

Chapter 2

International Sustainability Standards and Certification

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Abstract Standards have evolved as the major mode of governance for biofuels. In particular, the European Union (EU) policy approach actively employs a variety of voluntary certification standards under its meta-standard in order to safeguard sustainability of its mandated biofuel demand. Advantages and disadvantages of this novel, hybrid governance arrangement have been widely discussed. In order to fully understand the implications of this international governance arrangement, we argue that more research is required to determine the dynamics that evolve in specific contexts as to whether standards come to matter and which. In this chapter, we highlight two macro-level factors of such dynamics—markets and policy—for the geographic focus of this volume: Latin America and the Caribbean (LAC). The current adoption of standards reflects the production and trade patterns of the region. EU sustainability criteria are most relevant for the biodiesel exporting industry in Argentina, while the US standard for greenhouse gas (GHG) savings influences Brazilian ethanol producers. Showing a tendency to minimal compliance, the current standard adoption in Argentina points at problematic dynamics within the EU Renewable Energy Directive (RED) governance arrangement. Weak regulatory and policy frameworks may pose barriers to the uptake of certification standards. Especially in LAC, where biofuel production often developed from already existing flex crop industries, biofuel policy is embedded in multiple sectoral policy areas and historical agrarian structures. The EU's 100 % captive market for certified biofuels is likely to help overcoming this barrier. However, further research is urgently needed as to whether certification in weak policy contexts has complementarity or cosmetic effects.

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2.1 Introduction

Despite their promotion as an environmentally friendly alternative to fossil fuels, the rapid expansion of biofuels from crops set into motion over the past decade has raised numerous concerns about detrimental effects on ecosystems and communities living in and around biofuel production sites (see Chap. 1; German et al. 2011; Lüdeke-Freund et al. 2012). In anticipation of and in response to these effects, public and private actors on different scales have developed regulations, standards, and codes of conduct to mitigate or minimize the negative impacts of biofuels and their production processes (Bailis and Baka 2011). These initiatives reflect a shift from government to governance, which is a phenomenon seen in other primary commodity sectors (Biermann and Pattberg 2012). In this shift non-state actors, for example, standard-setting organizations and auditing firms, assume some responsibility for governing the behavior of producers and/or consumers. However, in contrast to other sectors, in which “non-state market-driven” rulemaking through standards may be explained by a lack of state interest or ability to govern (Cashore 2002), biofuel governance is better characterized as a *hybrid mode of governance*, in which the state remains a central figure, but a greater role exists for private actors and vocal civil-society groups (Swyngedouw 2005; Bailis and Baka 2011).

As a main advantage, certification standards are acknowledged for their potential to transcend nation-state boundaries and thus influence international supply chains to adhere to principles of sustainability, and thus function “as a mechanism in countries with poor abilities to enforce policy” (Diaz-Chavez 2011, p. 5768; cf. Lewandowski and Faaij 2006; Verdonk et al. 2007; Mol 2010; Janssen and Rutz 2011; Scarlat and Dallemand 2011). At the same time, however, there is a necessity to include stakeholders at points of productions in standard-setting processes (Lewandowski and Faaij 2006; Verdonk et al. 2007), to consider their capabilities and interests (Lee et al. 2011; Edwards and Laurance 2012; Romijn et al. 2013), and to account for local practices and physical environments (Khatiwada et al. 2012; Efrogmson et al. 2013). While most certification standards relevant to biofuels are “second-generation standards” that have adopted participatory practices in standard-governance and auditing (Ponte and Riisgaard 2011, p. 259), some are not. In addition, the European Union’s (EU’s) hybrid arrangement includes standards that differ greatly in scope with some representing the minimum set of environmental criteria stipulated by the EU and others addressing a wide range of environmental and social issues.

Given the transnational sphere of influence of these arrangements (Barry et al. 2012, p. 2), sustainability standards set elsewhere are potentially relevant to biofuel production in Latin America and the Caribbean (LAC). The questions we ask in this chapter are thus: What is the relevance of international standards and certification for sustainable biofuel production in the LAC region? In which countries will certification standards help to bridge a ‘governance gap’? Which standards might circumvent local stakeholders’ interests and needs and where? In fact, little has been said as to whether and how competing standards and certification schemes (come to) matter at all at points of production. In order to understand the efficacy of governance interventions, we need to consider specific contexts. As Pawson frames it, context operates

by “constraining the choices of stakeholders” and creating “different pre-given characteristics that leave some well-disposed and some badly-disposed” to benefit from a particular set of institutional arrangements (Pawson 2006, p. 25). Thus, we should ask, “What works for whom in what circumstances?”

This book is focused on the LAC region, where contextually, biofuel development can be viewed as an outgrowth of preexisting agro-industries. Governing for sustainability across the LAC region encompasses a complex array of land use policies, labor laws, and environmental regulations. The political landscape is also populated by peasant movements, labor unions, trade associations, and environmental watchdogs. In some countries, like Peru and Colombia, where drug trafficking remains a source of instability, biofuel crops have even been promoted as alternatives to coca cultivation. Clearly, circumstances vary around the region and local context is an essential factor affecting the viability of governance efforts.

In addition, while this collection includes a chapter on biofuel production in Caribbean states, little information exists about governance in the island nations. This is not surprising, given the relatively small role that Caribbean nations play in the region’s biofuel production. Most of the production that does occur consists of dewatering hydrous ethanol imported from Brazil. As previously mentioned, biofuel industries around the world are highly dependent on preexisting agro-industries to supply feedstock. In the Caribbean region, sugarcane, which is the most likely candidate for biofuel feedstock (see Chap. 10), has been declining for decades. Current production is just one-third of what it had been in the 1980s (FAOSTAT 2013). Thus, our discussion focuses on governance efforts in countries of Central and South America.

This chapter takes a macro-perspective to consider contextual factors that shape the international governance for sustainable biofuels. We frame our discussion in the literature on global environmental governance and draw on research from other areas of social and environmental standards. The latter informs our focus on the two macro-level institutional factors that guide our assessment—markets and regulatory frameworks. Our goal is not to provide a comprehensive review, but rather to highlight some key macro-level contextual determinants that influence whether and how sustainability standards (might) come to matter in LAC.

The chapter begins by introducing the demand side for certification—the transnational, hybrid governance arrangements shaped by EU and US policies as well as multilateral organizations, and the standards and certification systems adopted to safeguard sustainability of biofuels. We argue that *if* international standards and certification matter (i.e., whether they are taken up), will largely depend on the specific biofuel sector characteristics in the countries of the region. We will thus shed light on biofuel industry developments throughout LAC and important characteristics of the region in Sect. 2.3 and contrast these developments with current certification patterns. While Sect. 2.4 then addresses the standards’ approaches to critical sustainability issues of biofuel in LAC, Sect. 2.5 will elaborate on intersections between countries’ legal and policy frameworks and international sustainability standards. The conclusion will summarize and point to further research needs, including more theory building and linkage to results from existing certification research.

2.2 International Approaches to Sustainable Biofuels: Governance through Standards

In this section, we review the various approaches of governance toward sustainable biofuels through standards. Compared to traditional regulation enforced by the state, governance implies the steering of behavior and conduct of others by means of networks consisting of non-state and state actors (Ponte et al. 2011). In the last two decades, standards have come to function as a key tool in governing conduct in more and more areas. Standards can be defined as sets of “specifications and/or criteria for the manufacture, use, and/or attributes of a product, process, or service” (Matus 2009, p. 1). They represent norms by which “people, objects and actions can be judged and compared, and which provide a common language to evaluators, the evaluated and their audiences” (Ponte et al. 2011, p. 1).

Standard setting can be driven by different groups of actors such as governments, civil society, industry, or a variety of these actors together in multi-stakeholder initiatives. Typically, literature distinguishes between standards set by public authority and hence embedded in regulation, and voluntary standards that are often referred to as ‘private’ because they are not rooted in state authority (Ponte et al. 2011). Private actors are perceived to outweigh public actors in determining and monitoring sustainability standards due to a ‘global governance gap’ as state-based and multilateral efforts fail to address environmental and labor issues (Overdevest 2010). In response to this ‘gap’, standards have emerged as critical modes of governance for biofuel production, albeit with substantial overlap between private and public rulemaking: “we witness the emergence of private market environmental authorities, moral environmental authorities and all kinds of hybrid authorities in biofuel regulation” (Mol 2010, p. 61).

2.2.1 Governmental (Meta-) Standards

As major sources of biofuel demand, including exports from the LAC region, the US and EU’s biofuel policies are important frameworks affecting regional biofuel governance. In the USA, the Energy Policy Act of 2005 introduced the Renewable Fuel Standard (RFS), which created biofuel-blending mandates for transport fuels (US Congress 2005, p. 551). The 2007 Energy Independence and Security Act (EISA) raised the annual renewable fuel targets to 136 billion liters by 2022 (57 billion liters of ethanol and 21 billion liters of advanced biofuels by 2015; 79 billion liters of advanced biofuels by 2022; Scarlat and Dallemand 2011). Since 2010, the revised RFS program (or RFS2) requires greenhouse gas (GHG) emission reductions of 20 % for conventional, 50 % for advanced, and 60 % for cellulosic biofuels. RFS2 defines a methodology to assess life-cycle GHG emissions from each fuel pathway, including emissions from indirect land use change (iLUC, see Chap. 1). The US Environmental Protection Agency (EPA) is tasked to implement, monitor, and report all activities related to the program. To this end, the EPA assesses and stipulates feedstock options.

Relevant to LAC producers, ethanol made from sugarcane and biodiesel from soybean oil are considered advanced biofuels. In contrast, palm oil is ruled out as a biodiesel pathway under RFS2 (EPA 2011). EPA assigns renewable identification numbers (RINs) to obligated parties that satisfy their volume obligations for each category of biofuel. RINs provide a proof for compliance and a system of tracking biofuels from production to consumption. Biofuels that do not comply with GHG requirements are not excluded from use, but do not count toward blenders' obligations (Scarlat and Dallemand 2011).¹

In 2009, the EU adopted the *Renewable Energy Directive 2009/28/EC* (RED) and amended the complementary *Fuel Quality Directive 98/70/EC* through *Directive 2009/30/EC*. The legislation stipulates that by 2020, the share of energy from renewable sources in transport shall reach a share of at least 10%. For biofuels and other liquid bioenergy carriers, the EU RED provides mandatory sustainability criteria (EU 2009): In order to be counted toward the 10% target and to be eligible for funding schemes, biofuels were required to prove reduced life-cycle GHG emission reduction of 35% (increasing to 50% in 2017 and to 60% after 2018 for new plants).² Unlike RFS, the EU RED does not assess and stipulate eligible feedstock pathways but focuses on production criteria: Fuels produced on land with recognized high biodiversity and carbon stocks and on peatland cannot be counted under the RED. Like the RFS2, the RED does not include social or socioeconomic criteria. The European Commission (EC), however, monitors the origin of biofuels in order to assess production effects in the EU and third countries as well as impacts on LUC, commodity prices, and food security (Scarlat and Dallemand 2011). Reacting to persistent concern about food security, the EC in late 2012 suggested amending the RED such that only 5% of the 10% of renewable fuels used in European transport are derived from food crops (conventional or first-generation biofuels). Further, GHG emission reduction requirements shall be increased for new biofuel providers with effect from mid-2014 (EU 2012).³ Compliance with the RED mandatory sustainability criteria can be demonstrated in three ways: voluntary certification within several qualifying standards, Member State competent authority criteria, or bilateral agreements between the EU and third countries. Member States are to accept standards accepted by the EC.⁴ Thirteen such standards, of which we introduce some in the next section, had been accredited at the end of 2012 (EC 2013a).⁵

¹ The *Low Carbon Fuel Standard* (LCFS): the US state of California takes a different approach, obliging all transport fuel providers to reduce the carbon intensity of transport fuels by 10% by 2020. To this end, a cap-and-trade system based on reporting has been imposed (Scarlat and Dallemand 2011). The LCFS defines its own GHG calculation methodology based on a life-cycle approach that includes both direct and indirect land use change impacts.

² Advanced biofuels made from residues, nonfood cellulosic material, and lignocellulosic material are double-counted, i.e., their contribution against the 10% target can be considered twice that made by other biofuels.

³ The suggested amendment is expected to pass through the legislative procedure by the end of 2013 (European Parliament 2013).

⁴ In some Member States, sustainability policies and standards were already in place when the RED was finalized (Scarlat and Dallemand 2011).

⁵ The 13 schemes are Bonsucro, Ensus, Greenergy, ISCC, NTA 8080, Abengoa RSBA, Red Cert, Red Tractor, RTRS EU RED, RSB EU RED, RSPO EU RED, 2BSvs, and SQC.

The EC itself refers to RED as “the most comprehensive and advanced binding sustainability scheme of its kind anywhere in the world” (EC 2010, p. 1). This regulation can indeed be considered significant as the RED pathway explicitly functions as a meta-standard, recognizing certification schemes as “quasi-implementing agencies” (Biermann and Pattberg 2012). In this way, the EU RED exemplifies hybrid governance by actively blending state authority and private (non-state) actors (Mol 2010; Bailis and Baka 2011). Here, non-state certification standards, which we discuss in the next section, provide assurance that production of biofuels meets environmental requirements by means of assessment, evaluation, and certification through third parties—the certification bodies (Hatanaka et al. 2005).

2.2.2 *Voluntary Standards*

Voluntary standards have evolved in parallel to standards set by national governments. In this discussion, we differentiate between sustainability standards that require third-party verification (certification standards) and standards provided as guidance norms in multilateral arrangements, but lack any oversight.

Biofuel sustainability standards generated by private actors differ in many aspects, including the actor groups involved in initiating and determining standard setting, focus on certain feedstock vis-à-vis biomass in general, and geographical scope (Table 2.1). In terms of geographic scope, nine of the 13 certification standards recognized under the EU RED are applicable to biofuel production in LAC—the remainder are limited to EU Member States.⁶ Critics have noted that the proliferation of standards schemes can be problematic, particularly for the EU’s governance arrangement (van Dam et al. 2010; Scarlat and Dallemand 2011; Soliman and Roggeveen 2012; IEA Bioenergy 2012b). With a lack of harmonization, definitions of key terms (such as forestland or high conservation value) and methodological approaches vary. For producers especially, proliferation imposes complexity and may lead to increased costs in order to demonstrate compliance across inconsistent criteria (Scarlat and Dallemand 2011; Soliman and Roggeveen 2012).

Certification standards also differ in that some focus on specific crops, while others cover bioenergy or biomaterials more generally. Crop-specific schemes for palm oil (Roundtable on Sustainable Palm Oil, RSPO), soy (Round Table on Responsible Soy, RTRS), and sugarcane (Bonsucro) were originally developed for specific markets. As is discussed in Chap. 1, they cover a variety of social and environmental issues. Initially they omitted criteria on GHG emissions, but they have added them in order to gain recognition under the EU RED (Table 2.5).

⁶ Abengoa Bioenergia and Greenery developed certification standards applicable only for their own supply chains (the RED Bioenergy Sustainability Assurance (RBSA) and the Greenery schemes) and are not included in this discussion.

Table 2.1 Characteristics of critical voluntary certification standards

	Initiators	Stakeholders/members involved	Scope and status	Adoption worldwide ^a
Round Table on Responsible Soy (RTRS) ^b	WWF, Maggi Group, Unilever, Cordaid, Coop, Fetraf-Sul	150 members: NGO's (11 %); producers (19 %); industry, finance and trade (49 %); observers (21 %)	Global; operational in 2011	31 certificates
Roundtable on Sustainable Palm Oil (RSPO) ^c	WWF, Migros, Unilever, Malaysian Palm Oil Association, Aarhus United UK Ltd	816 members in seven categories: processors and traders (38 %), consumer goods manufacturers (37 %), growers (16 %), retailers (6 %), social NGOs (1 %), environmental NGOs (2 %); banks and investors (1 %)	Global; operational in 2008	871 certificates
Bonsucro (former Better Sugarcane Initiative, BSI) ^d	WWF and IFC (World Bank)	Representatives of 74 members (one representative from each of the five categories); industrial (millers) (39 %), intermediary (supply chain) (34 %), end-users (12 %), civil society/NGOs (10 %); farmers (5 %)	Global; operational in 2010	43 certificates
International Sustainability and Carbon Certification (ISCC) ^e	Initiated and facilitated by Meo Carbon Solutions consulting and funded by the German Federal Ministry of Agriculture (BMELV)	65 full members today: biomass producers and processors; trade, logistics, and user; NGOs, social sector, science and research, public sector	Global; operational in 2010	1 489 certificates
Roundtable on Sustainable Biomaterials (RSB) ^f	Swiss EPFL (École Polytechnique Fédérale de Lausanne) Energy Center	98 members organized in three different chambers and seven categories: farmers and growers (15 %), producers (21 %), retailers; transportation industry and banks (10 %), rights-based NGOs (4 %), rural development organizations (7 %), environmental organizations (16 %); IGOs and governments (26 %)	Global; operational in 2011	7 certificates

Table 2.1 (continued)

	Initiators	Stakeholders/members involved	Scope and status	Adoption worldwide ^a
The Netherlands Technical Agreement—NTA 8080/81 ^g	The Netherlands Standards Institute (NEN) (based on Cramer Criteria)	22 members: NGO (14 %), government (9 %), power companies (18 %), universities (5 %), produce (5 %), industry (50 %)	Global; operational in 2011	26 certificates
Biomass Biofuels voluntary scheme (2BSVs) ^h	Associations representing the French biofuel industry (crop producers and downstream clients) and auditing firm Bureau Veritas as technical advisor	Seven French consortium members—large French corporations and agricultural cooperatives	Global imports; operational in 2011	625 certificates

Where information from websites was incomplete further information was obtained by addressing standard organizations directly

^aIn certificates issued as of July 2013

^bwww.responsiblesoy.org/

^cwww.rspo.org/

^dwww.bonsucro.com/

^ewww.iscc-system.org/

^f<http://frsb.org/>

^gwww.sustainable-biomass.org/

^h<http://en.2bsvs.org/>

Among the actors engaged in drawing up bioenergy standards are governmental organizations (e.g., in the case of NTA 8080 and International Sustainability and Carbon Certification, ISCC), industry associations (e.g., in the case of 2BSvs), single companies (e.g., Greenergy and Abengoa Bioenergia), and multi-stakeholder roundtable initiatives (e.g., Roundtable on Sustainable Biomaterials (RSB), RSPO, Bonsurco, and RTRS). Although initiated by governmental agencies in Germany and the Netherlands, ISCC and NTA 8080 have both consulted stakeholders in determining sustainability criteria and indicators.

Standard organizations have held stakeholder meetings in the LAC region to include regional perspectives (e.g., RSB 2013b). To account for the contingencies raised by local context, the RTRS and RSPO provide for “national interpretations” of their standards based on the inputs from civil society and commercial groups who convene to agree on country-specific criteria and indicators (Johnson 2012). The RTRS has been interpreted on a national level in Argentina, Brazil, and Uruguay; Bolivian and Paraguayan interpretations are yet to be completed (RTRS 2013c). Colombia has concluded such a national interpretation of the RSPO, while Ecuador is in the early stages of the process. Aside from the integration in national contexts, the RSPO also created the “local interpretation” mechanism which can be applied by single companies to interpret and adopt—in consultation with local stakeholders—RSPO criteria and indicators. One Guatemalan, one Brazilian, and one Colombian company have seized this opportunity so far (RSPO 2013b). Sustainability standards arising from multi-stakeholder initiatives indeed have been recognized for increasing legitimacy and potential democratic credentials based on such instruments of consensus (Pattberg 2012; Mol 2010). Yet, exactly these deliberative structures have been criticized because they may enable certain stakeholders to gain disproportionate influence and focus attention on certain topics, leaving other issues unaddressed (Chap. 7; Elgert 2013; Johnson 2012; Schouten et al. 2012).

Another approach, led by Germany and Brazil, is where the International Standardization Organization (ISO) is currently developing ISO 13065 for sustainable bioenergy. Involving 35 observing and participating countries, the ISO aims to “create globally harmonized sustainability criteria” and to provide “a level playing field for all countries and stakeholders” (ISO 2011). Results of the process in the form of a draft standard are expected in 2014 (Dale et al. 2013).

Many multilateral agencies have also weighed in on biofuel sustainability. As a result, a multitude of frameworks, guidelines, and toolkits to safeguard or assess sustainability in biofuel production have been developed, but are not intended to provide certification. On an international level, the *Global Bioenergy Partnership* (GBEP) coordinated agreement on a list of 24 sustainability indicators to guide national efforts in bioenergy sector development (Scarlat and Dallemand 2011). Endorsed in November 2011, this list could also serve as a base for voluntary implementation. In LAC, Colombia has pilot-tested the GBEP criteria (see Chap. 7).⁷ Similarly, the “Bioenergy and Food Security Criteria and Indicators” (BEFSCI) was developed by the United

⁷ Argentina, Brazil, Colombia, Mexico, and Paraguay have GBEP member status, while Chile, El Salvador, and Peru are participating as observers (GBEP 2011).

Nations Food and Agriculture Organization (UN FAO) to inform national bioenergy frameworks on how to prevent threats to food security. FAO also joined forces with UNEP to establish the “Bioenergy Decision Support Tool” (Fritsche 2012).

Specifically targeting the LAC region, the Inter-American Development Bank (IADB) developed the *Biofuels Sustainability Scorecard*. Launched in 2008 and revised in 2009, the Scorecard is based on sustainability criteria of the RSB and provides a tool to understand, oversee, and possibly track the range of complex issues associated with biofuel production and use. The Scorecard is designed for use at the project level, and addresses social, environmental, and economic issues of sustainability as well as crosscutting governance aspects (Janssen and Rutz 2011).

These multiple efforts have led to a fragmented network of actors and a multitude of partly independent, partly interconnected standards. At one level, there is an incentive for each group of stakeholders to work with meta-standards like the EU RED because participation will likely increase adoption rates of their standard. The RED has also forced some convergence between schemes and EU Member States’ approaches. For example, crop-based standards like RTRS and RSPO defer to the EU’s requirements of 35 % GHG emission reductions. The RED also works as a binding force between the standards as the regulation encourages mutual recognition among the standards. Subsequently, for example, the ISCC under its EU standard recognizes all other RED-accepted standards. Mutual recognition among standards is not limited to biofuels, indirectly linking additional standards into a broader network. For example, the RED-accepted RSB recognizes agricultural and forestry standard schemes like SAN/RA and FSC (SAN 2012), which are not qualifying RED standards. Similarly, the ISCC accepts FSC and PEFC certificates as proof of sustainable wood production (IEA Bioenergy 2012b). Further mimetic effects can be observed among voluntary standards; for example, the IADB adopted RSB criteria for its scorecard.

Whether international approaches to sustainable biofuels will be applied in the LAC region will largely depend on the specific biofuel industry characteristics such as the feedstock processed, the industry size, and its export orientation. The following section focuses on production and trade in the region and assesses which sustainability schemes have yet been adopted in LAC countries.

2.3 Biofuel Production, Trade, and Certification in LAC

Biofuel and bioenergy support policies in the EU and the USA indubitably had a tremendous effect on the global production and trade of biofuel within the last decade (Lamers et al. 2011). Thus, biofuel markets worldwide are expected to also be increasingly impacted by the sustainability criteria embedded in the US and European policies (OECD/FAO 2012). However, the reach and impact of the sustainability issues that are addressed in biofuel governance and certification in regions like LAC remain unclear. Research on environmental and social standard setting in other sectors finds that uptake depends on macroeconomic factors such as high export rates (to Europe and the USA), foreign direct investments, and per capita income, as well as



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