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**THE CHANGING CONSTELLATION OF POWER
AND RESISTANCE IN THE GLOBAL DEBATE
OVER AGROFUELS**

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ABSTRACT:

This paper critically investigates the lack of meaningful policy change towards agrofuels (or biofuels) in the wake of the food vs. fuel and environmental sustainability debates of 2007-08. The paper sketches the political economy of agrofuels Brazil, the EU and US before analyzing the effects of the food vs. fuel crisis on European agrofuels governance formation from a neo-Gramscian perspective. It is illustrated that before the food vs. fuel crisis provided critics a global audience, agrofuels programmes had been entrenched in agricultural policies by highly organized, well-funded capital interests. By offering a domestic, rural, agricultural alternative to fossil fuels, agrofuel proponents offered to make a business opportunity out of the fundamental problems of currently hegemonic, mobility, production and consumption systems. It was only with dramatic rise in food commodity prices over the course of 2007 and 2008 and subsequent space it discursively afforded a counter-hegemonic movement, that a truly global critical discussion of agrofuels came to fruition. The author concludes that despite rhetorical discursive shifts in understandings of the social and ecological sustainability of agrofuels, agrofuel production continues to be supported today as before because the agrofuels project was and remains a predominantly economically motivated endeavour.

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1. Introduction

Agrofuels¹ have come to represent something of an enigma as the second decade of the 21st century begins. Having been used for over a century as a fuel on relatively small scales, after a slight build-up in the latter half of the 20th century, in the early 2000s they emerged globally in a tidal wave of government programmes and subsidies pushing for their mainstreaming into the agricultural landscape. Very rapidly however, agrofuels have become Janus faced, representing different things to different groups: technological triumph; hunger; the beginning of a bioeconomy; rampant capitalism; scientific progress; scientific uncertainty. To many critics, agrofuels represent the rapid and massive commodification of nature in an unexplored and untested way, and as we as a planet begin moving towards other large-scale commodification projects in the name of progress and protection, such as the potential for a bio-economy, and the recently agreed upon United Nations REDD+ Programme to pay for forest preservation, agrofuels may be able to provide important lessons to a world society increasingly concerned about its impacts on our world.

The dramatic rise in food commodity prices over the course of 2007-08 which became known as the food vs. fuel crisis, grabbed the attention of the world and rushed the previously monochromatic agricultural topic of crop production into the public limelight as a crosscutting debate about: energy security, agricultural policy, environmental protection, development, transportation and mobility, and bioengineering, among others. Agrofuel technologies, once thought of as having the potential to act as a saving grace for global energy needs, suddenly presented a truly complex web of possible threats to the environment and human livelihoods. Although many of these issues had been raised decades before the agrofuels boom had begun (see Göricke and Reimann 1982, and Bernton et al. 2010), by the time these concerns had been widely recognized politically, significant public and private resources had already been invested in what became an industrial agricultural project worth billions of dollars annually to businesses and governments the world over. This placed an extraordinary burden upon political and economic proponents of agrofuels to assuage the concerns of a plethora of commercial and governmental stakeholders in various sectors who expected to receive returns on previous investments (agriculture, automobile manufacturers, food, paper and biotechnology industries, the agrofuels industry itself, oil companies, government funded R&D, etc.), as well as to re-legitimize the agrofuels industry to concerned civil society and governmental actors who were witnessing the very product which had been sold to them as that which might alleviate environment and development problems around the world begin to worsen carbon dioxide outputs, destroy rainforests and make basic foodstuffs unaffordable for the world's poor.

This paper, while also looking marginally at Brazil and the U.S., offers a critical exploration of the political economy of agrofuels policies 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 rationales for North American and European agrofuels projects slipping slowly away as scientific evidence increasingly refutes

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.

their promises, continued increases in first generation agrofuel production are being mandated largely because well entrenched hegemonic agroindustrial 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 theoretical framework is elaborated. The third section looks into the historical formation and initial discursive framings of agrofuels in the three political economic contexts of Brazil, the European Union and the United States. Section four delves into an analysis of the food vs. fuel crisis and its effects on agrofuels in Europe and finally the conclusion offers some final statements.

2. Neo-gramscianism and the agency of non-state actors

Analysts using the work of Antonio Gramsci as a guide do not portend to have found a complete theory of the world within his work, but rather a set of coherent theoretical fragments centred around nuanced understandings of how societal control is achieved through specific conceptualizations of: what forces material and ideational forces the term hegemony entails; the state's relation to civil society; and the role of the intellectual.

A neo-Gramscian perspective offers a framework broad enough to encompass a wide range of actors and structures, i.e. subjects and objects. Its ontological and epistemological frameworks are subjective and contingent, avoiding both the bias towards the individual of subject dominated perspectives that give away all structural importance, and the over-determinism of object-based theories that bind actors' actions tightly within a set of controlling systems. Neo-Gramscian theorists attempts to overcome this dichotomy by addressing individual agency as significant, but restricted by the historically determined conditions within which it is being exercised (Bieler and Morton 2001; van der Pijl 2009). In this sense, 'truth' and 'knowledge' for instance, are presented as discursive functions of a specific subject's position in space and time, and must be understood as contingent upon changes in any of these variables. Specifically the following key aspects of a neo-Gramscian analysis are highlighted in this article:

- its unique understanding of hegemony as a winning of hearts and minds through a combination of consensus building and hidden, implicit, coercion, used to advance and indeed universalize, a powerful social project in its effort to become the state;
- the dual character of civil society (the 'extended state') as at once supportive components of hegemony and sources of dissent, and the privileged status of intellectuals in discursive, and therefore hegemonic, formation and contestation;
- the resultant understanding that the formation and maintenance of hegemony is not only contingent upon the particular constellation of material and ideational (discursive) alliances working for and against its maintenance, but upon chance as well;

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 distinct conceptualization of the term hegemony. Rather than simply understanding hegemony in purely realist terms, i.e. as

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 group/class or idea through the embedding of its interests in the fabric of a society. The hegemonic class or ideology must therefore do much more than simply dominate others; it must foster widespread societal appeal and acceptance, and therefore handle resistance through compromise in order to co-opt naysayers. More concretely, Stephen Gill, one of the architects of neo-Gramscian thought, describes this unique 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 2003, p13)

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 influence news media, moral debates, science, etc. in a way that serves to promote and reinforce the specific socioeconomic and sociopolitical frameworks, goals, and ideals at the core of the hegemonic project. Overt coercion is rarely seen and coercion becomes more indirectly visible through establishment or replacement of socioeconomic and sociocultural norms in line with hegemonic values and ideals, which push and co-opt dissent over time without brute force.

For neo-Gramscians however, dissenting voices struggling against co-optation are anything but inconsequential, and are of utmost importance to the case of agrofuels. Neo-Gramscians understand dissent as a key activity of a broadly defined civil society (Levy and Newell, 2002), a place where dissenting voices (be they from non-governmental organizations, academia, the private sector, religious groups, etc.) may on the one hand chastise and attempt to resist ideas and actions arising out of a hegemonic project, form alliances with one another, and even form a counter hegemonic struggle. On the other hand however, by working within the rules, norms, and other boundaries set up by this project, these actors in fact serve to further legitimize the very system they seek to contest; dissenting voices may pose an ideological challenge in the form of protesting a law or lawlessness in some area, and indeed dissidents may affect a change in the system, but in the Gramscian sense any change is seen as a bargained compromise with little chance of affecting fundamental shifts in hegemonic ideology. If complacent with such compromise, former voices of opposition are considered to have been passively co-opted by the ideology they had fought against. In this way that civil society acts dually as a source of resistance and reinforcement of a hegemonic project, and is therefore often called the 'extended state' by neo-Gramscian theorists (ibid).

Hegemony is exercised through an historic bloc's ideological presence in and control of state apparatuses, economic might and the aforementioned societal consent. Numerous authors, beginning with Cox (1983) have analyzed the influence of transnational class networks as historic blocs in shaping the development of global capitalism from Gramscian and neo-Gramscian perspectives. Although multiple conceptualizations have evolved over the decades as means to understand the structural, instrumental and discursive power of these networks, this paper utilizes the Amsterdam school's approach initially popularized by authors Kees van der Pijl and later Bastiaan van Apeldoorn, who focus on the transnational capitalist class (TCC) as a hegemonic actor network, or historic bloc. The TCC is not a single

group of individuals and cannot even be considered a unitary actor, but is an informal collection of (often temporarily) ideologically motivated actors whose primary goals revolve around the promotion of economic interests based on the neo-liberal principles of the free movement of goods and capital, as well as a limited role of government in promoting social or ecological welfare (van Apeldoorn 2000).

In understanding the agency of these networks in terms of shaping politics and societies, the approach emphasizes that the TCC's agency has evolved through its 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). In this paper, industry organizations like Brazil's UNICA (Brazil's Sugarcane Industry Association), the United States' Renewable Fuels Association and Corn Growers of America, and the European Biofuels Technology Platform, seem to give the TCC names and faces. Although globally in competition with one another (UNICA regularly slams US and EU ethanol tariffs, which are of course strongly supported by domestic industry organizations), industry groups such as these come together on fundamental issues that promote their respective business interests across continents and cultures. It is, frequently, very difficult to form a distinction between governmental actors and representatives of the TCC. The revolving-door type of movement within these circles often leads to career moves and social interactions between the higher levels of both economic and political realms. Indeed, these two groups have an inherently overlapping relationship with one another not only in terms of their makeup but also in terms of their ability to exert influence on one another, making an analysis of politics without economics or vice versa highly problematic from a Gramscian standpoint.

The types of agency the TCC can exert are threefold and are seen as the 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 up or close down operations, set up production, market and distribute their products (Fuchs 2005). 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, pushing nations to change policies to attract their investment (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, and in essence, serve to create the multiple nodes making up the global value chain. An example of which can be seen on the agrofuels front with foreign direct investment in agrofuels production in Africa by Brazilian and European multinationals, supported by their respective governments, to produce monocultural agrofuels plantations for export to Europe in nations with chronic hunger emergencies such as Ethiopia and Mozambique (FoE 2010).

In his empirical analyses of the agency of the European Roundtable of Industrialists (ERT)² on European governance, Bastiaan van Apeldoorn (2000), argues that the well recognized democratic deficit of the EU and the increasing influence of social forces attached

² 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)

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). The entrenchment of neoliberal ideology into law around the globe via free market inspired institutions such as the WTO, IMF and World Bank, 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 societies themselves, reducing opportunities for resisting hegemonic neoliberal premises as they become more and more engrained in society. Indeed, as alluded to in the quotation in footnote 2, most international agreements and legislation involving environmental standards are drafted with, or even by business related interest groups (Gleckman 2004), with the European agrofuels regulations being no exception, as will be explored in the discussion of the Biofuels Technology Platform (Biofuels TP).

Societal, political, and cultural intellectuals form the ideas behind hegemonic or counter-hegemonic ideologies. More specifically, ‘organic intellectuals,’ those who are embedded within social classes, are responsible for ‘developing, and sustaining the mental images, technologies and organizations which bind together the members of a class and of an historic bloc into a common identity’ (Cox 1983, p168). Being the architects and advocates of perspectives and world views, they accordingly hold a special place in the analytical perspective of neo-Gramscians. Indeed, other than the explicitly identifiable structural and direct powers of capital interests noted previously, the more subtle and implicit discursive power is indeed at the very heart of a critical analysis of power, and is wielded predominantly by the intellectual. 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 moulding discourse in their favour, actors exercising discursive power create legitimacy for their position, representing the point of co-optation within Gramsci’s hegemony. Implicit in taking discursive power so seriously, 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 their specific experiences and understandings of how the world works.

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. A short history of agrofuel production and consumption over time and space

Although used for more than one hundred years in varying capacities as fuel additives or fuel in its own right, modern markets 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 military dictatorship began its National Alcohol Program (Programa Nacional do Alcool), popularly called Pró-Alcool 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 Petrobras, attractive loans for agro-industrial ethanol producers and processors, and state set, fixed gasoline and, much lower, ethanol prices (Lovins, 2005). Whereas in Brazil, the main agent promoting the energy security narrative within agrofuels discourse was the oppressive military dictatorship (Helfand 1999), in the U.S. the initial ‘need’ for an ethanol promoting policy was created by a single economic actor, agricultural giant Archer Daniels Midland (ADM) (Bernton et al. 2010). In the mid 1970s, ADM began heavily lobbying the U.S. government using the same argument as the Brazilian government, that corn ethanol should be developed as a fuel source to safeguard against future energy supply shocks. As a result, in 1978 the US passed the Energy Tax Act exempted gasoline with at least a 10% ethanol blend from the \$0.04 per gallon federal excise tax. More ethanol friendly legislation followed in 1980, setting the stage for a future of massive levels of state assistance to the industry, amounting to billions of dollars per year in subsidies and tax breaks (Keeney 2009). In addition to the energy security arguments seen in both countries, rural economic growth became a key argument used by the powerful sugar industry lobby in Brazil and corn lobby in the United States. 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 (Leopold and Aguilar 2009). In the US, some of this research funding helped secure another reason to produce agrofuels in the 1990s, namely their ability to reduce air pollution by replacing both poisonous lead as an octane booster and the smog reducing, but water poisoning MTBE (methyl-tertiary-butyl-ether) in gasoline (Bernton 2010).

In Europe, large-scale agrofuels promotion began much later, with national and regional policies appearing in earnest from the mid to late 1990s in various countries. Here too, the agricultural sector acts an extremely powerful political economic historic bloc, as evidenced by the massive support European farmers continue to receive through the Common Agricultural Policy. Agrofuels policy in Europe, although framed primarily within the 2000 the EU Green Paper ‘*Towards a European strategy for the security of energy supply*,’ (EC 2000) as focusing on energy independence and improved farmer income in, farmers already received extremely generous support from the EU and as it was formulated at a time when fuel prices had been relatively low for many years, the immediate impetus to support agrofuels seems to have been meeting Europe’s new Kyoto Protocol requirements to reduce greenhouse gas emissions. And indeed, in 2003, the EU announced the ‘*Directive on the promotion of the use of biofuels or other renewable fuels for transport*’ (EC 2003), mandating a 2% agrofuels target for 2005 and a 5.75% target for 2010 (which was not met [Eurobar’er 2010]) as part of Europe’s efforts to meet it’s Kyoto protocol commitments, refocusing the official aspirations of agrofuels production to be more environmentally oriented. Already during the 1990s however, France, Germany, Spain and Sweden created agrofuel support

programs mostly through long-term tax incentives, aiming marginally at improving rural livelihoods, but primarily at boosting the environmental friendliness of their fuel consumption (van Thuijl and Deurwaarder 2006). Other countries, such as the Netherlands and Great Britain, remained more reluctant and, citing economic and environmental concerns, did not begin promoting agrofuels in earnest until 2002 and 2003 respectively when the Directive had become more or less imminent; and even then, both countries were and have remained extremely mindful of the type of agrofuels they promote, with the British government consistently questioning the green credentials of producing agrofuels in Europe.³

Although authors like Göricke and Reimann (1982) had written about the potential for a food vs. fuel crisis decades before the world began looking at them critically, and Bernton et al. (2010, originally 1982) elaborated on not only the food issue but also on land-use change and land limits, and environmental effects (including global warming), the wider public had been not heard much about oil alternatives for a number of reasons until the late 1990s and early 2000s. As Bernton et al (2010) describe: low oil prices beginning in the mid-1980s bankrupted entrepreneurs who had begun developing fuel alternatives after the oil crises; and oil and automobile companies fought vigorously to retain their status and ways of doing business and producing products, and actively campaigned against ethanol as an oil alternative.

Indeed, it was only the recognition that fossil fuels play an important role in exacerbating anthropogenic climate change, in combination with the terrorist attacks of September 11th, 2001 that spurred governments to begin pushing for the radical increases in production we have seen in recent years. These humanity altering events, combined with the historical, cultural, economic and psychological importance of maintaining healthy agricultural and energy sectors allowed farm lobbies to gain significant influence over national political developments in agriculture, a sector which in nations around the world is also seen in and of itself as a source of national security and often pride. Promising secure rural jobs, improved environmental performance and above all, energy security, the intellectuals of the agroindustrial historic blocs in the Americas very effectively and with little opposition, used the agrofuels sector to further their political economic clout in the Americas, as evidenced by: the Biofuels Technology Platform more or less designing European agrofuels policy (discussed at length in section four); UNICA working hand in hand with the Brazilian government in policy development processes (author interview at UNICA, January 2010); and in the US in December 2010, the renewal of controversial protective agrofuel tariffs and producer subsidies hidden in a package of other tax measures, despite significant opposition from both major political parties, civil society organizations and academia.⁴

Being sold to the global public as a near panacea for global transport energy concerns: able to be used in most modern automobile engines with little modification, these fuels were a technology based solution which, it was thought, would allow the consumption oriented, highly mobile, Western lifestyle to continue and indeed grow, unabatedly. With increasingly agrofuel friendly legislation passed in 2004, 2005, 2007 and 2008 in the US, corn based bioethanol (which substitutes gasoline) production capacity leapt from approximately 10.2 billion litres in 2003 to 40.1 billion litres in 2009, placing the US at number one in global

³ The Independent 10.11.2010, *Biofuel plan will cause rise in carbon emissions*. Available at: <http://www.independent.co.uk/environment/climate-change/biofuel-plan-will-cause-rise-in-carbon-emissions-2129773.html> [Accessed 17 December 2010]

⁴ Bloomberg, 12.16.2010, *Ethanol gains on optimism tax credit will continue, more demand*. Available at: <http://www.bloomberg.com/news/2010-12-16/ethanol-gains-on-optimism-tax-credit-will-continue-more-demand.html> [Accessed 17 December 2010]

bioethanol production. This was far ahead of Brazil, the world's second largest producer at 27.5 billion litres in 2009, which has seen as resurgence in its agrofuels industry, which had almost disappeared due to low oil and high sugar prices in the 1990s, and extensive economic liberalization practices, cutting support for agrofuels, as the Washington Consensus took hold in Latin America at the time (Leopold and Aguilar 2009).⁵ Putting this in perspective, in the decade between 1991 and 2001, global bioethanol production increased only 2.5 billion litres per annum, from approximately 16 billion litres a year to 18.5 billion litres. From 2001 to 2007 however, production tripled to nearly 60 billion litres per year (Steenblik, 2007, p9). Although the political economic saga of the European agrofuel case will be taken up in detail in section four, it is worth noting now that the EU produced 14 billion litres of agrofuels in 2009 (10.3 of biodiesel and 3.7 of bioethanol), up from 2.1 billion in 2003/2004 (1.6 of biodiesel in 2003 and .5 of bioethanol in 2004) when the Directive was passed, and Germany, the world's largest producer and consumer of biodiesel, with a total production capacity of about 2.9 billion litres of biodiesel in 2009 compared to 0.8 billion in 2003 and 0.75 billion of ethanol in 2009 compared to 0.025 in 2004.⁶

Up until the mid-2000s, initially optimistic energy balance research combined with consistent increases in oil prices worked to the benefit of agrofuel producers, who were turning out what was perceived as an environmentally friendly, financially sound and geopolitically secure alternative to gasoline and diesel (IEA 2004).⁷ As the decade wore on however, and increasing spending into artificially created agrofuels markets, these radical production increases slowly brought concordant increases in scrutiny by Gramsci's extended state, ie. taxpayers who looked to ensure that their money was being well spent, and scientists and activists who were interested in how well founded claims about social, environmental and energy security benefits really were. Through their analyses of these environmental arguments presented by governments and industry beginning mid-decade, NGOs and university scientists began to shift the agrofuels focus towards scrutinizing the quality of scientific justifications and political legitimization strategies used for increasing 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.

4. Intellectual(s') capacity and agrofuels in the EU

In their discussion of government-funded science, Cozzens and Woodhouse, scholars in the field of Science, Technology and Society (STS), illustrate how governments influence science, in the short term, as well as 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 such 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 (Cozzens and Woodhouse 2001). As noted above,

⁵US numbers: <http://www.ethanolrfa.org/pages/statistics> [Accessed 14 December 2010] Brazilian numbers: <http://www.unica.com.br/downloads/estatisticas/PRODUÇÃO%20DE%20ETANOL.xls> [Accessed 14 December 2010]

⁶ Biodiesel numbers: <http://www.ebb-eu.org/stats.php> [Accessed 14 December 2010] Bioethanol numbers: <http://www.epure.org/statistics.php?id=4> [Accessed 14 December 2010]

⁷ 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 CO₂ outlook, the publication does give space to the limited critical science available at the time.

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). Similarly, in 2006 alone the EU spent 1.3€ billion on bioethanol and 2.4€ billion on biodiesel (Kutas et al 2007).

The funding and general government support of this industry has not only been political in the sense that public resources are being spent on agrofuels themselves, but also because spending of such astronomical amounts results in nothing less than massive promotional campaigning in attempts to create discursive pressure to mould 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 global environment (Hetzer 2009, Cozzens and Woodhouse 2001). Government support, in this sense, is not simply financial support, but the promotion of a cause or project. The ‘agrofuels project,’ as it has been called by numerous analysts (Smith 2010, McMichael 2009), is indeed a new facet of an old hegemonic project. What agrofuels represent in this sense is a chance to tackle the world’s ecological, rural development, and energy problems “*without* forcing us to rethink existing patterns of global development, consumption, and production” (Smith 2010, p9, emphasis in original). In other words, they offer a way to circumvent the ecological, socioeconomic, and energy crises of modern capitalism without actually dealing with them: agrofuels make a business opportunity out of the fundamental problems of our global production and consumption system. This contradictory process is summarized aptly by McMichael when he notes that:

Whereas the energy crisis has strong roots in industrial agriculture’s fossil-fuel dependence, responses to the energy crisis follow a typical capital accumulation script – that is, attempting to overcome barriers to profitability by extending the realm of value creation, even as this intensifies capitalism’s contradictions. The ‘agrofuels project’ is central to this attempt to maintain profit, and to legitimize the state/capital nexus. The rush to agrofuels, under the guise of policies geared to alternative energy and reducing carbon emissions, opens up new profit frontiers for agribusiness, energy and biotechnology corporations. (McMichael 2009, p825)

The architects of this project are the far-reaching global networks of multinational agribusiness interests, associated industries, politicians, and to a certain extent all those with vested interests in western style mobility. The European case is especially interesting in that the EU was the one political forum in which agrofuels an artificial agrofuels market was to be created with, among others, the explicit aim of reducing greenhouse gas emissions and improving the ecological footprint of an entire continent. It is interesting in that, to accomplish this task, Biofuels TP, an industry organization, was invited by, and funded by, the European Commission (EU) to assist in drafting Europe’s agrofuels strategy up to and beyond 2030 (EC 2006). The steering committee of Biofuels TP completely lacked civil society representation, and was made up overwhelmingly of industry representatives from various European nations, something that did not go unnoticed, and which was ridiculed by the European Environment Bureau for years to no avail (Corporate Europe Observatory 2007). 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.⁸

⁸ Biofuels TP Brochure, 2007. Available at: http://www.biofuelstp.eu/downloads/070601_bftp_leaflet.pdf [Accessed 14 December 2010]

It is perhaps not very striking that many actors felt sustainability issues did not shine through in the Commission's draft Renewables Directive released in January of 2008 when one considers its primary advisory body had both a mission statement and leadership solely focused on economic aspects of agrofuels production. Despite prior knowledge of the impending ecological and human costs of expanding EU agrofuels production, by allowing this manifestation of the transnational capitalist class such a privileged role in the creation its agrofuels policy, the Commission actively pursued an approach to policymaking that marginalized environmental and social concerns (EC 2006, Corporate Europe Observatory 2007). Indeed, it was only in early 2008, in the wake of the food vs. fuel crisis addressed in more detail below, and initial scientific and civil society outcry over the draft Renewables Directive,⁹ that Biofuels TP updated its missions statement to read as follows: 'The mission of the European Biofuels Technology Platform (Biofuels TP) is to contribute to the development of *sustainable*, cost-competitive, world-class biofuels technologies...' ¹⁰ (my emphasis).

The close relationship between industry and policymaking in this case, which worked to the detriment of the Commission's own stated normative environmental policymaking goals is however, not surprising. As Martin Wolf of the Financial Times noted in 2007:

Energy security and climate change are two of the most significant challenges confronting humanity. What we see, in response, is the familiar capture of policymaking by well-organised special interests. A superb example is the flood of subsidies for biofuels.¹¹

What we see here is not economy trumping environment out of greed or maliciousness, but rather that the modern capitalist logics of competitiveness and technological triumphalism are so hegemonic in the Gramscian sense, i.e. engrained in the fabric of European political economy, that the Commission's course of action was deemed naturally correct by the highly educated public servants, economic actors, and scientists involved (Gramsci's intellectuals); and it was of course assumed that these activities and the regulations resulting from them would be accepted by the wider European public. Gramscian hegemony however is one in constant flux. It is always contested and contingent. And in this case a more or less perfect storm of events began to emerge which would give the more "organic" intellectuals of the counter-hegemonic movement, fuel to burn away many of the arguments used by those promoting agrofuels as a cure for modern capitalism.

5. Food vs. Fuel

Only months before the EU was to publish its draft agrofuels legislation, and months after George Bush announced a realignment of U.S. agrofuels policy to one of aggressive investment and mandatory production quotas, the results of studies carried out on the environmental sustainability and social aspects of agrofuels began pouring out of universities, development and environment NGOs, governments, and intergovernmental organizations in

⁹ 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> [Accessed 14 December 2010]

¹⁰ <http://www.biofuelstp.eu/newsletter.html> [Accessed 14 December 2010]

¹¹ Wolf, Martin 2007. *Biofuels: a tale of special interests and subsidies*. Financial Times Blog. Available at: <http://blogs.ft.com/economistsforum/2007/10/biofuels-a-talehtml/> [Accessed 14 December 2010]

mid 2007. It was the focus on the food vs. fuel issue however, that eventually came to dominate discussion over agrofuels.

The dramatic increases in the price of cereals in 2007-08 led to food riots in 31 nations, and are attributed with toppling Haitian Prime Minister Jacques-Édouard Alexis in April of 2008.¹² Beginning first as an outcry from concerned NGOs, criticism 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?’,¹³ ‘The Clean Energy Scam’,¹⁴ and ‘After the Oil Crisis, a Food Crisis?’¹⁵ 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.’¹⁶ Criticism also came from policy makers and the private sector. For instance, 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.¹⁷ 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.¹⁸ 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.¹⁹ 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.²⁰

While these impassioned words were filling the newsrooms and political podiums all over the world, leaders of major producers and consumers of agrofuels did not share 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 inducing artificial agrofuel competitiveness and

¹² AFP (2008). ‘Haiti PM ousted over soaring food prices’, Available at: <http://afp.google.com/article/ALEqM5hL0HvIfNZQ2nMgFdy9dSKLZ7t2Gw> [Accessed 14 December 2010]

¹³ Ayre, M., 2007. *Will biofuel leave the poor hungry?* BBC News. Available at: <http://news.bbc.co.uk/2/hi/business/7026105.stm> [Accessed 14 December 2010]

¹⁴ Grunwald, M., 2008. *The Clean Energy Scam*. Time Magazine. Available at: <http://www.time.com/time/magazine/article/0,9171,1725975,00.html> [Accessed 14 December 2010]

¹⁵ Kingsbury, K, 2007. *After the Oil Crisis, a Food Crisis?* Time Magazine. Available at: <http://www.time.com/time/business/article/0,8599,1684910,00.html?iid=sphere-inline-sidebar> [Accessed 14 December 2010]

¹⁶ Available at: <http://www.globecartoon.com/> [Accessed 14 December 2010]

¹⁷ BBC News Online, 2007. <http://news.bbc.co.uk/2/hi/americas/7065061.stm> [Accessed 14 December 2010]

¹⁸ BBC News Online, 2008. <http://news.bbc.co.uk/1/hi/world/europe/7186380.stm> [Accessed 14 December 2010]

¹⁹ Inter Press Service News Agency (IPS), 11 Jan. 2008. Available at: <http://www.ipsnews.net/news.asp?idnews=40762> [Accessed 14 December 2010]

²⁰ 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 [Accessed 14 December 2010]

therefore demand for food-based agrofuels.²¹ 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.²² At the same time (April of 2008) in the U.S., President Bush was steadfast in his position that corn ethanol was an issue of national energy security and that environmental problems were only growing pains in the way to more efficient, second generation agrofuel technology; and, although recognizing that ethanol played a role increasing food prices, he stated that:

...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...²³

Despite such vigorous support from many policy-makers and an advertising and lobbying waged by the agrofuels lobby against this negative press (for which it was honoured with the worst EU Lobbying Award in 2008 for attempting to mislead the European Parliament, Commissioners and member states on the social, economic and ecological sustainability of agrofuels²⁴), many remained unconvinced as the deluge of highly critical science forced even those with political and economic stakes in agrofuels to think again about their stances. 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.

Of the most significant issues brought to light were:

- the initial accounts of the role agrofuels played in the global food crises of 2007-08 (Mitchell 2008);
- evidence that the energy balances of many agrofuels are actually negative (The Royal Society 2008);
- that in many instances first generation agrofuels will never be economically (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 and increased carbon emissions due to land-use changes (Fargione 2008, Searchinger et al. 2008).

²¹ ‘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> [Accessed 14 December 2010]

²² ‘Bad policy, not biofuel, drive food prices: Merkel’

<http://www.reuters.com/article/environmentNews/idUSL1721113520080417?feedType=RSS&feedName=environmentNews> [Accessed 14 December 2010]

²³ George Bush’s press conference transcript of 29 April 2008: <http://georgewbush-whitehouse.archives.gov/news/releases/2008/04/20080429-1.html> [Accessed 14 December 2010]

²⁴ <http://www.foeurope.org/corporates/worstlobby/candidates.pdf>

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, was 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 their re-evaluation, 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 the hands of the hegemonic forces previously in control of them, and was put into those of a critical group of more organic intellectuals arguing that agrofuels were likely never to be sustainable because they were being grown within an unsustainable capitalist system. 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).

Using commodity price increases, food shortages, and the ensuing riots as ammunition to refocus the agrofuels discourse, Gramsci’s previously passive extended state head, and as the food vs. fuel crisis played out, seemed to completely remoulded the power structures within the agrofuels discourse. NGOs and development-related institutions demanded the humanitarian issues at hand gave them a relevant and legitimate claim to participate much more actively in the discussion over agrofuels. Other critical groups went further, with numerous calls made for moratoriums on agrofuels production and government support for them. That of EcoNexus, a call for a moratorium on incentives for and imports from large-scale agrofuel plantations, accumulated the support of over 200 NGOs from all over the world.²⁵ 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...,’ largely 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).²⁶

In Europe, statements like those of Stavros Dimas mentioned previously, carried more ammunition for agrofuel naysayers, who used a 2006 Commission working paper to further delegitimize draft EU agrofuels policy. The paper showed that 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

²⁵ <http://www.econexus.info/agrofuel-moratorium-call> [Accessed 14 December 2010]

²⁶ 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

developing countries... In addition, there are substantial CO₂ losses if grassland is ploughed up or forest cleared. These losses can be expected to outweigh CO₂ 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 was however caveated with the following: ‘At present, however, there is little understanding whether this competition will actually arise.’ (ibid)

In not adequately addressing the probable social or environmental costs of their environmental program, European lawmakers had taken a calculated risk that that previous status quo of unquestioned acceptance of agrofuels promotion would continue. And 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 (RED) in January of 2008, upon release, the document was met with extraordinary criticism from environmental and development NGOs²⁷ and both in-house and external scientists.²⁸ Many of these groups argued that the RED should be scrapped altogether, or at least put on hold for a number of years. In the end, the directive was reviewed over the course of the year and eventually, in June of 2009 a significantly redrafted version was passed that 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 2015.²⁹ This compromise version was also 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 RED began incentivizing economic actors on the continent and abroad to convert land to agrofuel production, spurred by the promise of enormous European demand for agrofuels.

Despite the seemingly ineffectual result of counter-hegemonic forces working against the agrofuels project in the case of the RED, real shifts in discursive and instrumental power did result. For instance, instrumentally and discursively, agrofuels governance has become much more open to participation from civil society and academia and Biofuels TP for example, though still dominated by industry, now has more public sector representation at its higher levels,³⁰ and more significantly, is now far from the most important player in agrofuels policymaking. The EU has become extremely sensitive about its global image on environmental issues, where it prides itself on being morally progressive compared to other advanced industrial economies, and discursively has given significant space to critical voices, to the point where the EU is itself becoming more and more sceptical of its own agrofuels policies. As the results of 15 major studies came in over the course of 2010 pointing out major flaws in heavily promoting agrofuels (eg. Bowyer 2010), the 2011 is expected to be a year of lax investment in agrofuels.³¹ NGOs and universities also play major roles in many private

²⁷ ‘Biomass and Biofuels in the Renewable Energy Directive’

<http://www.biofuelwatch.org.uk/docs/RenewableEnergyDirective.pdf> [Accessed 14 December 2010]

‘Inadequacy of the Renewable Energy Directive’;

http://www.birdlife.org/eu/EU_policy/Biofuels/eu_biofuels5.html [Accessed 14 December 2010]

²⁸ ‘Commission scientists blast EU biofuels policy’: <http://www.euractiv.com/en/transport/commission-scientists-blast-eu-biofuels-policy/article-169668> [Accessed 14 December 2010]

²⁹ ‘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> [Accessed 14 December 2010]

³⁰ <http://www.biofuelstp.eu/steering.html>

³¹ Reuters, 2010. Analysis: EU biofuels squeezed by green doubts, tight budgets

governance initiatives, such as the sustainability certification organisations set to play a major role in monitoring agrofuels production and consumption in coming years.

Although the food vs. fuel crisis had similar inclusive governance effects in Brazil and the United States, agrofuels promotion is stronger in the Americas than ever before. In part, this was due to fact that the chance bad timing of the publication of the draft EU RED policy did not befall policymakers in the Americas, and that the US was producing agrofuels out of staunch energy security interests, while Brazilian sugarcane was not in competition with food crops, and therefore neither country was as susceptible to the environmental and social arguments of the food vs. fuel crisis as Europe.

6. Conclusions

This paper has sketched brief political economic histories of agrofuels Brazil, the EU and US, representing the three largest agrofuel consumers and producers in the world before analyzing the effects of the food vs. fuel crisis on European agrofuels policymaking from a neo-Gramscian perspective. It was illustrated that before the food vs. fuel crisis provided critics a global audience, agrofuels programmes had been entrenched in agricultural policies by highly organized, well-funded capital interests, without popular resistance. It was posited that agrofuel producers were able to accomplish this by offering agrofuels as a way to circumvent the ecological, socioeconomic, and energy crises of modern capitalism without actually addressing problems in the system. By offering a domestic, rural, agricultural alternative to fossil fuels, agrofuels offered to make a business opportunity out of the fundamental problems of current, hegemonic, mobility, production and consumption systems.

The paper continued by illustrating that, valid as initial environmental or social concerns over agrofuels may have been prior to the food vs. fuel crisis, they alone were not enough for governments to rescind their support. It was only with dramatic rise in food commodity prices over the course of 2007 and 2008 and subsequent space it discursively afforded a counter-hegemonic movement to build enough momentum that a truly global critical discussion of agrofuels came to fruition. These counter-hegemonic forces were able to make the most headway in the European context due to its stated environmental policymaking goals as well as the timing of the publication of its draft Renewable Energy Directive. In the Americas however, human rights and environmental issues were deflected using development and energy security rationales, and there agrofuel production pushed more than ever before.

As a new category of commodified nature, agrofuels have 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 (that from a Gramscian perspective may be seen as a similar co-option mechanism of hegemonic systems of mobility, production and consumption), the social and environmental aspects of the agrofuels debate have created an air of caution regarding apparent quick fixes to environmental problems- especially when said 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 earnest attempt at certifying environmentally sustainable production and consumption of these fuels, which is cooperation of a different type than the cooperation required for environmental issues of the past such, as illegal logging or acid rain.

Agrofuels have change the face of agriculture forever, bringing a new strategic component to one of the most sensitive aspects of human-Earth interaction. Cooperation must therefore be unprecedentedly socio-political, inclusive, and flexible depending on what type of producers one is dealing with.

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 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 required actors across the board 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 economic space to open a critical dialogue amongst all actors to reassess the goals of the agrofuels project.

In the opening paragraph of this paper, I mentioned that an analysis of the agrofuels debate could provide valuable lessons for other areas of impending human-nature interaction. These are short and sweet. The first is that when dealing with unknowns such as was the case with agrofuels, remaining flexible in both beliefs and policy will be key to successful and sustainable projects in the. The second is that more often than not, more important managing the environment- is managing the managers.

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