Certifying the sustainability of biofuels: Promise and reality

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**A R T I C L E   I N F O**

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**A B S T R A C T**

While liquid biofuels play a prominent role in sustainable energy goals, the relationship between their ability to advance sustainability agendas and their governance has been poorly addressed. The recognition of a number of private sector initiated certification schemes as mechanisms to verify compliance with the requirements of the EU-Renewable Energy Directive has provided a strong stimulus for biofuels certification. The question asked in this article is: "To what extent does the application of these standards effectively contribute to the sustainable production of bioenergy?" The question is answered on the basis of a conceptual framework and literature review. Three elements of the effectiveness of market-based certification standards are reviewed: the substantive scope of emergent standards, the effectiveness of implementation, and levels and trends in market conversion. The proliferation of certificates for low quality standards, deficiencies in the certification process and low market conversion suggest that certification is an inadequate substitute for public regulation. For certification to hold any meaningful potential to strengthen sustainability governance in the biofuel sector, it must be embedded within a public governance system committed to redressing these deficiencies and structuring accountability not just towards global environmental values, but to local people and place.

1. Introduction

While enthusiasm over the potential for biofuels to provide a low-carbon energy alternative remains high, their production has also raised a series of social and environmental sustainability concerns (Searchinger, this issue; Goetz et al., this issue; Hunsberger et al., this issue). These concerns are not limited to the biofuel sector. In the interests of economic growth and competitiveness, nation-states have deregulated and liberalized their economies– resulting in regulatory shortcomings that have weakened public governance of the social and environmental impacts of globalization (Lipschutz and Fogel, 2002). Industry self-regulation, through private sector based standards and associated certification systems, has emerged as a pragmatic alternative. Standards and certification systems developed in multi-stakeholder settings in particular, in which industry, trade, environmental and social NGOs and (inter)governmental organizations participate, have provided a promising ‘private governance’ alternative to public regulation. While the first global sustainability standards were developed to govern timber-related and food supply chains (De Man and Burns, 2006; Nikoloyuk et al., 2010), they have rapidly gained importance for commodities used for biofuels.

Given that biofuel certification systems have now been implemented for a number of years, it is possible to ask what evidence there is that the application of these standards effectively contributes to the sustainable production of biofuels. To answer this question, we review the published literature on the effectiveness and governance of biofuel certification. The paper starts with an overview of market-based certification and its articulation with public regulation in major consumer markets. An overview of the review methodology follows. The next section summarizes published evidence on the effectiveness of private sector based standards through a look at three different components: substantive scope (the range of social, economic, and environmental outcomes the instrument purports to influence); implementation effectiveness (the extent to which mechanisms for implementation of the standard guarantee that the standard has been effectively implemented on the ground); and market conversion (the share of the industry that is certified sustainable). As there is far longer experience with private sustainability standards in supply chains linked to the food and wood-based industries, evidence in this article is not restricted to commodities for bio-fuel production but includes "flex crops" that may be used for food or the production of first or second generation biofuels. The paper concludes with a discussion of findings and their implications for the potential for market-based instruments to serve as a substitute to state regulation in ensuring the sustainability of biofuels.

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2. Market-based certification: an overview

2.1. Certification’s emergence within wider shifts in global regulatory labor

In the context of growing neoliberalism, states have decentralized, deregulated and liberalized their economies to establish environments more favorable to financial capital. In the process, domestic safety nets have been dismantled (Lipschutz and Fogel, 2002; Mishra, 2000). This has occurred at a time of increasing globalization, in which the reach of transnational corporations (TNCs) and the social, economic and environmental externalities associated with their operations have grown exponentially. Developing countries, in competition with one another for attracting foreign investment, have tended to hold down the cost of labor, raw materials and environmental protection so as to attract investment – posing direct trade-offs between investment and social and environmental welfare (Lipschutz and Fogel, 2002). Concerns raised by civil society have long been channeled into efforts to negotiate international agreements to regulate the behaviour of TNCs, yet these efforts were largely unsuccessful (Lipschutz and Fogel, 2002). “Globalization has [thus] made the regulation of multi-national corporations one of the most contentious issues in relations among states and within societies” (Hauffer, 2001: 1).

At national and international levels alike, market-based system of governance which delegate to the private sector many of the responsibilities formerly falling to nation-states are on the rise (Hauffer, 2001). The shift from public to private regulation was also driven by World Trade Organization agreements, which restrict state use of nontariff trade barriers (Busch and Bain 2004). As private and voluntary standards are not bound by these restrictions, they are seen as an alternative way to introduce social and environmental standards to the activities of TNCs (Silva-Castañeda, 2012). This shift to industry self-regulation represents a major shift in global governance paradigms, away from the nation-state as the ultimate arbitrator of ethical behaviour. While the new, market-based instruments of governance are “state-like”, the absence of legislative institutions puts into question their representativeness, transparency or democratic character (Lipschutz and Fogel, 2002).

The tool that has come into greatest use by private regulators is certification (also called “eco-labelling” or “non-state market driven governance”) (Cashore et al., 2007; Hauffer, 2001; Lipschutz and Fogel, 2002). These initiatives provide – or claim to provide – a private governance alternative to more classical public regulation in areas where public institutions lack power or motivation. Companies have embraced certification as a way to minimize the reputational risks posed by activist campaigns and to forestall more costly government regulation (Cashore, 2002; Lipschutz and Fogel, 2002). Governments see it as an effective means to address societal concerns about the social and environmental externalities of corporate activity in ways that do not undermine competitiveness. In short, certification is seen as a way to balance the interests of industry and society without expanding government intervention in the economy. The coming of multi-stakeholder standards (one of several forms of certification, as will be discussed below) thus marked a shift from companies actively avoiding their critics and the regulation their critiques threatened to give rise to, to companies seeking out civil society actors as partners for market-based governance (Hauffer, 2001). Since certification bodies and accreditation organizations are separate companies from those that devised the standard or are being certified, they are in principle assumed to be independent arbiters of production processes (Hatanaka and Busch, 2008).

The first experiments with market-based certification emerged following the United Nations Conference on Environment and Development, where an agreement on the effective protection of the world’s remaining natural forests was severely blocked by the conflict between interests of the global North and the global South (Lipschutz and Fogel, 2002). As a result, the diplomatic processes for forest protection after Rio – notably the ‘Montreal’ process – lacked ambition and speed. Ongoing frustration with domestic and international public policy approaches led a coalition of transnational environmental groups led by the World Wide Fund for Nature (WWF) to form a coalition with retailers, government officials and a few forestry companies to look for an alternative (Cashore et al., 2007). The result was the development of the Forest Stewardship Council (FSC), which became operational in 1994. The governance model, based on cooperation between private sector players and non-government organizations, was rooted in pragmatism rather than unlimited trust in the blessings of market-based governance (see also Cashore, 2002; Cashore et al., 2007).

A decade later, this roundtable model was copied - with some changes and simplifications - to a number of sustainability initiatives for agricultural commodities, including the Roundtable for Sustainable Palm Oil (2004) and the Roundtable for Responsible Soy (2006). WWF, more willing than other environmental NGOs to engage in partnerships with major private sector players, was again the driving non-governmental actor. As can only be expected, the original focus of these WWF-initiated initiatives or ‘Roundtables’ was protecting biodiversity and specifically forests. As these initiatives developed and their governance structure was extended to include social NGOs such as Oxfam, social and human rights issues were increasingly included into roundtable agendas and associated standards (Oxfam, 2015; Pesquera and Glasbergen, 2013). Yet it is important to note that other schemes which mimic the FSC on the surface, such as the Programme for the Endorsement of Forest Certification (PEFC), represent a weaker form of multi-stakeholder certification. In fact, PEFC emerged out of resistance from Swedish private forest owners to embrace FSC after the standard-setting process sided with the indigenous Sami over customary land rights and advanced more restrictive regulations on logging mountain slopes than that required through government regulations (Cashore et al., 2007). Other, even weaker standards such as the Sustainable Forestry Initiative (SFI) and the Canadian Standards Association (CSA) have proliferated since then as a way to make claims about sustainability without raising the bar beyond what national regulations require (Cashore et al., 2007; Greenpeace, 2014).

2.2. RED-recognition and the emergence of hybrid governance

Although the relevant standards are the result of private sector and NGO initiatives, they are increasingly playing a role in the public domain. This is primarily due to the European Union’s Renewables Directive 2009/28/EC (hereafter called EU-RED), which mandates levels of renewable energy use in EU member states. The overarching objective is to ensure that at least 20% of the EU’s gross final consumption of energy by 2020 consists of renewable energy. While incorporation targets differ by member state to account for country-specific capacities, each member state must achieve a 10% share of energy from renewable sources in all forms of transport by 2020 (EC, 2009, Article 3(4)). With liquid biofuels playing a dominant role in the transport sector and most feedstock production occurring outside the EU, this has provided a strong impetus for biofuel production in the Global South (German and Schonelda, 2012).

To be counted as a legitimate contribution towards these policy goals, a set of sustainability standards must be met. These are exclusively environmental, with a premium placed on climate mitigation (Table 1). Social sustainability is left to a biennial reporting mechanism to monitor the impact of the policy on social sustainability in the EU and in third countries. There are several paths to compliance, including certification under so-called voluntary schemes recognized by the European Commission; providing data to national authorities

\footnote{See: https://ic.fsc.org/en/about-fsc/our-history (accessed 11.28.16).}
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