens, Experts, and the Environment: the politics of local knowledge. Durham and London, Duke University Press.

Financial Times (22 Feb, 2008). "Nestlé chief warns of land resources clash." http://www.ft.com/cms/s/0/3a674134-2b1c-11dc-85f9-000b5df10621.html Checked 25/05/09.

Fuchs, Doris (2005). Understanding Business Power in Global Governance. Nomos Verlag, Baden-Baden.

International Energy Agency (IEA) (2004). Biofuels for transport. An international perspective. OECD. Available online at: http://www.iea.org/textbase/nppdf/free/2004/biofuels2004.pdf Checked 25/05/09.

Gaia Foundation (2008). Agrofuels and the Myth of the Marginal Lands. Gaia Foundation. Available at: http://www.gaiafoundation.org/documents/Agrofuels&MarginalMyth.pdf Checked 25/05/09.

Giersdorf, Jens (2009). "Biokraftstoffe in Brasilien zwischen Martgeschehen und staatlicher Förderung" in Franik, D. et al. (2009). Biokraftstoffe und Lateinamerika - Globale Zusammenhaäge und regionale Auswirkungen. Wissenschaftlicher Verlag Berlin.

Gleckman, Harris (2004). "Balancing TNCs, the states, and the international system in global environmental governance: A critical perspective," in Kanie,

Norichika and Haas, Peter (eds.) (2004). Emerging Forces in Environmental Governance. United Nations University Press, pp203-215.

Greenpeace (2007). "How the palm oil industry is Cooking the Climate" Greenpeace International. http://www.greenpeace.org/raw/content/international/press/reports/cooking-the-climate-full.pdf Checked 25/05/09.

Harrision, Kathryn (2002). "Ideas and Environmental Standard-Setting: A Comparative Study of Regulation of the Pulp and Paper Industry." Governance: An International Journal of Policy, Administration, and Institutions. Vol. 15, No. 1, pp65-96.

Hay, Colin (2001). "The crisis of Keynesianism and the rise of neoliberalism in Britain: an ideational institutionalist approach." in Campbell, John and Pederson, Ove (2001) The rise of neoliberalism and institutional analysis. Princeton Press. Pp193-215.

Hetzer, Andreas (2009). "Ökologische Auswirkungen von Agrotreibstoffen als Ausdruck des gesellschaftlichen Naturverhältnisses" in Franik, D. et al. (2009). Biokraftstoffe und Lateinamerika - Globale Zusammenhäge und regionale Auswirkungen. Wissenschaftlicher Verlag Berlin.

International Herald Tribune (17 Dec. 2007) "World food stocks dwindling rapidly, UN warns" http://www.iht.com/articles/2007/12/17/europe/food.php Checked 25/05/09.

Jänicke, Martin and Jacob, Klaus (eds.) (2007). Environmental Governance in Global Perspective: New Approaches to Ecological and Political Modernisation. Freie Universität Berlin.

Kanie, Norichika and Haas, Peter (eds.) (2004). Emerging Forces in Environmental Governance. United Nations University Press.

Keck and Sikkink. (1998). Activists beyond borders. Ithaca: Cornell University Press.

Koplow, Doug (2007). "Biofuels – At What Cost? Government support for ethanol and biodiesel in the United States: 2007 update " International Institute for Sustainable Development. Geneva. Available at: http://www.globalsubsidies.org/files/assets/Brochure_-_US_Update.pdf Checked 25/05/09.

Koplow, Doug (2006). "Biofuels – At What Cost? Government support for ethanol and biodiesel in the United States " International Institute for Sustainable Development. Geneva. Available at: http://www.globalsubsidies.org/files/assets/pdf/Brochure_-_US_Report.pdf Checked 25/05/09.

Levy, David and Newell, Peter (2002). "Business Strategy and International Environmental Governance: Towards a Neo-Gramscian Synthesis." Global Environmental Politics. 2:4, pp84-101.

Levy, David and Newell, Peter (2006). "Multinationals in global Governance," in Vachani, Sushil (ed), (2006). Transformations in Global Governance: Implications for Multinationals and other Stakeholders, Edward Elgar Publishing, pp146-167.

van Loon, Jeremy (2008). "Merkel, Like Lula, Rejects Biofuels as Root of Food-Price Rises" Bloomberg L.P. Available at: http://www.bloomberg.com/apps/news?pid=20601100&sid=axYK89HdsPTg&refer=germany Checked 25/05/09.

Lovins. A.B. (2005) Winning the Oil Endgame. Rocky Mountain Institute.

Maasen, Sabine and Weingart, Peter (eds.) (2005). Democratization of Expertise? Exploring Novel Forms of Scientific Advice in Political Decision-Making. Springer.

Mitchell, Donald (2008). "A Note on Rising Food Prices" World Bank Policy Research Working Paper No. 4682. Available onine at: http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2008/07/28/000020439_20080728103002/Rendered/PDF/WP4682.pdf Checked 25/05/09.

Moreno, Camila and Mittal, Anuradha (2008). Food & Energy Sovereignty Now: Brazilian Grassroots Position on Agroenergy www.oaklandinstitute.org/pdfs/biofuels_report.pdf Checked 25/05/09.

Newell, Peter and Paterson, Matthew (1998). "A climate for business: global warming, the state and capital." Review of International Political Economy, 5:4, pp679-703.

Newell, Peter (2005). "Business and International Environmental Governance: The State of the Art" in Levy, David and Newell, Peter, (eds) (2005). Business of Global Environmental Governance. MIT Press, pp21-45.

Nullmeier, Frank (2005) "Knowledge and Decision-making, " in Democratization of Expertise? Exploring Novel Forms of Scientific Advise in Political Decision-Making. Springer.

Okereke, Chukwumerije and Bulkely, Harriet (2007). "Conceptualizing climate change governance beyond the international regime: a review of four theoretical approaches," Tyndall Centre Working paper No. 112.

Peterson, Spike (2003). A Critical Rewriting of Global Political Economy: Integrating reproductive, productive and virtual economies. Routledge.

Pielke, Roger (2007). The Honest Broker: making sense of science in policy and politics. Cambridge University Press.

Ring, Ed. 2007. Is Biofuel Water Positive? http://www.ecoworld.com/blog/2007/06/04/corn-ethanol-water/ Checked 25/05/09.

Sarewitz, Daniel (2004). "How Science makes environmental controversies worse." Environmental Science & Policy **7**: 385-403.

Sell, Susan and Prakash, Aseem (2004). "Using Ideas Strategically: The Contest Between Business and NGO Networks in Intellectual Property Rights." International Studies Quarterly 48, pp143-175.

Searchinger et al. (2008). "Use of U.S. Croplands for Biofuels Increases Greenhouse Gases Through Emissions from Land-Use Change" Science. 2008:2, pp1238-1240.

Shattuck, Annie (2009) "Will Sustainability Certifications Work? A look at the Roundtable on Sustainable Biofuels" in Jonasse, Richard (ed.) (2009) Agrofuels in the Americas. Food First. Available at: http://www.foodfirst.org/files/pdf/Agrofuels_in_the_Americas.pdf Checked 25/05/09.

Smolker, Rachel and Tokar, Brian (2009) "Magical, Myth-Illogical, Biological Fuels??" in Jonasse, Richard (ed.) (2009) Agrofuels in the Americas. Food First. Available at: http://www.foodfirst.org/files/pdf/Agrofuels_in_the_Americas.pdf Checked 25/05/09.

Steenblik, Ron (2007). Biofuels – At What Cost? Government support for ethanol and biodiesel in selected OECD countries International Institute for Sustainable Development. Geneva. Available at: http://www.iisd.org/pdf/2007/biofuels_oecd_synthesis_report.pdf Checked 25/05/09.

Stone, Diane (2004). "Transfer agents and global networks in the 'transnationalization' of policy," Journal of Public Policy, 11:3, pp545-566.

The Royal Society (2008). Sustainable biofuels: prospects and challenges. Policy Document 01/08, The Royal Society.

Velte, Birgit and Wang-Helmreich, Hanna (2009). "Biokraftroffe und ihr Klimaschutzpotenzial" in Franik, D. et al. (2009). Biokraftstoffe und Lateinamerika - Globale Zusammenhaäge und regionale Auswirkungen. Wissenschaftlicher Verlag Berlin.

Worldwatch Institute (2007). Biofuels for Transport: Global Potential and Implications for Sustainable Agriculture and Energy in the 21st Century . Earthscan Publications Ltd.