DRAFT

LEGITIMACY, INNOVATION AND HARMONIZATION: PRECURSORS TO OPERATIONALIZING BIOFUELS SUSTAINABILITY STANDARDS

Jody M. Endres[1]

38 S. Ill. Univ. L.R. ____ (Forthcoming Fall 2012)

Abstract

How to balance land uses to sustainably feed, clothe and power a burgeoning population aspiring to western lifestyles will be one of, if not *the* most profound challenges to policymakers in the 21st century. And, climate change's unpredictable effects on natural systems will exacerbate already complex, uncertain and contentious land use decision-making. While biomass-based energy policies gained momentum throughout the 2000s as one way to reduce greenhouse gas (GHG) emissions, assumptions about biofuels' environmental and societal benefits are beginning to come under closer scrutiny. In response, public laws have incorporated varying forms of sustainability considerations. Many private standards have emerged, however, to fill real and perceived gaps in, or in some cases anticipate, future regulatory requirements demanding increased sustainability.

Aspirations aside, the critical question moving forward will be how to *operationalize* sustainability regimes to address governmental and societal concerns. Agricultural biomass sustainability regimes represent a particularly ground-breaking paradigm shift within a traditional commodity-crop landscape that historically has not been subject to widespread certification to specialized sustainability metrics. Although certification is not new to the forestry sector, energy biomass presents unique questions surrounding increased harvests, novel species and practices, and complex carbon accounting. With these new landscape dynamics in mind, and assuming regulatory drivers will encourage operators to seek certification, I posit that private and public actors must successfully navigate three preconditions of operationalization in order to ultimately achieve the sustainability goals contained in any sustainability standard: (1) ensuring standards organizations are built on good governance principles; (2) shifting the paradigm within conventional agricultural landscapes to enable technological and institutional innovations for increased sustainability; and, (3) standards harmonization to facilitate international markets. I conclude that each in and of itself presents great challenges at all levels in transitioning from theoretical to operational standards.

(c) 2012, Jody Endres. No distribution without the permission of Jody Endres

Table of Contents

I. Introduction 1
II. The Impetus for Biomass Sustainability Standards 4
  A. The United States: Federal Bioenergy Policies 4
  B. U.S. State Bioenergy Policies 6
  C. The European Union Renewable Energy Directive 8
  D. Brazil 9
III. Three Preconditions to Sustainability Standard Operationalization 12
  A. Standards Based on Principles of Good Governance 12
    1. Foundational Sociological Perspectives on Legitimacy 13

[1] Assistant Professor of Environment and Energy Law, the University of Illinois College of Agricultural, Consumer and Environmental Sciences. Funding for this work was provided by Energy Biosciences Institute.

2. Legitimizing Biofuels Sustainability Standards.....14
3. Lessons from Administrative Law.....16
4. International Governance Standards.....19
B. Technological and Institutional Innovation to Fortify the Biomass Producer's Sustainability Toolbox.....21
1. Existing Policies and Practices as Sustainability Guides.....22
a. The United States.....22
b. The European Union.....24
c. Brazil.....26
2. Have Existing Agri-Environmental Tools Really Been Effective?.....27
3. Building Socio-Technical Innovation Systems for Biomass Sustainability.....28
a. Have Biofuels Policies Fueled Second-Order Innovation? An Agro-Ecological Perspective.....30
b. The Role of Biofuels Businesses in Creating Technological and Institutional Innovation.....31
C. International Harmonization of Biofuels Sustainability Standards.....33
IV. Concluding Thoughts.....37

(c) 2012 Jody Endres. No reproduction without the permission of Jody Endres

I. Introduction

The world is truly witnessing a moment of transition at the nexus of energy, the environment, and agriculture. The symbiotic relationship between humankind and our environment face unprecedented challenges as overpopulation strains already depleted and degraded resources. Perhaps one of the greatest threats–anthropogenic climate change–has received increased attention recently after over twenty-five years of paralyzing debate. One of the most popular tools governments have deployed to reduce greenhouse gas (GHG) emissions has been to mandate, both directly and indirectly, increased consumption of renewable material from plants and trees–"biomass"–to produce transport fuels, power, heat and bio-based products. In addition to improving the environment, countries also view incentives for biomass-based energy a way to reinvest in depressed rural areas and guarantee secure, domestic energy sources.

However, skyrocketing demand for energy biomass has led non-governmental organizations (NGOs), industries with interests contrary to biofuels (e.g. food and feed), and even governments, to question whether bioenergy policies truly result in environmental and societal improvements befitting of their "bio," "renewable" and "green" labels.[2] While regeneration of plant and forest materials constitutes "renewability" in the strictest sense of the word, this all changed in 2008, when a vocal cadre of academics struck a blow to sustainability assumptions about biofuels.[3] They argued that GHG emissions reductions may be dramatically overestimated because of market-induced indirect land use change, in some cases making the footprint of biofuels worse that petroleum. NGOs jumped on the bandwagon with distress calls about fragile ecosystems threatened by overharvesting, particularly in forests.[4]

---

[2] Jody M. Endres *Putting the "Bio" in Biomass.* THE AMER. BAR ASSOC. NAT. RES. AND ENVT. (Summer 2011).
[3] Timothy D. Searchinger et al., *Use of US croplands for biofuels increases greenhouse gases through emissions from land-use change*. 319 SCIENCE 1238–1240 (2008); Joseph Fargione, et al., *Land clearing and the biofuel carbon debt*. 319 SCIENCE 1235–1238 (2008).
[4] *See e.g.*, Loni Kemp & Julie M. Sibbing. GROWING A GREEN ENERGY FUTURE: A PRIMER AND VISION FOR SUSTAINABLE BIOMASS ENERGY (Natl. Wildlife Fed., Mar. 2010).

These sustainability debates have brought front and center the immense technical and societal complexities policymakers face in reconciling energy and food needs in an almost certain future world of environmental degradation and resource scarcity[5] made even more unpredictable by climate change.[6] The debate spotlights government and societies' failure to confront the mostly unchecked externalities of agriculture.[7] Valuable soils have eroded, waters have been polluted from sediment and chemical inputs, surface and ground waters are frighteningly depleted in some areas, and vast swaths of biodiversity have been irretrievably lost. Consolidation and economies of scale pushed by world commodity markets have devastated rural society in the U.S.[8] David versus Goliath attempts to challenge the agro-industrial status quo have made little dent. Biofuels debates, however, have given new momentum to agricultural sustainability movements. Energy biomass could have the real potential to finally drive framework benchmarks for systematic improvement in agricultural landscapes.[9]

Whether or not such a redesign of agricultural and social policy is conceivable could hinge, in no small part, on emerging biofuels sustainability certification organizations' ability to operationalize standards from paper to practice. The Roundtable for Sustainable Biofuels (RSB),[10] the Council for Sustainable Biomass Production (CSBP),[11] Bonsucro,[12] and others[13] face significant hurdles in achieving legitimacy, effectiveness and widespread adoption. Governments' hands-off reliance on private third parties to design and implement standards will call into question whether the public's interests truly will be advanced. Biomass' novel practice requirements have gone largely unconsidered in agro-environmental programs that exist to varying degrees and efficacy in major biomass-producing countries such as the U.S., Europe and Brazil. Governments, standards organizations, and market players, therefore, must develop innovative, field-based tools that achieve real improvements. But, budget crises in the U.S. threaten to end agricultural conservation programs and protections for sensitive ecosystems in place since the 1980s, crippling the government's ability to participate in practice development. Biofuels companies face economic barriers in leading technological innovations in agro-environmental performance. Upstart private standards, therefore, must bridge the technological divide governments and industrial sectors alike cannot or will not tackle. Particularly challenging will be new, multi-level approaches to "shed" level standards, as scientists have only begun to study how to integrate the

© 2012 – Ashley Andres. No quotation without the permission of Judy Endow.

[5] Pete Smith et al., *Competition for Land.* 365 PHIL. TRANS. R. SOC. B 2941-2957 (2010).
[6] N.V. Fedoroff et al., Redically Rethinking Agriculture for the 21st Century, 327 SCIENCE 833, (2010).
[7] The damage wrought on agricultural and forest landscapes is well-documented in the literature. *See e.g.*, P.A. Matson et al., *Agricultural Intensification and Ecosystem Properties*, 277 SCIENCE 504-509 (1997); S.J. Butler et al., *Farmland Biodiversity and the Footprint of Agriculture*, 315 SCIENCE 381-384 (2007); E.T. Kiers et al., *Agriculture at a Crossroads*, 320 SCIENCE 320-321 (2008). *See also* Jim Douglas & Markuu Simula, THE FUTURE OF THE WORLD'S FORESTS: IDEAS VS IDEOLOGIES (Springer 2010); U.N. Food & Ag. Org., STATE OF THE WORLD'S FORESTS (Rome 2011).
[8] Fred Kirschenmann, et al., WHY WORRY ABOUT THE AGRICULTURE OF THE MIDDLE? IN FOOD AND THE MID-LEVEL FARM: RENEWING AN AGRICULTURE OF THE MIDDLE, T. Lyson et al., eds. (MIT 2008).
[9] *See e.g.*, J.D. Glover, et al., *Harvested perennial grasslands provide ecological benchmarks for agricultural sustainability.* 137 AG., ECOSYSTEMS & ENVT. 3-12 (2010).
[10] Roundtable for Sustainable Biofuels, Principles and Criteria (Version 2), *available at* http://rsb.epfl.ch/page-24929-en.html.
[11] Council for Sustainable Biomass Production, Provisional Standard for Sustainable Production of Biomass, *available at* http://www.csbp.org/.
[12] Bonsucro Production Standard Including Bonsucro EU Production Standard (2011), *available at* http://www.bonsucro.com/.
[13] *See generally*, Nicolae Scarlat & Jean-François Dallemand, *Recent Developments of biofuels/bioenergy sustainability certification: A global overview*, 39 ENERGY POLICY 1630-1646 (2011).

complicated structure and function of ecosystems and rural communities into standards.[14] International trade in energy biomass magnifies these challenges. Attempts to arrive at some level of harmonization of environmental and social indicators for biofuels have proliferated. The outcome is uncertain in the absence of a comprehensive climate change treaty and ongoing agricultural trade disputes.

This article constructs a framework approach to meeting the challenge of operationalizing biofuels sustainability standards. First, as background, Part II provides the reader essential context for the degree of operationalization necessary, examining the reasons sustainability standards have emerged through the convergence of energy, environmental or agricultural policies. Part III elaborates the three preconditions to standards' operationalization, with cross-disciplinary heavy-lifting along the way. First, I look to core principles from sociology and political science to gauge whether private standards constitute "good governance" through the lens of societal institutions that define an organization's legitimacy. Circling back, the article draws analogies to democratic administrative law principles of inclusiveness, transparency, and accountability, and similar administrative norms embedded in international governance standards. I posit that governance improvements through private biofuels standard setting may in fact have a positive influence on otherwise opaque agricultural rulemaking in the US. Second, I argue that no sustainability standard is viable without making practice tools available for agricultural producers. Whether or not a larger paradigm shift is occurring toward sustainability spawned by bioenergy sustainability policies, large gaps remain in existing institutional and technological agro-environmental knowledge in the United States (US), European Union (EU) and Brazil. I apply a co-evolutionary approach in concluding that biofuels companies' business strategies likely will not drive necessary technological or institutional innovation. The article concludes that the third precondition–international standards harmonization–is unlikely in the absence of broader climate and agricultural agreements.

II. The Impetus for Biomass Sustainability Standards

The past ten years has seen a significant proliferation of bioenergy policies, and as they have evolved, more and more focus has been placed on accounting for the potential environmental and social impacts of biomass-based fuels. The primary concern has been whether from a lifecycle perspective biofuels deliver true greenhouse gas (GHGs) emission reductions. The US, California, and the EU all have codified some form of GHG measurement for biofuels. Policies also contemplate biomass' possible effects on air, water, and soil quality, and biodiversity, as well as fair labor practices and property rights in the wake of land grabs in undeveloped countries. The following bioenergy policies have engendered in different ways the development of private biofuels sustainability standards.

A. The United States: Federal Bioenergy Policies

I detail the evolution of sustainability definitions in US bioenergy laws in a prior publication,[15] and thus they will not be repeated in detail except to provide the reader background for the rest of this article and provide an update of recent developments. The US structures its bioenergy policies between those that address air pollution and those implementing agricultural subsidies. The Environmental Protection Agency (EPA)

(c) 2012 Jody Endres. No distribution without the permission of Jody Endres

[14] Jeffrey C. Milder, et al., *Biofuels and ecoagriculture: can bioenergy production enhance landscape-scale ecosystem conservation and rural livelihoods?* 6 INTL. J. OF AG. SUSTAINABILITY 105-121 (2008).
[15] Jody M. Endres, *Agriculture at a Crossroads: Energy Biomass Standards and a New Sustainability Paradigm?* 2011 ILL. L. REV. 503-548 (2011).

administers two main federal programs under the Clean Air Act (CAA) that implicate the sustainability of biomass-based fuels. The Renewable Fuel Standard (RFS)[16] establishes mandates for biofuels blending in transportation fuels that require the use of "renewable biomass" and greenhouse gas (GHG) emission reductions. EPA also must study every three years the other potential environmental effects. In February 2011 it issued its first Triennial Report of the environmental impacts of the RFS2.[17] EPA acknowledges in the report, among other studies, recent confirmation[18] that commodity crop production in the Mississippi watershed results in harmful nitrogen pollution. It concludes, however, that the effects of biomass cropping are yet to be fully understood due to the dearth of scientific research.[19]

Perhaps most significantly, EPA indicates in the Report that it will apply lifecycle analysis (LCA) in the next triennial report (2014) to determine the full range of environmental effects within the RFS supply chain.[20] What methodology and data EPA will use, however, remains unclear. EPA will only have access in the interim to generalized, aggregated information, as section 1619 of the 2002 Farm Bill prevents USDA from reporting individual grower information.[21] Within RFS2, EPA only requires record-keeping and attestation for compliance with the "renewable biomass" sourcing requirement in the statute, but no "track and trace" certification requirements that would provide more specific data.[22] Under the "aggregate compliance" approach, EPA will use USDA's yearly reporting statistics to determine whether a threshold level of land inventory has been maintained.[23] Unless that threshold is breached, no individual obligated party claiming RFS credit will be required to prove its biomass derived from eligible lands. This approach does not take into account the value of environmentally sensitive lands converted into corn that has been displaced by other forms of biomass, nor does it acknowledge the weakness in relying on USDA's dismal record in preventing native grasslands conversion.[24] Environmental groups have sued EPA, claiming the aggregate compliance approach contravenes the intent of the statutory requirement that biomass derive from lands cultivated prior to December 18, 2007.[25]

The second set of laws deal with the emission of GHGs and other air pollutants from the direct combustion of biomass for power and heat, and indirect combustion of biomass-based fuels in transportation. Under what it terms the "GHG Tailoring Rule," EPA is implementing stationary[26] and mobile source[27] GHG rules under other titles of the CAA. For

© 2011 – Joshua Fanes. No distribution without the permission of the Author.

---

[16] Energy Independence and Security Act § 202(a)(2), 121 Stat. at 1522–24 (codified at 42 U.S.C. § 7545(o)(2)(B) (Supp. II 2009)).

[17] Environmental Protection Agency, BIOFUELS AND THE ENVIRONMENT: FIRST TRIENNIAL REPORT TO CONGRESS (Feb. 2011), *available at* http://oaspub.epa.gov/eims/eimscomm.getfile?p_download_id=500584 (hereinafter TRIENNIAL REPORT).

[18] Natural Resources Conservation Service, ASSESSMENT OF THE EFFECTS OF CONSERVATION PRACTICES ON CULTIVATED CROPLAND IN THE UPPER MISSISSIPPI RIVER BASIN (June 2010), *available at* ftp://ftp-fc.sc.egov.usda.gov/NHQ/nri/ceap/UMRB_final_draft_061410.pdf.

[19] TRIENNIAL REPORT, *supra* note 17, at i.

[20] *Id.* at ii.

[21] Farm Security and Rural Investment Act of 2002, 116 Stat. 291, Pub. L. 107-17 (2002) (hereinafter 2002 Farm Bill).

[22] Environmental Protection Agency, *Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program; Final* Rule, 14669, 14729 (Mar. 26, 2010).

[23] Endres, *supra* note 15, at notes 43-45.

[24] *See generally*, Anthony B. Schutz, *Grassland Governance and Common-Interest Communities*. 2 SUSTAINABILITY 2320-2348 (2010).

[25] *Friends of the Earth, Inc. v. EPA*, Case. No. 10-1108 (D.C. Cir).

[26] Environmental Protection Agency, *Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule*, 75 Fed. Reg. 31514-31618 (June 3, 2010).

[27] Environmental Protection Agency & Department of Transportation, *Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles*, 76 Fed. Reg. 57106-57513 (Sept. 15, 2011)*;* Environmental Protection Agency & Department of Transportation, *Light-Duty Vehicle*

stationary sources such as electricity generators that combust biomass, EPA controversially ruled in July 2011 that it will treat biomass as "carbon neutral" while it studies the issue for three years.[28] Despite a call for information related to other sustainability issues (particularly impacts on forests) in July 2010, EPA did not indicate in its neutrality rule any reference to what, if anything, it will do moving forward with regard to environmental issues other than GHG emissions.[29] EPA has developed rules for air pollutant emissions other than GHGs from stationary sources as well. The so called "Boiler MACT" rules establish numeric emissions limits for mercury, dioxin, particulate matter, hydrogen chloride and carbon monoxide, but exempt biomass boilers from installing scrubbers for mercury and hydrogen chloride.[30] Smaller biomass boilers will only require "tune-ups" versus complying with numerical limitations.[31] The rule provides important definitional guidance for what biomass qualifies as solid waste, which would trigger more stringent incinerator rules.[32]

Mobile source rules measure GHG emissions at the tailpipe only. EPA, therefore, does not apply full LCA to the fuel source footprint, unlike what is required for the RFS2. The Department of Transportation (DOT) and EPA administer the rules for vehicle efficiency known as Corporate Average Fuel Economy (CAFE) standards, which for model years 2017-2025, will combine all air pollutants, including GHGs, into one rule.[33] DOT and EPA appear to favor electric-powered vehicles in new rulemaking announced in August 2011.[34] EPA has added an "incentive multiplier" for production of electric, plug-in hybrid, and fuel cell vehicles, coupled with the phase out in 2020 of previously established incentives for dual-fuel vehicles.[35] Out of fairness to biofuels, EPA should account more fully for the negative front- and back-end impacts of electricity generated from coal or natural gas, although this is not required or sanctioned in the underlying statute. One possibility for broader environmental assessment would be through the National Environmental Policy Act (NEPA),[36] which requires EPA to assess the environmental impact of the new CAFE rules.

The Department of Agriculture has primary responsibility for administering agro-environmental programs for the US's first biomass subsidy program, the Biomass Crop Assistance Program (BCAP). Under the statute and regulation, USDA must consider environmental and societal factors in awarding funding, and producers must develop a conservation plan.[37] It is unclear, however, how USDA is applying criteria or designing conservation plans.[38]

© 2012 Jody Endres. No distribution without the permission of Jody Endres

---

Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule, 75 Fed. Reg. 25323-25728 (May 7, 2010).

[28] Environmental Protection Agency, *Deferral for CO2 Emissions From Bioenergy and Other Biogenic Sources Under the Prevention of Significant Deterioration (PSD) and Title V Programs*, 76 Fed. Reg. 43490-43508 (July 20, 2011).

[29] Environmental Protection Agency, *Call for Information: Information on Greenhouse Gas Emissions Associated With Bioenergy and Other Biogenic Sources*, 75 Fed. Reg. 41173-41177 (July 15, 2010).

[30] Lisa Gibson, *EPA boiler MACT rules ease biomass pains*, BIOMASS MAGAZINE (Feb. 22, 2011), *available at* http://biomassmagazine.com/articles/5299/epa-boiler-mact-rules-ease-biomass-pains.

[31] *Id.*

[32] *Id.*

[33] Department of Transportation, National Highway Traffic Safety Administration, 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy, 76 Fed. Reg. 74854-75420 (Dec. 1, 2011).

[34] *Id.* at 75017-75020.

[35] *Id.*

[36] National Environmental Policy Act of 1969, 83 Stat.852, Pub. 91-190 (1969).

[37] For a detailed explanation of the 2008 Farm Bill's BCAP provisions, *see* Jody M. Endres, et al., *The Biomass Crop Assistance Program: Orchestrating the Government's First Significant Step to Incentivize Biomass Production for Renewable Energy*, 40 ELR 10066, 10069-10070 (Jan. 2010). These statutory provisions are repeated and explained somewhat in BCAP implementing regulations.

B. U.S. State Bioenergy Policies

Many U.S. states maintain multiple bioenergy-related policies.[39] California leads efforts among states to reduce GHG emissions through its renewable portfolio standards (RPS),[40] low carbon fuel standard (LCFS), and cap and trade program. Also, California's Assembly Bill (A.B.) 118 program funds alternative and renewable fuels and technologies. Lastly, the California Environmental Quality Act–the equivalent of the federal NEPA–applies to all programs, and thus the responsible agency will conduct a baseline evaluation of programmatic environmental and social impacts.[41]

Responsible agencies in California also have developed, or are in the process of developing, sustainability criteria for bioenergy feedstocks. The Air Resources Board (ARB) has convened a sustainability workgroup to design environmental and social principles and criteria for its LCFS.[42] ARB's Workgroup leaders have emphasized throughout the process of developing principles and criteria the need to evaluate existing tools and even other standards to determine the most efficient path to guaranteeing feedstock sustainability. In addition to ARB's LCFS efforts, the California Energy Commission (CEC) applies sustainability criteria to make A.B. 118 awards for alternative and renewable fuels and technologies.[43] For purpose-grown energy crops, these include "development and implementation of a sustainability best management practices plan developed by institutions such as the University of California at Davis," land use that does not disrupt food cropping, and crop selection that fits climate, water and natural resource constraints.[44] On the other hand, renewable energy credits (RECs) generated through the RPS lack concrete definitions of "renewability' except as broadly defined through statute by source (e.g., biomass) and that which does not "cause or contribute to any violation of a California environmental quality standard or requirement."[45] While it remains unclear how CEC will verify environmental compliance, presumably Cap-and-Trade regulations would cross-apply. CEC did recently issue a study of the lifecycle effects of certain energy systems.[46] Controversy surrounding the definition of "renewability" of RPS feedstocks has emerged in other states such as North

© 2011 Jason Rhodes. No distribution without the permission of Jason Rhodes

---

Department of Agriculture, *Biomass Crop Assistance Program; Final Rule*, 75 Fed. Reg. 66202, 66240-66241 (Oct. 27, 2010) (codified at 7 C.F.R. Part 1450).

[38] *See infra* text at note 138.

[39] Department of Energy, Energy Efficiency and Renewable Energy, Database of State Incentives for Renewables and Efficiency (DSIRE), *available at* http://www.dsireusa.org/.

[40] Established originally in 2002 under Senate Bill 1078, Governor Jerry Brown signed Senate Bill X1-2 in April 2011, increasing the required percentage renewables to 33% by 2020. *See* California Energy Commission, Renewables Portfolio Standard (RPS) Proceeding-Docket # 03-RPS-1078, *available at* http://www.energy.ca.gov/portfolio/index.html.

[41] *See generally* CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) STATUTE AND GUIDELINES (AEP 2011), *available at* http://www.califaep.org/docs/CEQA/CEQAHandbook2011.pdf.

[42] For the underlying regulation, *see* California Air Resources Board, Low Carbon Fuel Standard, *Final Statement of Reasons* (Dec. 2009), *available at* http://www.arb.ca.gov/regact/2009/lcfs09/lcfsfsor.pdf. *See also* Sustainability Workgroup, *available at* http://www.arb.ca.gov/fuels/lcfs/workgroups/lcfssustain/lcfssustain.htm.

[43] California Energy Commission, *Final Regulation Language, Alternative and Renewable Fuels and Technologies Program*, CEC-600-2008-013-F at 2 (Apr. 2009) (codified at Title 20 Cal. Code Reg. §§ 3100-3108).

[44] *Id.*

[45] California Pub. Res. Code § 25741(b)(1); Offset Quality Initiative, MAINTAINING CARBON MARKET INTEGRITY (June 2009), *available at* http://www.climatetrust.org/pdfs/JuneBrief.pdf.

[46] California Energy Commission, Lifecycle Assessment of Existing and Emerging Distributed Generation Technologies in California, CEC-500-2011-001 (July 2011).

Carolina, where environmentalists have appealed the N.C. Utilities Commission's order allowing whole trees to be combusted for electricity generation.[47]

California's Cap and Trade Regulation exempts biomass-based fuels from carbon accounting,[48] but entities must still report GHG emissions from biomass under the Mandatory Reporting Regulation.[49] In December 2011, ARB finalized additional reporting requirement that forest-derived biomass demonstrate compliance with environmental and forestry laws.[50] For international sourcing, California continues to work, through the Governors' Climate and Forests Task Force (GCF), on integration of sustainability mechanisms such as Reducing Emissions from Deforestation and Forest Degradation (REDD) into the Cap and Trade Program.[51]

C. The European Union Renewable Energy Directive

The EU Renewable Energy Directive (RED), which became final in April 2009, requires that energy from renewable sources, such as biomass, make up 20 percent of the total EU energy supply by 2020.[52] Of this, 10 percent must be for transportation fuels.[53] Member States bear responsibility for fulfilling these commitments through national action plans, including implementing schemes to guarantee that feedstocks for *biofuels and bioliquids* meet sustainability criteria enumerated in Article 17 of the Directive.[54] These criteria include meeting increasing minimum GHG thresholds[55] and land-based sourcing prohibitions (lands with high biodiversity or carbon values), as well as cross-compliance[56] with existing agro-environmental laws. "Economic operators" are required to seek independent audits to verify these criteria are met, and must report as part of verification "appropriate and relevant information on measures taken for soil, water and air protection, the restoration of degraded land, the avoidance of excessive water consumption in areas where water is scarce and appropriate and relevant information concerning measures taken."[57]

The RED does not impose sustainability criteria on renewable sources used for electricity, heating and cooling. Instead, it required the Commission to report on a similar scheme for these uses.[58] In its report issued in February 2011, the Commission recommends member states introduce sustainability schemes[59] although concurrently the Commission initiated a consultation based on "new developments" in the industry and policies to

© 2012 Jody Endres. No reproduction without the permission of Jody Endres

[47] North Carolina Utilities Commission, Order Accepting Registration of Renewable Energy Facilities, Docket No. E-7, Sub 939 (Oct. 11, 2010).
[48] Title 17 Cal. Code Reg., Subchapter 10, Climate Change, Article 5, § 95852.2.
[49] *Id.* § 95852.2.
[50] California Air Resources Board, Final Regulation Order, Amendments to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions at 70, *available at* http://www.arb.ca.gov/regact/2010/ghg2010/mrrfro.pdf.
[51] Governors' Climate and Forests Task Force, *available at* http://www.gcftaskforce.org/index.php.
[52] Directive 2009/28/EC, O.J. L140/16, Art. 2a, 3 (June 5, 2009) (hereinafter the RED).
[53] *Id.*
[54] *Id.* Art. 4.
[55] Concurrent amendments made to the Fuel Quality Directive require all transportation fuels to reduce their emissions by 10% by 2020. Directive 2009/30/EC, O.J. L 140/88 (9) (Apr. 23, 2011).
[56] Council Regulation 73/2009/EC O.J. L 30 (Jan. 19, 2009) (establishing common rules for direct support schemes for farmers under the common agricultural policy and establishing certain support schemes for farmers).
[57] RED, *supra* note 52 at Art. 18(3).
[58] *Id.* at Art. 17(9).
[59] Report from the Commission to the Council and the European Parliament on sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling, SEC(2010) 65 final (Feb. 25, 2011).

determine whether a need exists for additional measures at the EU level.[60] In its July 2011 findings, the Commission notes that 72% of respondents "believed that additional measures at [the] EU level are needed to ensure the sustainability of biomass used in electricity and heating/cooling sectors."[61] The respondents reasoning was based on (1) increasing EU demand, (2) inadequate existing sustainability policy frameworks in the EU, (3) the need for a consistent approach, and (4) the lack of a binding EU sustainability scheme.[62]

D. Brazil

Unlike the EU and US, Brazil does not have any federal-type requirement for sustainability in its bioenergy policies, which primarily includes the Pro-alcool program of mandatory sugar cane ethanol blending.[63] There are various activities, however, that require some type of mandatory or voluntary sustainability compliance in biomass and biofuels production.

Brazil maintains the "Social Seal" program for biodiesel, which in addition to mandating 2% blending in 2008 and 5% after 2013, biodiesel producers must buy at least 50% of feedstocks from family farmers in order to qualify for the government's price premium and other incentives.[64] Criteria have been developed to monitor whether the Social Seal program requirements are met, and companies must submit quarterly data to the Ministry of Agriculture.[65] These include reporting on technical assistance provided to farmers, maintaining food security, respect for cultural practices, sustainability systems that emphasize indigenous, local practice knowledge, appropriate management of soil and water resources, consideration of women and children in income generation, and measures to reduce poverty in rural areas.[66]

Emphasis in Brazilian law with regard to biofuels sustainability has been mainly to prevent environmentally destructive land use change, whether direct or indirect, which threatens biodiversity and increases GHG emissions. In light of the potential expansion of sugar cane acreage due to world demand for renewable transportation fuels, the Ministry of Agriculture proposed in 2009 the Agro-Ecological Zoning Plan for Sugarcane production (ZAE-CANA).[67] The plan establishes the most suitable areas for sugarcane production according to physical (soil and climate), biological, socioeconomic and regulatory

© 2012, John Dobres. No distribution without the permission of Jody Endres.

[60] European Commission, Open consultation on the preparation of a report on additional sustainability measures at EU level for solid and gaseous biomass used in electricity, heating and cooling (Feb. 1. 2011), *available at* http://ec.europa.eu/energy/renewables/consultations/doc/20110329_biomass_background.pdf.
[61] European Commission Directorate-General for Energy, Results of the public consultation on additional sustainability measures at EU level for solid and gaseous biomass used in electricity, heating and cooling (July 2011).
[62] *Id.* at 8/9.
[63] For a full history of the Brazilian sugar cane ethanol program, *see* Vanessa M. Cordonnier, *Ethanol's Roots: How Brazilian Legislation Created the International Ethanol Boom*, 33 WILLIAM & MARY ENVTL. L. AND POLICY Rev. 287 (2008).
[64] Law 11.097/05 (establishing the National Program for the Production and Use of Biodiesel (PNPB) under the National Energy Policy). For an overview of the program and critical analysis of whether it has achieved results, *see* Silvia Blajberg Schaffel & Emilio Lèbre La Rovere, *The quest for eco-social efficiency in biofuels production in Brazil*, 18 J. OF CLEANER PRODUCTION 1663, 1667-1669 (2010).
[65] *Id.* at 1668.
[66] *Id.*
[67] Ministério da Agricultura, Pecuária e Abastecimento, Zoneamento Da Cana-de-Açúcar (Minister of Agriculture, Livestock, and Sustenance, Zoning of Sugar Cane), Documentos 110 (Sept. 2009), *available at* http://www.cnps.embrapa.br/zoneamento_cana_de_acucar/ZonCana.pdf. The proposal was passed into law that same year. *See also* Tarcizio Goes, et al., *Sugarcane in Brazil: Current technologic stage and perspectives*, REVISTA DE POLÍTICA AGRÍCOLA at 62 (Jan./Feb./Mar. 2011).

conditions.[68] The plan restricts sugarcane introduction on 81.5% of Brazilian lands, including those in the Amazon, Pantanal and Alto Paraguai biomes.[69] States are responsible for implementation.[70]

The Forest Code is the second key law related to constraining land use change.[71] The Forest Code divides land categories into those for agricultural production and conservation. Conservation is further subdivided into "permanent preservation areas" (APPs) and "legal reservation areas" (RL).[72] APPs must be established in areas next to drinking water sources and rivers and sloped lands. The RL requires between 20% and 80% of land owned to be maintained in forest or native vegetation, depending on the location of the farm. These conservation provisions are controversial among private landowners.[73] The Brazilian federal Congress approved a new version of the Forest Code in 2011, which kept the RL and APPs in place but at a reduced rate and with amnesty for some rural producers who did not comply with the Forest Code restriction prior to 2008. The World Bank contends that one side effect of the RL and APPs is that if productive land must be otherwise "reserved," agricultural land use could move to more sensitive areas such as the Amazon.[74] Future discussion, therefore, could revolve around how to make reserves more economically meaningful to producers (thus relieving the incentive to deforest elsewhere). One way to do this would be through certified biomass production.

From a cross-compliance perspective, environmental licensing is required for "high impact agricultural activities, including sugar cane ethanol facilities."[75] Environmental licensing includes pre-project environmental review for compliance with other environmental laws.[76] It remains unclear, however, whether responsible authorities (states) require compliance beyond the biorefinery to the field level. Pursuant to the "Green Protocol." financial institutions have agreed with the federal environmental agency to condition lending on obtaining environmental licensing.[77] It also remains unclear whether this has been applied to agricultural field operations.

The State of São Paulo has taken steps to phase out the burning of sugar cane prior to harvest by 2021 under pressure to reduce air pollution and lifecycle GHG emissions

© 2012 Jody Endres. No distribution without the permission of Jody Endres

---

[68] *Id.*
[69] *Id.*
[70] *Id.* at 63 (stating that in São Paulo state, new permitting of sugar cane mills or expansion of existing ones has been "restrained").
[71] *Id.*
[72] *Id.*
[73] *Id.*
[74] Christophe de Gouvello, BRAZIL LOW-CARBON COUNTRY CASE STUDY 33 (May 31, 2010), *available at* http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/07/04/000386194_20110704082047/Rendered/PDF/630290PUB0Braz00Box0361499B0PUBLIC0.pdf.
[75] Renata Marson Teixeira de Andrade & Andrew Miccolis. *Policies and institutional and legal frameworks in the expansion of Brazilian Biofuels*, CIFOR Working Paper 71 (2011) at 15. *See also* Environment National Policy, Law 6,938 (1981); CONAMA-Natl. Envt. Council Resolution no. 237 (Dec. 19, 1997), Annex I (listing agriculture as a sector subject to environmental permitting).
[76] Andrade, *supra* note 75 at 15. *See also* Luiz Henrique Lima & Alessandra Magrini, *The Brazilian Audit Tribunal's role in improving the federal environmental licensing process*, 30 ENVT. IMPACT ASSESSMENT REV. 108-115 (2010) (providing details of the environmental licensing process).
[77] Protocolo De Intenções Pela Responsibilidade Socioambiental Que Entre Si Celebram O Ministério Do Meio Ambiente, O Banco Nacional De Desenvolvimento Econômico e Social-BNDES, A Caixa Econômica Federal, o Banco Do Brasil S.A., O Banco Da Amazônia S.A., e o Banco Do Nordeste Do Brasil-BNB (Protocol of Intent for Socio-environmental Responsibility Between the Minister of the Environment and the National Economic and Socail Development Bank (BNDES), the Federal Economic Account, the Bank of Brazil, the Bank of the Amazon, and the Bank of the Northeast (BNB)) (2008), *available at* http://www.bb.com.br/docs/pub/inst/dwn/ProtocoloVerde.pdf.

attributable to sugar cane ethanol.[78] In 2007, UNICA (the main Brazilian sugar cane industry group) voluntarily agreed with the State of São Paulo to reduce burning in all areas in anticipation of the 2013 deadline, as well as no burning in new areas.[79] One significant societal side-effect of burning bans, however, has been the elimination of hand labor in favor of mechanization. The UNICA Agreement also involves other areas of improved sustainability. Its "technical directives" provide that sugar cane growers will observe a variety of sustainable practices, including: (1) assessing areas that could contribute to environmental protection, including biodiversity, (2) protection of water sources in rural areas, (3) implement soil conservation and watercourse protection plans, (4) proper disposal of pesticide containers and applicator training, and (5) adopt best practices to minimize air pollution from industrial practices.[80] In return, the State agree to fund research, install logistical infrastructure for exports, issue a "certificate of agro-environmental conformity" as contained in the technical directives, and consider small holders in designing anti-burning measures.[81] The agreement establishes an executive committee of three technicians from the government and industry to establish criteria for the certificate.[82] It is unclear whether São Paulo State is actually issuing certificate, or what sustainability criteria have been developed. But, "[a]ccording to the State Environment Secretary, 145 out of 177 plants in São Paulo have adhered to the Protocol."[83]

The 2007 National Plan on Climate Change recommends ways in which agricultural and forestry practices can reduce GHG emissions, such as the adoption of no-till techniques, strategies to deal with degraded pasture, integrated crop-livestock operations, reduction in the use of nitrogen fertilizers, and organic "enrichment" of cattle pastures to reduce nitrogen emissions.[84] It is unclear how these recommendations have been woven into environmental permitting of agriculture, if at all. The emphasis on improving pasture in Brazil, particularly if it involves intensification of cattle, has been activity forwarded as one way to reduce indirect land use change (ILUC) penalties placed on biofuels. Future scholarship must address, however, how the drive toward livestock intensification may only result in trading one environmental problem (ILUC) for another. That is, while biofuels sustainability standards may take into account GHG emissions from ILUC, they do not take into account the negative, indirect environmental effects of ILUC avoidance through livestock intensification, which have been the subject of much environmental dispute in the US.[85]

(c) 2012 Jody Endres. No reproduction without the permission of Jody Endres

---

[78] Christian Brannstrom, et al., *Compliance and market exclusion in Brazilian agriculture: Analysis and implications for "soft" governance*, 29LAND USE POLICY 357-366 (2011) (explaining the history of São Paulo's burning ban in sugar cane production).

[79] Protocolo de Cooperação que Celebram Entre Si, o Governo do Estado de São Paulo, A Secretaria de Estado do Meio Ambiente, a Secretaria de Estado da Agricultura e Abastemcimento e a União da Agroindústria Canaveira de São Paulo Para a Adoçao de Açoes Destinadas a Consolidar o Desenvolimento Sustentável da Indústria da Cana-de-Açucar no Estado de São Paulo (Voluntary Agreement Between the State of São Paulo, the São Paulo State Secretary of Environment, the São Paulo State Secretary of Agriculture and Supply, and the Union of Agro-Industrial Cane Production of São Paulo) (June 4, 2007), available at http://www.unica.com.br/userFiles/Protocolo_Assinado_Agroambiental.pdf.

[80] *Id.* at Clause 3.

[81] *Id.* at Clause 4.

[82] *Id.* at Clause 5.

[83] Schaffel & Lèbre La Rovere, *supra* note 64, at 1665.

[84] Politica Nacional sobre Mudança do Clima – PNMC, Federal Law 12,187/2009 *(*Dec. 2009) (National Climate Change Plan). *See also* The Government of Brazil, INTERMINISTERIAL COMMITTEE ON CLIMATE CHANGE, NATIONAL PLAN ON CLIMATE CHANGE 9-10 (Brasília, Dec. 2008), available at http://www.mma.gov.br/estruturas/imprensa/_arquivos/96_11122008040728.pdf.

[85] *See e.g.*, Terrence J. Centner, Courts and the EPA Interpret NPDES General Permit Requirements for CAFOs, 38 ENVTL. L. 1215-1238 (2008); Jody M. Endres and Margaret Rosso Grossman, *Air Emissions from Animal Feeding Operations: Can State Rules Help?* 13 Penn. St. Envtl. L. Rev. 1 (Fall 2004).

The sugarcane sector in Brazil has been subject to much criticism for its labor practices involving poor, uneducated workers, both internally and from international human rights groups. Although Brazilian authorities have pursued action under labor laws again poor working conditions, the conditions for laborers has only until recently began to improve.[86] Under pressure from critics and threat of further enforcement, UNICA signed a voluntary agreement with five Brazilian federal ministries to improve labor practices in sugarcane production in 2009.[87] The industry has promised to provide work contracts, improved conditions for migrant workers, transparency in how workers are paid by unit of production, better health and safety mechanisms, improved transportation conditions, the provision of meals, the possibility of unionization, and reporting of practices.[88]

III. Three Preconditions to Sustainability Standard Operationalization

Environmental and social NGOs, industry, and academic stakeholders have formed various private international standard setting groups in anticipation of some type of E.U. requirement that energy feedstocks come from verifiable renewable sources.[89] Thus far, the EU has recognized several voluntary schemes to verify sustainability criteria[90] including the International Sustainability and Carbon Certification (ISCC), Bonsucro EU, the Roundtable on Responsible Soy (RTRS) EU, the Roundtable for Sustainable Biofuels (RSB) EU RED, Biomass Biofuels voluntary scheme (2BSvs), Abengoa RED Bioenergy Sustainability Assurance (RBSA), Greenergy Brazilian Bioethanol verification program, ENSUS, Red Tractor, SQC, Red Cert, and NTA 8000. U.S.-based stakeholders similarly have come together to form the Council for Sustainable Biomass Production (CSBP) and have issued a final standard in anticipation of verification requirements in the U.S. Standards share common principles of soil, water and air pollution avoidance, biodiversity protection, GHG accounting, legality, and social (e.g., labor, land rights, food security) considerations.

Although some standards have been field tested, the challenge moving forward will be for standards organizations and governments to operationalize "paper" standards to achieve real sustainability gains on the ground that the foregoing policy drivers portend to seek. I contend that three preconditions must be met before this can occur.

A. Standards Based on Principles of Good Governance

Private approaches to the market failures within complex, globalized economies have been championed by post-war neoliberalism for over 40 years, and now in many cases supplement (or supplant) direct government regulation.[91] The "state" becomes less a

© 2012 Jody Endres. No distribution without the permission of Jody Endres

[86] Luiz A. Martinelli and Solange Filoso, *Expansion of Sugarcane Ethanol Production in Brazil: Environmental and Social Challenges*, 18 ECOLOGICAL APPLICATIONS 885, 892-894 (2008).
[87] ÚNICA, Compromisso Nacional para Aperfeiçoar as Condições de Trabalho na Cana-de-Açúcar (2009) *available at* http://www.unica.com.br/noticias/show.asp?nwsCode={A1BB1C6B-DF27-4E97-A0D8-C2B6234642FB} (National Compromise for Improvement of Working Conditions in Sugar Cane); Schaffel & Lèbre La Rovere, *supra* note 64, at 1666.
[88] *Id.*
[89] Nicolae Scarlat & Dallemand, J. *Biofuels Certification Schemes As A Tool To Address Sustainability Concerns: Status Of Ongoing Initiatives*, Proceedings Venice 2008, Second International Symposium on Energy from Biomass and Waste (Environmental Sanitary Engineering Center, Italy (CISA)).
[90] European Commission, *Biofuels – Sustainability Regimes*, *available at* http://ec.europa.eu/energy/renewables/biofuels/sustainability_schemes_en.htm.
[91] Lynda Cheshire and Geoffrey Lawrence, *Re-shaping the state: Global/local networks of association and the governing of agricultural production*, in AGRICULTURAL GOVERNANCE: GLOBALIZATION AND THE NEW POLITICS OF REGULATION, Vaughan Higgins & Geoffrey Lawrence, eds. 37 (Routledge 2005); Neil

guarantor of societal welfare to one that coordinates and manages the various private actors and institutions involved in the process of "governance" within the economic system.[92] Where governmental standards fall short, private actors and institutions "govern" to ameliorate the effects of "information asymmetry" between consumers and producers of goods by facilitating information flows which otherwise consumers lack with regard to independently verify attributes of a particular good (so called "credence" goods). When consumers are able to attribute value to certain qualities of a good (e.g., sustainability), then consumers are willing to pay for these values and thus companies are able to profitably provide better products. Standards are one way in which companies can consistently define a product's attributes and measure the costs of providing those attributes, ultimately with the goal of decreasing "transaction costs."[93] An end-user company also can use standards to avoid costly contracting provisions with individual suppliers or vertical integration, and instead sell its product within a commodity market.[94]

European renewable energy policy adopts this free-market approach by requiring energy biomass to carry a third-party sustainability certification in order to qualify as "renewable" under the RED. Collaborative private standards have proliferated as a result, leading to "the establishment of new rules, institutions, [and] networks"[95] to address potential gaps in existing regulatory systems. Private standard setting, however, is not necessarily bound by the same types of control and accountability embedded in democracy's public rulemaking.[96] Governance theories, therefore, provide an umbrella approach for many disciplines–sociology, political science, international relations, economics, and law–to dissect private group decision-making set up to address an expressed problem or goal and to gauge outcomes.[97] One common denominator of measurement regardless of disciplinary lexicon is whether governance mechanisms and their outcomes are *effective* and *legitimate*.

Standards organizations are effective when they carry the "capacity to achieve a set of objectives without undue interruption."[98] Effectiveness from an economics perspective would be increased social welfare (e.g., the provision of a higher quality product that is less polluting) while reducing transaction costs to the company. If, however, external and internal audiences (e.g., civil society organizations, adopters of a standard, and governments) do not perceive a standards organization and/or its outputs as legitimate, the standard risks repudiation and ultimately failure.

1. Foundational Sociological Perspectives on Legitimacy

Gunningham, *Environment Law, Regulation and Governance: Shifting Architectures*, 21 J. OF ENVTL. L. 179, 182-190 (2009) (detailing the history of how private approaches to environmental problems evolved).

[92] Jacqui Dibden and Chris Cocklin, *Sustainability and agri-environmental governance*, in AGRICULTURAL GOVERNANCE, *infra* note 95, at136.

[93] *See generally*, Yoram Barzel, *Replacing the Law of One Price with the Price Convergence Law*, (March 28, 2005), *available at* http://www.econ.washington.edu/user/yoramb/LawofOnePriceMarch2805.doc.

[94] *See generally* Michael H. Riordan & Oliver E. Williamson, *Asset Specificity and Economic Organization*, 3 INTL. J. OF INDUS. ORG. 365-378 (1985).

[95] Vaughan Higgins & Geoffrey Lawrence, Introduction, in AGRICULTURAL GOVERNANCE, *supra* note 91, at 13; *see generally* Claude Ménard & Egizio Valceschini, *New institutions for governing the agri-food industry*, 32 EUR. REV. OF AG. ECON. 421-440 (2005).

[96] *See generally* Colin Scott, *Standard-Setting in Regulatory Regimes*, Univ. College Dublin Working Papers in Law, Criminology & Socio-Legal Studies, Research Paper No. 07-2009, *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1393647.

[97] Daniel C. Esty, *Good Governance at the Supranational Scale: Globalizing Administrative Law*, 115 YALE L. J. 1490, 1497 (2006); *see also* Michael P. Vandenbergh, *The New Wal-mart Effect: the Role of Private Contracting in Global Governance*, 54 UCLA L. REV. 913, 942 (2007).

[98] David Armstrong, *et al.*, eds. CIVIL SOCIETY AND INTERNATIONAL GOVERNANCE: THE ROLE OF NON-STATE ACTORS IN GLOBAL AND REGIONAL REGULATORY FRAMEWORKS 3 (Routledge 2011).

(c) 2011 Judy Endres. No dissemination without the permission of Judy Endres.

Legitimacy is the "generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions."[99] Thus, for the elements of an organization (e.g., structure, processes, and outcomes) to be legitimate, should be "direct reflections and effects of [societal] rules and structures . . . institutionalized within wider environments."[100] Institutionalization reflects society's collective acceptance of cultural rules formally (e.g., laws) or informally (e.g., customs), which in turn gives "meaning and value to particular entities and activities."[101] These "rules of the game,"[102] or "institutions," form the basis for an organization's legitimacy. Pillars of institutions are categorized into the regulative, normative and cognitive/cultural.[103] Regulative institutions consist of formal and explicit rules, regulations, court decisions and other governance systems. Normative institutions, on the other hand, represent society's more informal values ("the preferred or desirable"), norms ("how things should be done"), expectations, taboos, and traditions. Professional organizations fall into this category. The cognitive/cultural measures the degree of actor's knowledge of technology and its broader context, and the subjective symbolism and meaning actors attach to external conditions that influences how knowledge is acquired and interpreted.

Approaching the analysis from a slightly different angle, Suchman[104] and Cashore[105] focus on the three types of legitimacy external "audiences'" place on private certification programs: pragmatic, moral, and cognitive. Cashore breaks external audiences into first tier (e.g., users of the standard, environmental groups, governments) and second tier (e.g., consumer acceptance and civil society generally).[106] He notes that standards organizations also may take affirmative action to gain legitimacy through conforming to audience needs, or manipulating or informing audiences.[107] Although possibly short-lived, standards' first tier audience may give pragmatic legitimacy because of its self-interest in receiving direct audiences, it becomes "the right thing to do" to legitimize a certification scheme, constituting the higher, longer-lived level moral legitimacy.[108] Lastly, cognitive legitimacy could be gained if a standards organization, for instance, follows understandable and recognized approaches such as International Organization for Standardization (ISO) standards.[109]

2. Legitimizing Biofuels Sustainability Standards

The emergence of biofuels sustainability standards present an exciting range of new cross-disciplinary opportunities to apply governance theory at the nexus of energy, the environment, and agriculture, ultimately with the goal to increase organizational legitimacy.

© 2010 Jody Endres. No distribution without the permission of Jody Endres

[99] Mark C. Suchman, *Managing Legitimacy: Strategic and Institutional Approaches*, 20 ACAD. OF MGMT. REV. 571, 574 (1995).
[100] W. Richard Scott & John W. Meyer, INSTITUTIONAL ENVIRONMENTS AND ORGANIZATIONS: STRUCTURAL COMPLEXITY AND INDIVIDUALISM 2 (Sage 1994).
[101] *Id.* at 58 (citing John W. Meyer, *et al.*, ONTOLOGY AND RATIONALIZATION IN THE WESTERN CULTURAL ACCOUNT 13 (Sage 1987)).
[102] Douglass C. North, *A Transaction Cost Theory of Politics*, 2 J. OF THEORETICAL POLITICS 355, 364 (1990).
[103] W. Richard Scott, INSTITUTIONS AND ORGANIZATIONS: IDEAS AND INTERESTS 50 (Sage 2008).
[104] Suchman, *supra* note 99.
[105] Benjamin Cashore, *Legitimacy and the Privatization of Environmental Governance: How Non-State Market Driven (NSMD) Governance Systems Gain Rule-Making Authority*, 15 GOVERNANCE: AN INTL. J. OF POLICY, ADMIN., AND INSTITUTIONS, 503-529 (Oct. 2002).
[106] *Id.* at 511-512.
[107] *Id.* at 517-518.
[108] *Id.* at 518.
[109] *Id.* at 520.

Applying approaches from political science, Partzsch[110] and Palmujoki[111] have charted a pioneering path in this regard. Partsch challenges legitimizing private standards merely by examining outcomes ("de facto legitimacy"), and instead points to stakeholder participation ("through-put legitimacy") and control and accountability as additional key factors in ameliorating power asymmetries along the north-south divide and between civil society and corporations.[112] Through-put legitimacy balances cases where firms and industries form voluntary standards groups merely to "promote their own interests."[113] She uses these to tests two private standards systems–the Netherlands Cramer Criteria and the RSPO–she finds neither fully meets the conditions for legitimacy.[114]

Albeit using different terminology, Palmujoki similarly concludes that development of international sustainability norms for biofuels depends upon its "constituitive" and "regulative" elements.[115] Similar to micro institutional approaches,[116] the strength of the standard depends on "shared meanings" through internal community building, bounded by process controls.[117] He emphasizes the importance of balance of geographies and ideologies among stakeholders so that differing viewpoints can be aired and reconciled.[118] Otherwise, insurmountable obstacles may arise. One example Palmujoki provides of the importance of constructing a common meaning in standards development involves GHG provisions.[119] Vague GHG accounting, on one hand, could reflect developed country actors' reluctance to acknowledge proportionally their responsibility for climate change. On the other, underdeveloped country stakeholders equally may fear that misapplication of GHG accounting to fuel crops also used for food could lead to food insecurity.

Future research can glean much from extensive governance scholarship on private standards generally not only in sociology, but in economics, environmental[120] and administrative law,[121] and political science and international relations.[122] Even more closely related to biofuels, scholars have explored various theories of governance in forest

© 2010 - Duke University. No distribution without the permission of the Author.

[110] Lena Partzsch, *The legitimacy of biofuels certification*, 28 AGRIC. HUM. VALUES 413-425 (2009).
[111] Eero Palmujoki, *Global principles for sustainable biofuel production and trade*, 9 INTL. ENVT. AGREEMENTS 135-151 (2009).
[112] Partzsch, *supra* note 110, at 416-417
[113] Petra Christmann and Glen Taylor, *Globalization and the environment: Strategies for international voluntary environmental initiatives*, 16 ACAD. OF MGMT. EXEC. 121, 131 (2002) (noting too, however, that standards group formation involves risks because "there is no assurance *ex ante* whether it will succeed in its goal of preempting more stringent requirements").
[114] Partzsch, *supra* note 110, at 422-423. S*ee also* Jordan Nikoloyuk, *et al.*, *Sustainable Palm Oil: The Promise and Limitations of Partnered Governance*, in CERES21: RETHINKING GOVERNANCE FOR SUSTAINABILITY 101-116, Atle Midttun, ed. (2009) (concluding that RSPO has achieved de facto legitimacy, but not complete through-put legitimacy).
[115] Palmujoki, *supra* note 111, at 136.
[116] Edward L. Rubin, *Commentary: The New Legal Process, the Synthesis of Discourse, and the Microanalysis of Institutions*, 109 HARV. L. REV. 1393, 1425 (1996).
[117] Palmujoki, *supra* note 111, at 136.
[118] *Id.* at 141, 144.
[119] *Id.* at 144.
[120] *See e.g.*, Etsy, *supra* note 97.
[121] *See e.g.*, Rubin, *supra* note 116; Jody Freeman, *The Private Role in Public Governance*, 75 N.Y.U. L. REV. 543-675 (2000).
[122] *See e.g.*, David L. Levy and Peter J. Newell, *Business Strategy and International Environmental Governance: Toward a Neo-Gramscian Synthesis*, 2 GLOBAL ENVTL. POLITICS 84-101 (Nov. 2002) (establishing the concept of linking the field of international relations with corporate strategies "in constructing a political economy of international environmental governance"); Marco Schäferhoff *et al.*, *Transnational Public-Private Partnerships in International Relations: Making Sense of Concepts, Research Frameworks, and Results*, 11 INTL. STUDIES REV. 451-474 (2009).

certification[123] and food and agriculture.[124] The great challenge will be to corral divergent disciplinary lexicons and theories into a cogent assessment of institution and norms, and the structures and processes that give biofuels' sustainability standards societal legitimacy. As a baseline proposition, analysis of the strengths and weaknesses of biofuels sustainability standards cannot focus merely on technical outcomes. To do so would risk losing invaluable opportunities to explore how biofuels standards may affect institutional change that increases sustainability across the entire agriculture paradigm.

3. Lessons from Administrative Law

Regulative institutions, whether domestic or global, draw from administrative law principles such as controls on corruption (e.g., self-dealing and special interest influence, conflict of interest rules, inspections and audits, lobbying disclosures); systematic and sound rulemaking (e.g., published drafts with notice and comment, clearly identified decision makers and process, documented decisions); transparency and public participation (e.g., hearings and other opportunities for public participation, public docket/structured fact finding/opinion evaluation, access to information, metrics and measurement); and power sharing (e.g., divided authority, review mechanisms, principles of derogation and declination).[125] International biofuels sustainability standards such as the RSB gain at least part of their legitimacy from regulative elements each member draws upon from their individual home country experience. Administrative process pose a special challenge to the extent an international entity must reconcile the differing home country approaches to how vertical and horizontal power is shared, and the informality of rulemaking (which clouds openness and leads to watered-down results).[126]

"Process" has been the focus of increased attention in bringing legitimacy to global environmental regulations.[127] Although "research currently lacks theory-guided comparative studies that specify which institutional design features further effective policy implementation,"[128] governance scholars have isolated procedural tenets much in line with administrative law principles in the search for legitimacy prerequisites. They focus on stakeholder participation and dynamics, accountability, and transparency and openness of deliberative processes.[129]

© 2011 Andy Rogers. No distribution without the permission of the Author

---

[123] Lars H. Gulbrandsen, *Overlapping Public and Private Governance: Can Forest Certification Fill the Gaps in the Global Forest Regime?* 4 GLOBAL ENVTL. POLITICS 75-99 (May 2004), Errol Meidinger, *The Administrative Law of Global Private-Public Regulation: the Case of Forestry*, 17 EUROPEAN J. OF INTL' L. 47-87 (2006); *Competitive Supragovernmental Regulation: How Could It Be Democratic?* 8 Chicago J. of Intl. L. 513-534 (2008).

[124] Jennifer Clapp and Doris Fuchs, eds. CORPORATE POWER IN GLOBAL AGRIFOOD GOVERNANCE (MIT Press 2009); Spencer Henson & Thomas Reardon, *Private agri-food standards: Implications for food policy and the agri-food system*, 30 FOOD POLICY 241-253 (2005); THE IMPACTS OF PRIVATE FOOD SAFETY STANDARDS ON THE FOOD CHAIN AND ON PUBLIC STANDARD-SETTING PROCESSES (FAO/WHO, May 2009), *available at* http://origin-www.fsis.usda.gov/PDF/Codex_al32_09Dbe.pdf; Shana Starobin & Erika Weinthal, *The Search for Credible Information in Social and Environmental Global Governance: The Kosher Label*, 12 BUS. & POLITICS 1-35 (2010); Vaughn Higgins *et al.*, *Building alternative agri-food networks: Certification, embeddedness and agri-environmental governance*, 24 J. RURAL STUDIES 15-27 (2008).

[125] *See* Etsy, supra note 97.

[126] Richard B. Stewart, *Legitimacy and Accountability in Global Regulatory Governance: Global Administrative Law and Developing Countries*, 1 JINDAL GLOBAL L. REV. 41, 60 (Sept. 2009) (stating that "[i]t would be quite premature, however, to regard global administrative law as a single system of well-defined norms and practices. They are informed by different normative conceptions.")

[127] Aarti Gupta, *Transparency Under Scrutiny: Information Disclosure in Global Environmental Governance*, 8 GLOBAL ENVTL. POLITICS 3 (May 2008).

[128] Schäferhoff, *supra* note 122, at 461.

[129] Meidinger, *supra* note 123, at 526-533; Schäferhoff, *supra* note 122, at 457-459.

Appropriate stakeholder participation in standards development is an important element of legitimacy.[130] Diverse and numerous sets of stakeholders serve as a pooled resource of technical/scientific and political/social expertise. Government stakeholders like the Natural Resource Conservation Service (NRCS) in the US contribute valuable expertise and experience in conservation planning for agriculture. The process for selecting stakeholders, however, can be opaque and categorization of stakeholder categories arbitrary. Many biofuels sustainability certification organizations depend on financial contributions of corporate members, which could create capture.

Through participation, stakeholders acquire a sense of ownership and stewardship important to a standard's longevity. A diverse set of stakeholders brings together specializations to build the comprehensive knowledge needed in such as nascent field. If "sustainability" really represents a measure of environmental and societal justice, then standards must be based on shared public reasons reached through stakeholder reasonableness and reciprocity.[131] Stakeholder inclusiveness fosters deliberative processes that lead to consensus versus a less desirable compromise. Inclusion of many stakeholders could lead, however, to lowest-common-denominator policies, pose challenges to coordination, and raise transaction costs.[132] The quality of participation counts, and thus scholars should ask whether NGO and developing country stakeholders really have the ability to participate fully in decision-making in light of more powerful western and corporate stakeholders who often fund private standards organizations. Organizations can run the danger that a small cadre of stakeholders commandeers core decisions, with the majority remaining on the periphery. Capacity deficits, whether logistical or substantive, also can hinder engagement.

Accountability in private standards is a particularly important question, as by its very nature an organization is not directly answerable to the public through democratic elections. NGOs members can "vote" through membership dues, and corporations must report to shareholders.[133] Likewise, external constraints on stakeholders can depend on consumer awareness and ability to boycott an unsustainable product, which is achieved through stakeholder dialogue, transparent and open discourse, and generation of sufficient and accessible documentation.[134] Sinar Mas learned this lesson in Indonesia when in 2010, locals angered by clearing of community-owned land were successful in generating enough press to persuade Nestle, Unilever, and Kraft to stop purchasing Sinar Mas palm oil.[135] Walmart has been similarly criticized for its opaque sustainability assessment metrics.[136]

Because my purpose is to provide a framework for analysis, I do not attempt to reach specific conclusions about legitimacy based on a case-study or comparative examination of various biofuels sustainability standards' procedural processes. Such an effort, however, could lead to important governance improvements not only within private organizations, but also expose deficiencies more broadly within society's foundational agro-environmental regulative institutions. For example, although the US has developed highly detailed administrative processes stemming from Constitutional foundations of due process,[137] the

(c) 2012 Judy Endres. Reproduction without the permission of Judy Endres

---

[130] *Id.* at 458.
[131] Gillian K. Hadfield & Stephen Macedo, *Rational Reasonableness: Toward a Positive Theory of Public Reason*, U.S.C. L. School Law and Econ. Working Paper Series, Paper 127 at 14 (2011).
[132] Schäfferhof, *supra* note 122, at 459.
[133] *Id.* at 467.
[134] UNEP ISSUE PAPER NO. 4, BIOENERGY ISSUE PAPER SERIES, *available at* http://www.unep.fr/energy/bioenergy/issues/pdf/Issue%20Paper%204_Stakeholder%20Engagement_FINAL.pdf
[135] *Id.*
[136] Tom Karst, *Throw me a bone, Wal Mart*, THE PACKER (Aug. 10, 2011).
[137] Lesley K. McAllister, MAKING LAW MATTER: ENVIRONMENTAL PROTECTION & LEGAL INSTITUTIONS IN BRAZIL 14 (Stanford Law Books 2008).

making of biomass sustainability policy in the US has exposed internal agency policies and other legislation that inhibit transparency. Although the statute sets forth criteria for selection based on sustainability, USDA implementing regulations for BCAP do not specify what type of information it requires from project applicants. Some applicants have submitted environmental assessments completed as a condition for receipt of other federal project funding (e.g., Department of Energy refinery development assistance). Some are posted on the USDA website, others, if they exist, are not posted for public review. This inhibits analysis by interested stakeholders (including standards organizations) of just how and why USDA awards subsidies based on environmental and societal performance. In the case of one project area award in California, for which USDA has not disclosed any environmental review information, stakeholders are keen to learn how USDA treated competition for land valuable for food production in relation to Department of Defense interest in sourcing domestic biofuels for its operations on the West Coast.

Further, section 1619 of the 2002 Farm Bill generally prohibits disclosure of producer-specific information related to conservation planning.[138] Although BCAP regulations provide for release to institutes of higher learning, USDA has taken the position that conservation planning information is not disclosable. The RFS2 aptly demonstrates that regulative institutions may contain longstanding, embedded inconsistencies and conflict attributable to divergent cultural values even within one society. USDA's administrative obfuscation stems in part from commodity agriculture's success in lobbying Congress to pass provisions such as section 1619. This hinders EPA's obligation in the RFS2 to study the environmental effects of biomass production, a provision that environmentalists were successful in procuring. EPA itself also continues to struggle with transparency aspects of measuring indirect land use change, as it depends on complicated third party models that require unbundling of assumptions and aggregated data that often are provided piecemeal because of the proprietary nature of the models.

Private standard setting organizations, unrestrained by statutory and regulatory limitations placed on governmental transparency, should put in place processes that foster more open dialogue on the efficacy of certain sustainability criteria and indicators. For example, private organizations can ensure important experts and other stakeholders are involved in formulating metrics, unlike the closed door process within USDA in making decisions on what BCAP conservation planning will really look like. Private standards also can ensure that discussions in this regard are recorded and disclosed so that public comments to proposed standards are better informed.

More generally, the success already achieved forging productive collaborative processes between diverse stakeholder groups in biofuels sustainability standards builds informal social norms, the absence of which may underlie much of the contention in agricultural sustainability debates generally. That is, the "radius of trust" and openness built between adverse groups within organizations like the CSBP could facilitate new forms of trust within larger groups aimed at sustainability improvements for agriculture.[139] On the other hand, formation of such "social capital" within biomass groups could serve to further distrust of groups or persons on the "outside" of biomass sustainability standard setting skeptical of energy biomass and sustainability metrics. In the case of the CSBP, which focuses on second-generation perennial crops and residues, commodity stakeholder groups such as the American Farm Bureau (AFB) have from its inception declined to participate in the process. A Chairman of the National Corn Growers Association, an organization that also does not participate in the CSBP, has been quoted disparaging second-generation biomass as

[138] *See* 2002 Farm Bill, *supra* note 21.
[139] Francis Fukuyama, *Social Capital, Civil Society and Development*, 22 THIRD WORLD QUARTERLY 7, 8 (Feb. 2001).

© 2011 Jody Endres. No distribution without the permission of Jody Endres.

a viable renewable energy option.[140] In the end, although no consensus exists on how to measure social capital, the formation of trust between traditionally diverse interests, the involvement of new actors in the agricultural sustainability dialogue such as oil and power companies, and the influence of biofuels sustainability organizations on forming and facilitating wider collaborations certainly merits further study on its potential to shift paradigms elsewhere.[141]

Like all institutions, regulative institutions do not remain static. Instead, administrative procedures evolve in line with societal, governmental and even jurisprudential dynamics. Many commentators have opined that the U.S. Supreme Court's 2010 opinion in *Citizens United v. The Federal Election Commission* strikes at the very heart of democratic processes by sanctioning lobbying groups' rights under the First Amendment's freedom of speech clause to unlimited Congressional campaign contributions.[142] I speculate that the decision may have a chilling effect on development of agri-environmental policies, whether public or private.[143] Agricultural commodity groups with deep pockets can now increase pressure on Congress to further restrict agencies' ability to regulate the environment, either directly by changing the underlying statute, or indirectly by decreasing transparency like section 1619 of the Farm Bill. Indeed, many such bills have been introduced in the Republican-controlled House of Representatives.[144] If lobbyists' efforts are successful, commodity groups could drop emphasis on seeking consensus in private sustainability standards because private standards are no longer necessary to strategically counter perceived agency aggressiveness. This assumes, however, that voters and consumers cannot successfully voice their desire for environmental protection to legislators.

4. International Governance Standards

Governance-specific standards such as the International Standardization Organization (ISO) and ISEAL Alliance can serve as a "check" on whether private sustainability standards organizations are following good governance principles. ISO is a non-governmental body consisting of approximately 150 national standards representatives from around the world.[145] The national bodies choose their own representatives to ISO, whether governmental or private actors. For each topic area, ISO establishes a technical committee to develop environmental and other standards that aim to facilitate international trade. The Agreement on Technical Barriers to Trade actually requires an international standard to be applied by national governments who are signators to the agreement, where such standard exists.[146]

ISO also maintains guides that provide general advice on standards development such as ISO Guide 65 (ISO 65) for bodies operating product certification systems, in addition to

© 2012 – Jody Endres – Do not distribute without the permission of Jody Endres

[140] Jim Lane, *The Unicorn and the Fairy: Corn declares war on cellulose* (Biofuels Digest, Aug. 26, 2011).
[141] *See also infra* text and notes at section III.B.3.b.
[142] 558 U.S. 310 (2010), 130 S.Ct. 876.
[143] *But see* Sarah Pilgrim and Mark Harvey, *Battles over Biofuels in Europe: NGOs and the Politics of Markets*, 15 SOCIOLOGICAL RESEARCH ONLINE 4 (Aug. 2010) (contending that NGOs can shape markets politically as well).
[144] *See e.g.*, Richard Matthews, *Republican Assault on the Environment*, The Green Market (Jul. 2011), *available at* http://thegreenmarket.blogspot.com/2011/07/republican-assault-on-environment.html (noting that the proposed appropriations bill contains "nearly 40 anti-environmental policy riders").
[145] Naomi Roht-Arriaza, *Shifting the Point of Regulation: The International Organization for Standardization and Global Lawmaking on Trade and the Environment*, 22 ECOLOGY L. QUARTERLY 479, 489 (1995); Ann Rhodes, *ISO Enters the Public Sector Through the United States Forest Service*, 18 COLO. J. INTL. ENVTL. L. & POL'Y 417, 419-420 (2007).
[146] Steve Charnovitz *et al.*, INT'L FOOD & AGRIC. TRADE POLICY COUNCIL, AN EXAMINATION OF SOCIAL STANDARDS IN BIOFUELS SUSTAINABILITY CRITERIA 17 (2008), *available at* http://www.agritrade.org/documents/SocialStnds_Biofuels_ FINAL.pdf.

substantive standards (e.g., ISO 14040-14049 standards for environmental management and lifecycle assessment[147]).[148] From a stakeholder perspective, ISO 65 requires certification bodies to "be impartial" and "have a documented structure which safeguards impartiality" that includes enabling participation by "all parties significantly concerned in the development of policies."[149] Certification bodies must also be "free from any commercial, financial and other pressures" that could influence the certification process, which is satisfied by putting in place an organizational structure "to provide a balance of interests where no single interest predominates."[150] To ensure transparency, ISO 65 requires standards organizations to regularly publish, among other things, "a description of the means by which the organization obtains its financial support. . ."[151] In the US, the USDA conducts ISO Guide 65 review of National Organic Program certifiers.[152] ISO Guide 59 sets guidelines for the standards development process itself.[153] If a national standard is being set, participation must reflect a balance of national interests.[154] The standard setting organization also must have procedures in place on reaching consensus or if consensus cannot be reached, notice and the opportunity for comment on the standardization process, and recording standardization activities.[155] In the US, even if ISO did not require these procedures, constitutional due process requirements would apply to the standards setting organization whose standards are used as government references.[156]

The non-profit organization ISEAL Alliance seeks to improve the effectiveness and impacts of environmental and social organizations' standards. It maintains a code of good practice for standard setting that takes into account ISO guides in establishing good governance principles and addresses many of the issues identified by scholars.[157] First, ISEAL member organizations (including the Roundtable on Sustainable Biofuels) must develop "terms of reference" that define the need for the standard, and which in turn guide stakeholder mapping.[158] Mapping determines which sectors are relevant to the process and

---

[147] International Organization for Standardization, ENVIRONMENTAL MANAGEMENT–LIFE CYCLE ASSESSMENT–PRINCIPLES AND FRAMEWORK: 14040 (2006); International Organization for Standardization, LIFE CYCLE ASSESSMENT–EXAMPLES OF APPLICATION OF ISO 14041 TO GOAL AND SCOPE DEFINITION AND INVENTORY ANALYSIS (2000).

[148] International Organization for Standardization, GENERAL REQUIREMENTS FOR BODIES OPERATING PRODUCT CERTIFICATION SYSTEMS: GUIDE 65 (1997).

[149] *Id.* § 4.2(e).

[150] *Id.* § 4.2(n).

[151] *Id.* § 4.8.1(d).

[152] US Department of Agriculture, *LD ISO Guide 65 Program*, *available at* http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateD&navID=GradingCertificationandVerfication&leftNav=GradingCertificationandVerfication&page=LSISO65Program.

[153] International Organization for Standardization, CODE OF GOOD PRACTICE FOR STANDARDIZATION: GUIDE 59 (1994).

[154] *Id.* § 4.5.

[155] *Id.* § 2.1-2.3.

[156] American National Standards Institute, ESSENTIAL REQUIREMENTS: DUE PROCESS REQUIREMENTS FOR AMERICAN NATIONAL STANDARDS (2008), *available at* http://publicaa.ansi.org/sites/apdl/Documents/Standards%20Activities/American%20National%20Standards/Procedures,%20Guides,%20and%20Forms/2008%20ANSI%20Essential%20Requirements/2008%20ANSI%20Essential%20Requirements%20031108.pdf; Jeffrey S. Lubbers, Developments in Adminstrative Law and Regulatory Practice 2 (ABA 2007). *See also* Eyal Benvenisti & George Downs, *National Courts Review of Transnational Private Regulation*, TEL AVIV UNIV. L. SCHOOL FACULTY PAPERS, Paper 125 (2011) (reviewing the possibility of public administrative safeguards applying to private standard setting in countries other than the US).

[157] ISEAL Alliance, THE ISEAL CODE OF GOOD PRACTICE: SETTING SOCIAL AND ENVIRONMENTAL STANDARDS (June 2010), *available at* http://www.isealalliance.org/sites/default/files/P005_ISEAL_Std-Setting_Code_v5.01.pdf.

[158] *Id.* § 5.1.

(c) 2012, Jody Freeman. Nondistribution without the permission of Jody Freeman.

why, and for each one, the key interest groups within those sectors. This ensures balance and ensures all issues are considered in the standard setting process. Where membership is limited to members, selection criteria and reasons for denials must be given.[159] The selection process cannot be discriminatory, including charging of excessive fees.[160] Standards organizations must take care to include "disadvantaged" parties and budget for their participation.[161] Participants must be given opportunity to meaningfully participate, including the opportunity to comment and have these comments duly considered. ISEAL's Code acknowledges the difficulty in reaching consensus between diverse parties every time, and thus requires that procedures be in place for voting that do not allow one stakeholder group to dominate over others.[162] To ameliorate this problem, the Code recommends that procedures be in place to build the capacity of newer stakeholders to become more influential.[163]

The ISEAL Alliance also maintains a code aimed at assessing the impacts of these standards systems.[164] ISEAL again recognizes the critical nature of stakeholder involvement. Although not explicitly called for, the Code recommends that standards managers evaluate "influencing factors" as part of assessing the risks to achieving a standard's goals and ultimate impacts. As the outcomes of biofuels sustainability standards emerge, opportunity continues to examine the influence of governance factors such as stakeholder participation on the standard setting processes. One interesting example is the increasing reliance of standards organization on "expert working groups" whose members are not members of the organization. ISEAL rules imply full transparency, but the process for nominating members has not been such in the RSB and CSBP. This becomes particularly important for hot-button issues such as the use of biotechnology and GHG accounting methodology.

B. Technological and Institutional Innovation to Fortify the Biomass Producer's Sustainability Toolbox

The shift to perennial bioenergy crops represents a wholesale psychological and agronomic sea change for producers contemplating a shift from growing commodity crops such as corn and soybeans. Further, the transformation to biomass cropping systems constrained by sustainability considerations may prove particularly challenging for producers unaccustomed to such techniques and practices. Thus, it is critical for standards developers to pragmatically consider what practice tools and other resources, if any, producers individually and as a group may already have access to, and how that knowledge can be applied to profitably attain sustainability certification. Some standards and government entities already exist in the US that standards organizations could access at least as a starting point in crafting sustainability guidance.[165] EU member states similarly have developed sustainability practice and measurement protocols as part of mandatory agri-environmental programs. And, after decades emphasizing basic agricultural development, Brazil has reoriented its system of research, training and assistance toward rural development for smallholders and emphasis on sustainable practices.

(c) 2012 Judy Endres. No distribution without the permission of Judy Endres

---

[159] *Id.* § 5.5.3.
[160] *Id.*
[161] *Id.* § 5.7.3.
[162] *Id.* § 5.9.1. & 5.9.2
[163] *Id.* § 5.9.2.
[164] ISEAL Alliance, ISEAL CODE OF GOOD PRACTICE: ASSESSING THE IMPACTS OF SOCIAL AND ENVIRONMENTAL STANDARDS SYSTEMS v1.0 (Nov. 2010), *available at* http://www.isealalliance.org/sites/default/files/P041_ISEAL_Impacts_Codev1.0.pdf.
[165] Endres, *supra* note 15.

The following sections examine existing sustainability tools available to biomass producers in these three countries, with the caveat that concurrent study is necessary to determine whether such practices have proven track records for effectiveness. Where gaps in knowledge remain, technological and societal institutions must reach beyond the existing agri-industrial paradigm to design innovative practices that will help biomass producers compete successfully in world constrained by unprecedented natural resources demand. As we will see in the conclusion to this section, whether biofuels businesses will be a valuable partner in agri-environmental innovation remains to be seen.

1. Existing Policies and Practices as Sustainability Guides

a. The United States

I have previously provided a comprehensive review of existing agri-environmental programs in the US and their potential applicability within bioenergy policies in a way that could build overall sustainability capacity.[166] I explain that federal subsidies through successive Farm Bills are the primary driver of agri-environmental measures in the U.S. with regard to preventative measures at the farm level.[167] State and local soil conservation districts established under state laws also play a role in protecting soils, and state laws also can provide for enforcement for environmental harms provided agriculture is not exempted.[168] The extent to which state and local programs offer significant, direct assistance to prevent agricultural pollution, however, varies widely and often local soil conservation efforts rely on volunteers. The relationship between state, local and federal advisory services is complex and varies from state to state, and thus generalizations about how these systems assist implementation of agri-environmental measures within states are difficult. Budgetary constraints and litigation have severely hampered states' efforts in implementing Clean Water Act programs designed to curtail agricultural non-point source pollution, which includes but is not limited to sedimentation.[169]

As a condition for any type of federal farm subsidy (whether direct and countercyclical payments or other conservation grant funding such as the Environmental Quality Incentives Program or Wildlife Habitat Incentive Program), producers must implement some form of USDA Natural Resource and Conservation Service (NRCS) conservation planning.[170] Direct and countercyclical payments, which are the bulk of federal farm spending, only require farms with highly erodible lands, wetlands and grasslands to go through conservation planning.[171] A smaller number of farmers participating in set-aside under the Conservation Reserve Program (CRP) are chosen through an Environmental

© 2012, Jody Endres. No distribution without the permission of Jody Endres

[166] *Id.*
[167] *Id.* § III. As with CAP reform in Europe, *see infra* section X, the US Government Accountability Office (GAO) has pointed out that federal subsidies can work at cross purposes with agri-environmental programs. *See* U.S. GEN. ACCOUNTING OFFICE, FARM PROGRAM PAYMENTS ARE AN IMPORTANT FACTOR IN LANDOWNERS' DECISIONS TO CONVERT GRASSLAND TO CROPLAND (Sept. 2007), *available at* http://www.gao.gov/new.items/d071054.pdf.
[168] J. William Futrell, *The IUCN Sustainable Soil Project and Enforcement Failures*, 24 PACE ENVTL. L. REV. 99, 124 (2007) (noting that "locally elected boards [established by the federal agency responsible for issuing agricultural subsidies to oversee conservation compliance exemptions may be] reluctant to take funds away from their neighbors").
[169] NATIONAL RESEARCH COUNCIL, ASSESSING THE TMDL APPROACH TO WATER QUALITY MANAGEMENT 9 (Natl. Academies Press 2001), *available at* http://download.nap.edu/cart/download.cgi?&record_id=10146&free=1.
[170] Endres, *supra* note 15, at 522-528.
[171] *Id.* at 520.

Benefits Index, and follow NRCS recommended practices for cover cropping.[172] Otherwise, farmers must comply with some general environmental laws that protect fragile habitats such as the Endangered Species Act, Farm Bill proscriptions against wetland and native grassland conversion, and controls on pest control application in the Federal Insecticide, Fungicide, and Rodenticide Act. Otherwise, Congress has largely exempted agriculture from air and water pollution control requirements.[173] Federal labor and employment laws also contain certain exemptions for agriculture from overtime pay and minimum wage requirements.

Research, education, outreach and support are critical building blocks of agricultural knowledge.[174] Farmer assistance in the US is primarily funded through the USDA's National Institute of Food and Agriculture (NIFA) at state land-grant universities.[175] Much of the services' and research funding focus, however, has been on traditional commodity crop production systems with less emphasis on sustainability.[176] Land grant universities that sponsor extension services have been criticized for "neglecting important segments of the population" including small and family farmers, and have instead "allied themselves with the corporate interests that are at odds with promotion of rural life."[177] In light of new markets created by sustainable biomass mandates, extension services can counter these criticisms by refocusing their mission toward smaller, less corporatized farmers who want to improve the sustainability of their practices through biomass cropping. Although this may already be occurring, the research side of sustainable practices has much catching up to do.[178] New research must also be incorporated into NRCS practice standards, which inform farmers' conservation planning. Although somewhat analogous NRCS cover cropping and riparian buffer practice standards are in place, no standards exist that would guide producer's decision for energy cropping. It is believed that the Farm Services Administration and NRCS have worked together in devising practice standards for BCAP to prevent the spread of invasive species, but these have not been published publically.

Private standards bodies thus contribute much to eliminating this experiential deficit. CSBP employs consultants to work with farmers who are field testing the CSBP Provisional Standard to develop integrated resource management plans (IRMPs) similar to NRCS conservation planning, as well as design biomass-specific agronomic practices that do not exist yet within NRCS practice standards. Further, CSBP stakeholders, many of whom are national experts in land use, are sorting through various land classifications (or lack thereof) in order to categorize land available for biomass production. Through field testing CSBP will develop tools for farmers to measure the biodiversity and societal values on lands proposed for conversion, a task that farmers have no experience with unless an endangered or threatened species is present. CSBP also has convened a work group to determine how biomass producers can use and/or inform emerging carbon models like Daycent/Century and

(c) 2012 Jody Emmers. No distribution without permission of Jody Emmers.

---

[172] *Id.* at 539-540.

[173] Margot J. Pollans, *Bundling Public and Private Goods: The Market for Sustainable Organics*, 85 N.Y.U. L. REV. 628-629 (2010) (detailing all the exemptions agriculture enjoys from environmental laws).

[174] *See generally* GIANLUCA BRUNORI ET AL., TOWARDS A CONCEPTUAL FRAMEWORK FOR AGRICULTURAL AND RURAL INNOVATION POLICIES (Insight 2005), *available at* http://www.insightproject.net/files/Rapport_insight_WP1_final.pdf.

[175] US Department of Agriculture, National Institute of Food and Agriculture, *Extension*, *available at* http://www.csrees.usda.gov/qlinks/extension.html.

[176] Melissa D. Ho, AGRICULTURAL RESEARCH, EDUCATION, AND EXTENSION: ISSUES AND BACKGROUND 14 (Congressional Research Service 2011), *available at* http://www.nationalaglawcenter.org/assets/crs/R40819.pdf.

[177] Andrea R. Woodward, *Land-grant university governance: an analysis of board composition and corporate interlocks*, 26 AGRIC. HUM. VALUES 121, 123 (2009); Karlheinz Knickel, et al., *Towards a better conceptual framework for innovation processes in agriculture and rural development: from linear models to systemic approaches*, 15 J. AGRIC. EDUC. EXTENSION 131, 137 (2009).

[178] *See generally* Ann Sorensen & Jimmy Doukas, *Policy approaches to energy and resource use in US agriculture*, 25 RENEWABLE AGRIC. AND FOOD SYS. 109-117 (2010).

GREET within and through their field operations, which has never been required or considered by farm regulations. CSBP producer surveys indicate that farmers have the least sources of knowledge to turn to in determining compliance with labor and employment law. CSBP, therefore, must examine the root cause of this deficiency, and find ways to educate the farmers it certifies.

Private efforts like that of CSBP to gauge sustainability of biomass production will assist not only in compliance with emerging renewable energy laws, but also could prove valuable as federal regulatory efforts focus increasingly states' failures to prevent non-point source agricultural pollution generally. For example, US EPA currently is implementing a first of its kind federally-directed water pollution control plan under the Clean Water Act for the Chesapeake Bay.[179] The plan requires states within the watershed to formulate strategies to curtail agricultural runoff of nutrients and sediment, including among other options, a market-based nutrient trading program from which biomass producers, who likely will apply less inputs and soil disturbance than their commodity crop counterparts, can profit. This scenario would equally apply within other ecosystems services markets as they develop, including cap and trade programs like that in California.

b. The European Union

Article 17(6) of the EU RED requires agricultural raw materials to be produced in accordance with certain agri-environmental measures contained in the Common Agricultural Policy (CAP).[180] This requirement for bioenergy recognizes that since the early 1990s, the EU has shifted toward a policy of "multifunctionality" of agriculture–that agriculture should produce environmental and societal goods and services in addition to food, feed, fiber and energy.[181] Beginning in 2003, the EU implemented changes to the farm subsidy program contained in the CAP in order to create better balance and consistency between rural development and sustainability objectives.[182]

Whether a producer receives a direct payment for income support, or support under the EU rural development policy, the CAP requires producers to observe "cross compliance" with environmental, food safety, plant and animal health, public health, animal welfare and environmental condition rules.[183] Cross-compliance contains two elements. "Statutory

[179] US ENVIRONMENTAL PROTECTION AGENCY, CHESAPEAKE BAY TOTAL MAXIMUM DAILY LOAD FOR NITROGEN, PHOSPHORUS AND SEDIMENT (Dec. 29, 2010), *available at* http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/FinalBayTMDL/CBayFinalTMDLExecSumSection1through3_final.pdf.

[180] RED, *supra* note 52.

[181] Thomas L. Dobbs & Jules N. Pretty, *Agri-Environmental Stewardship Schemes and "Multi-functionality"*, 26 REV. AGRIC. ECON. 220, 222-226 (2004); Christina von Harren & Nelson Bills, COMPARING AGRI-ENVIRONMENTAL PROGRAMS IN THE UNITED STATES AND THE EU 55-57, *in* NEW PERSPECTIVES ON AGRI-ENVIRONMENTAL POLICIES: A MULTIDISCIPLINARY AND TRANSATLANTIC APPROACH (Stephan J. Goetz and Floor Brouwer, eds.) (Routledge 2010).

[182] Jurate Juraite & Andrius Kažukauskas, *The effect of mandatory agro-environmental policy on farm environmental performance*, 14 CERE Working Paper 5-6 (2011), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1924825; Communication from the Commission to the Council and the European Parliament, Development of agri-environmental indicators for monitoring the integration of environmental concerns into the common agricultural policy, COM (2006) 508 final (Sept. 15, 2006).

[183] Council Regulation establishing common rules for direct support schemes for farmers under the common agricultural policy and establishing certain support schemes for farmers, 73/2009/EC, O.J. L. 30/16, Art. 4 (Jan. 19, 2009) (hereinafter EU CAP); Council Regulation on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), 1698/2005/EC, O.J. L. 277/1, Art. 39 (Sept. 20, 2005) (establishing cross-compliance as a baseline) (hereinafter EAFRD); Council Regulation 74/2009/EC, O.J. L. 30/100 (2009) (amending cross-compliance requirements for the EAFRD).

© 2012 Andy Parks. No reproduction without the permission of Andy Parks

management requirements," or SMRs, include 19 different pieces of EU legislation, including directives on wild birds, sewage sludge, wastes, nitrates, release of dangerous substances into aquatic environments, habitats, ground water, and plant protection products.[184] Second, all producers who receive subsidies must maintain lands in good agricultural and environmental condition (GAEC).[185] The CAP establishes a minimum standards framework for GAEC relating to soil protection, organic matter and structure, avoiding deterioration of habitats, and water protection and management. Beyond cross-compliance and GAEC, producers can voluntarily adopt agri-environmental measures (AEMs) in return for payments under the EU rural development policy.[186] The EU further has provided subsidies since 1975 for production on "less favoured areas" (LFAs) (now under the Rural Development Policy) to both ensure income in low-productivity areas vulnerable to abandonment, and maintain environmental values dependent on agricultural production.

Member states are responsible for operationalizing cross-compliance, GAEC, AEMs, and LFAs through national legislation and rules that define standards known as "good farming practices" (GFPs) or "good agricultural practices" (GAPs).[187] GFPs vary widely between member states, due in part to variation in both ecosystems and types of farming operations throughout Europe.[188] For example, cross-compliance with the Nitrates Directive requires a determination of when application of fertilizer is appropriate (e.g., sloped or wet areas), and mitigation practices such as cover crops and good record keeping.[189] From an implementation perspective, some member states require farmers to practice nutrient accounting and keep records, while other member states take different approaches to reducing nutrient runoff.[190] This is not unlike the US, where the federal NRCS develops Field Office Technical Guidance (FOTG) down to the individual county level to address site-specific and area resource concerns.[191]

The EU places primary responsibility on member states to provide advisory services to producers related to agri-environmental programs. The CAP requires that member states operate a Farm Advisory System (FAS) to help farmers, on a voluntary basis, in complying with SMRs and GAECs.[192] That is not to say that some form of extension services were not already available in member states to various degrees, however. Member states vary in how they deliver FAS services in terms of whether the service is provided by private, public, or hybrid entities, whether the service is free of charge, what type of service is offered, and to whom it is offered.[193] In some member states, responsibility is devolved to individual states (e.g., Germany) that differ in types of services provided.[194] The service includes farm

© 2012 Jody Endres. No distribution without the permission of Jody Endres.

[184] EU CAP, *supra* note 183, Art. 5 & Annex II.
[185] *Id.* Art. 6 & Annex III.
[186] EAFRD, *supra* note 183, Art. 39.
[187] *See generally* ANGELA BERGSCHMIDT, ET AL., EDS. GOOD FARMING PRACTICE–DEFINITIONS, IMPLEMENTATION, EXPERIENCES (Institute of Farm Economics and Rural Studies 2003), *available at* http://www.ieep.eu/assets/709/seminar1report.pdf (explaining the many elements constituting GFPs).
[188] *Id.* at 7-8.
[189] Council Directive concerning the protection of waters against pollution caused by nitrates from agricultural sources, 91/676/EEC, O.J. L. 375/1, Annex III (hereinafter Nitrates Directive).
[190] European Commission, Report from the Commission, Implementation of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources, Synthesis from year 2000 Member States Reports, COM (2002) 407 final, at 17-22
[191] Endres, *supra* note 15, at 522.
[192] Council Regulation establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers, 1782/2003/EC, O.J. L. 270/1, Art. 13.
[193] *See generally* ADE *et al.*, EVALUATION OF THE IMPLEMENTATION OF THE FARM ADVISORY SYSTEM (2009), *available at* http://ec.europa.eu/agriculture/eval/reports/fas/report_eval_en.pdf.
[194] *Id.* at 21.

advisory services on SMRs and GAECs.[195] The majority of assistance consists of going through checklists with one-on-one or with small groups.[196] FAS advice also extends to occupational health and safety issues.[197] One report has concluded that "experience of European farmers with energy crop plantations is very limited, and transition to lignocellulosic feedstock systems requires tailor-made agricultural extension services assisting farmers on the various aspects of production from planting to harvesting."[198]

What existing tools are available for biomass growers to certify their sustainability depends on the EU member state policy and practices in relation to the environmental principle in question.[199] Member states also vary between and within in the way they deliver advisory services to farmers. In the US, despite the fact that agri-environmental measures apply to many fewer farms than in Europe, and the identification of ecosystem-level resource concerns is in its nacency, the federal NRCS does provide one central, consistent source for advice on designing agri-environmental planning and practices. However, with the US federal budget crisis severely curtailing agency funding, it is uncertain what level of service NRCS will be able to provide in the future, particularly for biomass where capacity is almost non-existent. Also, unlike the EU FAS, NRCS services are limited to environmental issues, so producers must seek out occupational health and safety information separately through CREES and the federal Department of Labor's Occupational Health and Safety Administration (OSHA).

c. Brazil

Brazil has focused on the social side of sustainability over the past two decades, particularly on alleviating rural poverty through maintenance of family farms.[200] In 2000, an entire ministry dedicated to rural development targeting family farms and land reform was created (the Ministry of Agrarian Development or MDA).[201] Because pinning down a consistent framework for actual government permitting of agricultural activities (if it exists in any widespread form) is difficult due to lack of transparency and scholarship, this article focuses on tools available through extension education and training.

Brazil's first extension service was created in the 1950s and was based on the US model.[202] Its focus has shifted back and forth between focus on family farms and large enterprises throughout the years. In 1973, the federal government established under the Ministry for Agriculture, Livestock and Supply (MAPA) the Brazilian Agricultural Research Corporation (EMBRAPA) to conduct and coordinate research activities.[203] In 1976, it created the Brazilian Corporation for Technical Assistance and Rural Extension

(c) 2012, Jody Endres. No distribution without the permission of Jody Endres.

[195] *Id.* at 25.
[196] *Id.* at v.
[197] *Id.* at v-vi.
[198] Günther Fischer, *et al.*, *Biofuel production potentials in Europe: Sustainable use of cultivated land and pastures, Part I: land productivity potentials*, 24 BIOMASS & BIOENERGY 159, 170 (2010).
[199] The U.K., for example, has had a Soil Code in place since 1993, and adherence is voluntary. Julie Ingram & Carol Morris, *The knowledge challenge within the transition towards sustainable soil management: An analysis of agricultural advisors in England*, 24 LAND USE POLICY 100 (2007). The German Federal Soil Protection Act as passed in 1998, and producers are obligated, as a precautionary measure, to prevent "harmful changes to the soil." FEDERAL LAW GAZETTE I, p. 502 (Mar. 17, 1998).
[200] Fabio R. Chaddad & Marcos S. Jank, *The Evolution of Agricultural Policies and Agribusiness Development in Brazil*, 21 CHOICES 85, 88 (2006).
[201] *Id.*
[202] Jorge Arboleya & Ernesto Restaino, *Agricultural Extension Models in South America: A Description of Systems in Use in Argentina, Brazil, Paraguay, and Uruguay*, 14 HORTTECHNOLOGY 14, 16 (2004).
[203] *Id.* at 16.

(EMBRATER) to coordinate extension programs.[204] The system was reformed in 2010 with the establishment of PRONATER and PNATER to provide increased services related to social and environmental sustainability, particularly among smallholders.[205] It is unclear, however, whether guidance "on the ground" has changed to reflect the new law. At the state level, Sao Paulo state maintains CATI, an integrated agency for coordination of rural technical assistance.[206] CATI guides regional and municipal plans for rural development, and maintains technical manuals such as that for soil and water conservation.[207]

Where capacity is lagging within government, bi-lateral contracting and private certifiers have laid ground work in Brazil for an assessment of sustainable practices through development of standards. In Brazil, "strictly coordinated mechanisms of governance" such as contracting have developed within the supply chain in response to sustainability drivers.[208] For example, in 2008 SEKAB, a Swedish biofuels producer, announced agreements with five Brazilian ethanol suppliers to source sugarcane ethanol certified through independent audit in return for a price premium.[209] The Sustainable Agriculture Network (SAN) has developed sustainability indicators for sugar cane and other bioenergy crops eligible for certification from the Rainforest Alliance.[210] Bonsucro's certification regime for sugarcane now qualifies under the EU RED.[211] The International Ethanol Trade Association, an organization created in Brazil but working internationally, tried in 2007 to develop a partnership with INMETRO (the Brazilian institute responsible for technical standardization), but this effort appears to have stalled.[212] Case studies on private efforts are clearly needed to learn what field-specific tools are being developed to practice and measure sustainable practices.

---

[204] *Id.*

[205] Law No. 12.188, Institui a Política Nacional de Assistência Técnica e Extensão Rural para a Agricultura Familiar e Reforma Agrária – PNATER e o Programa Nacional de Assistência Técnica e Extensão Rural na Agricultura Familiar e na Reforma Agrária - PRONATER, altera a Lei no 8.666, de 21 de junho de 1993, e dá outras providências (a law establishing a national policy and program for technical assistance and rural extension for family farming and agrarian reform) (Jan. 11, 2010), *available at* http://www.in.gov.br/imprensa/visualiza/index.jsp?jornal=1&pagina=1&data=12/01/2010; Brazilian Ministry for Agricultural Development, *Lula signs Rural Technical Assistance and Extension Law* (Nov. 1, 2010), *available at* http://www.mda.gov.br/portal/noticias/item?item_id=3595618.

[206] Coordenadoria de Assistência Técnica Integral, *available at* http://www.cati.sp.gov.br/new/index.php.

[207] STATE OF SÃO PAULO, MANUAL TÉCNICO DE MANEJO E CONSERVAÇÃO DE SOLO E ÁGUA (Technical Manual for the Management and Conservation of Soils and Water), Manual No. 38 (1994), *available at* http://www.cati.sp.gov.br/new/acervo/recursos_naturais/manualAguaSolo.pdf.

[208] Decio Zylbersztajn, *Reshaping the global agricultural landscape: perspectives from Brazil*, 41 Ag. Econ. 57, 63 (2010).

[209] SIMON BOLWIG & PETER GIBBON, BIOFUEL SUSTAINABILITY STANDARDS AND PUBLIC POLICY: A CASE STUDY OF SWEDISH ETHANOL IMPORTS FROM BRAZIL 13-16 (OECD 2009), *available at* http://orbit.dtu.dk/getResource?recordId=252846&objectId=1&versionId=1.

[210] Adriana Andrade Espíndola, *Processo De Certificação Do Etanol Brasileiro*, 8 REVISTA DE CIÊNCIAS GERENCIAIS 113, 121 (2009) (The Process of Certification of Brazilian Ethanol, Journal of Management Science) (stating that SAN has been promoting a reformulation of its original agricultural certification which now includes certification for sugar cane and oil seeds through the Rainforest Alliance). *See also* SAN, Public Consultation Report-Addendum: Additional SAN Criteria for oil palm, sugar cane, soy, peanuts and sunflower farms (April 2009), *available at* http://sanstandards.org/sitio/archivos/display/24.

[211] *See* Bonsucro, *supra* note 12.

[212] *See* Brasil Energy, *Time for Certification?* (Jul. 7, 2007), *available at* http://brasilenergy.editorabrasilenergia.com/news/2007/07/24265.html (noting that INMETRO had begun discussions with its American counterpart, the National Institute of Standards and Technology (NIST), on certification standards for ethanol). INMETRO does not list ethanol as either a voluntary or compulsory standard on its website. *See* INMETRO, Avaliação da Conformidade, Productos com Certificação Compulsório/Voluntariamente (Conformity Assessment, Products with Compulsory or Voluntary Certification), *available at* http://www.inmetro.gov.br/qualidade/prodCompulsorios.asp and http://www.inmetro.gov.br/qualidade/prodVoluntarios.asp.

© 2011 Emily Farnett. Not reproducible without the permission of Emily Farnett

2. Have Existing Agri-Environmental Tools Really Been Effective?

While the foregoing sections demonstrate that some tools are already available for producers to use in implementing the sustainability provisions of emerging standards, have these tools been effective, whether in design, enforcement, or both, in achieving increased sustainability? At the macro level, the EU Directorate Generals for Agriculture, Environment, Eurostat and Joint Research Centre are collaboratively assessing progress toward integrating agri-environmental measures into the CAP.[213] Few studies, however, have evaluated the overall effectiveness of CAP cross-compliance measures.[214] In the US, the limits of section 1619[215] will prevent EPA from studying with any granularity the environmental implications of the RFS2. Thus EPA will design solutions based on modeling plagued by uncertainty. Within USDA, the Conservation Effects Assessment Project (CEAP) was established to increase understanding of the effectiveness of federal conservation programs at the field and watershed levels.[216] Significantly, two CEAP studies on the Mississippi and Chesapeake Bay watershed have concluded that federal policies and USDA could do better in reducing pollution from agriculture.[217]

On the ground, EU member states may enforce agri-environmental standards through inspections and producer self-reporting, and NRCS has the same power. Studies in the US and EU conclude, however, that there is room for great improvement in execution.[218] For example, the US Government Accountability Office has found lax enforcement by NRCS of conservation requirements.[219] And, even where experience exists, capacity is concentrated

© 2011 Andy Jones. Do not distribute without the permission of Andy Jones.

[213] *See generally* EUROPEAN ENVIRONMENT AGENCY, INTEGRATION OF ENVIRONMENT INTO EU AGRICULTURE POLICY–THE IRENA INDICATOR BASED ASSESSMENT REPORT (2006), *available at* http://www.eea.europa.eu/publications/eea_report_2006_2/at_download/file.

[214] Jurate & Kažukauskas, *supra* note 185, at 3.

[215] *See supra* note 21.

[216] *See generally* Lisa F. Duriancik *et al.*, *The first five years of the Conservation Effects Assessment Project*, 63 J. SOIL & WATER CONSERV. 185A-197A (2008).

[217] NRCS, ASSESSMENT OF THE EFFECTS OF CONSERVATION PRACTICES ON CULTIVATED CROPLAND IN THE UPPER MISSISSIPPI RIVER BASIN (June 2010), *available at* http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1042093.pdf (hereinafter NRCS Mississippi River CEAP); NRCS, ASSESSMENT OF THE EFFECTS OF CONSERVATION PRACTICES ON CULTIVATED CROPLAND IN THE CHESAPEAKE BAY REGION (Feb. 2011), *available at* http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1042076.pdf (hereinafter NRCS Chesapeake Bay CEAP).

[218] *See e.g.*, Dale M. Robertson & David A. Saad, *Nutrient Inputs to the Laurentian Great Lakes By Source and Watershed Estimated Using Sparrow Watershed Model*, J. AMER. WATER RES. ASSOC. (2011) (demonstrating through modeling that despite having conservation programs in place, agriculture is still the greatest source of nutrient pollution to the Great Lakes, and that decreased monitoring within the watershed has affected negatively the ability to model causation and thus find solutions); NRCS CEAPs, *supra* note 220 (noting the in significant ways, conservation planning has failed to curtail non-point source pollution from agriculture); SOIL & WATER CONSERVATION SOCIETY, FINAL REPORT FROM THE BLUE RIBBON PANEL CONDUCTING AN EXTERNAL REVIEW OF THE U.S. DEPARTMENT OF AGRICULTURE, CONSERVATION EFFECTS ASSESSMENT PROJECT (2006), *available at* http://www.swcs.org/documents/filelibrary/advocacy_publications/CEAP_Final_Report.pdf (recommending several ways that USDA can improve its evaluation of the effects of conservation practices); ADAS, ET AL., EVALUATION OF CROSS COMPLIANCE (2009), *available at* http://archive.defra.gov.uk/evidence/statistics/foodfarm/enviro/observatory/research/documents/Xceval_mar09.pdf (noting that while cross-compliance with environmental regulations by UK farmers is generally good, enforcement is lacking in some areas, and some approaches should be changed).

[219] Futrell, *supra* note 168, at 122-124; U.S. GEN. ACCOUNTING OFFICE, AGRICULTURAL CONSERVATION: USDA NEEDS TO BETTER ENSURE PROTECTION OF HIGHLY ERODIBLE CROPLAND AND WETLANDS (2003), *available at* http://www.gao.gov/new.items/d03418.pdf (last visited Nov. 1, 2011).

within developed countries and its dissemination depends on an "alphabet soup" of entities that fail to coordinate action.[220]

3. Building Socio-Technical Innovation Systems for Biomass Sustainability

With few small exceptions (e.g., organic farming), agricultural innovation in the US and Brazil is founded on the decades-old paradigm of increasing yields through biotechnology and petrochemical inputs, and consolidation into large-scale operations. American regulations historically have taken a "hands off" approach,[221] and consumers have expected little, with regard to agriculture's responsibility for the harmful environmental and social effects of intensification, let alone actual improvement of landscape conditions.[222] Europe, on the other hand, emphasizes the concept in its agricultural subsidy program of multi-functional agriculture to produce food while protecting the environment.[223] The EU also has resisted most forms of agricultural biotechnology, taking a "precautionary" approach to consumer safety and protection of the natural environment.[224] How long Europe will hold out, however, is uncertain in light of multinational corporations' continued fight against European policies, fuelled by stringing jury awards to farmers in the US who have lost European Markets from co-mingled biotech grain.[225] USDA recently gave the green light introduction of genetically-modified alfalfa[226] and turf grass[227] resistant to glyphosate, paving the way for bioengineered relatives for biomass.

The existing agri-industrial paradigm runs the risk of steering future agricultural innovation in the same direction, leaving producers–as demonstrated in previous sections–few tools at their disposal to readily achieve other forms of increased sustainability–so called "path dependence."[228] In order to reorient agricultural landscapes toward diversification and sustainability that is not dependent on inputs from multinational corporations, "second order" innovation must occur.[229] To achieve this, society must change entire "rule-sets that define the needs, objectives, knowledge and heuristics that steer innovation."[230] Otherwise, what are left are "first order" innovations that focus only on adapting to the existing system–

[220] Mark Tran, Poverty Matters Blog, *G20 faces obstacles in its efforts to spread good farming practices*, THE GUARDIAN (Sept. 12, 2011).
[221] Pollans, *supra* note 173, at 628-629.
[222] Terry Marsden, et al., *The Road Towards Sustainable Rural Development: Issues of Theory, Policy and Research Practice*, 3 J. ENVTL. POL'Y PLANNING 75, 78 (2001) (stating that "[f]or consumers, [regulation of food hygiene] also allows for the disconnection and distancing between production and consumption to continue conveniently, with an encouragement that 'safety' comes before sustainability").
[223] Dobbs and Pretty, *supra* note 181.
[224] DIAHANNA LYNCH & DAVID VOGEL, THE REGULATION OF GMOS IN EUROPE AND THE UNITED STATES: A CASE-STUDY OF CONTEMPORARY EUROPEAN REGULATORY POLITICS (Council on Foreign Relations 2001).
[225] Bryan Endres & Nicholas R. Johnson, *$750 Million Settlement in GM Rice Contamination*, FARMDOCDAILY (Jul. 8, 2011), http://www.farmdocdaily.illinois.edu/2011/07/750_million_settlement_in_gm_r.html (last visited Nov. 1, 2011) (explaining farmers' victory in a lawsuit claiming damages from the "unwanted presence of transgenic rice" that lead to embargos against US rice exports); D. L. Uchtmann, *Starlink™: A Case Study of Agricultural Biotechnology Regulation*, 7 DRAKE J. AGRIC. L. 159-211 (2002).
[226] U.S. Department of Agriculture, *Record of Decision, Glyphosate-Tolerant Alfalfa Events J101 and J163: Request for Nonregulated Status* (Jan. 17, 2011), *available at* http://www.aphis.usda.gov/brs/aphisdocs/04_11001p_rod.pdf (last visited Nov. 1, 2011).
[227] U.S. Department of Agriculture, *Scotts Miracle-Gro Co.; Regulatory Status of Kentucky Bluegrass Genetically Engineered for Herbicide Tolerance*, 76 FED. REG. 39812 (Jul. 7, 2011) (determining that unlike other genetically-modified plants, the bluegrass in question was not a "regulated article" and thus is not subject to regulation under the Plant Protection Act).
[228] Tim Foxon & Peter Pearson, *Overcoming barriers to innovation and diffusion of cleaner technologies: some features of a sustainable innovation policy regime*, 16S1 J. CLEANER PRODUCTION S148, S149-150 (2008).
[229] Knickel, *supra* note 177, at 133-134.
[230] *Id.* at 133.

© 2012 – Jason Hale – No distribution without permission of Jody Hale

technological and institutional "lock in."[231] Could it be that renewable energy policies' evolving mandate that agricultural "bio" mass be defined beyond mere regeneration of crops be creating this new paradigm of more sustainable production throughout agricultural landscapes? Whether or not the shift occurs, can new technological and institutional innovations for energy biomass emerge that bring agriculture back into equilibrium with nature?

a. Have Biofuels Policies Fueled Second-Order Innovation? An Agro-Ecological Perspective

Scholars have developed "agro-ecological principles" to determine "how far current developments in alternative rural development practices [in the context of bioenergy policies] represent sustained moves toward a more agro-ecological system."[232] The first element of the approach asks whether bioenergy policies recognize "co-evolution"–that human and natural systems are reliant and interdependent on, and interact with, one another. This is indeed occurring within the context of biofuels sustainability standards, as policymakers debate bioenergy's "place" as human needs for food, feed and fiber increasingly compete with energy for dwindling supplies of productive land and water. The agro-industrial "answer" emphasizes first-order innovation based on increased yields though synthetic inputs and biotechnology, and more efficient irrigation systems. Proposed bioenergy policies go a step farther, in some cases restricting energy biomass production to marginal lands, prohibiting irrigation, requiring yields above historic baselines that are as dependent on functioning ecosystem dynamics as they are biotechnology, and calculating the remote, indirect environmental effects biofuel policies in one country may have on another. Indeed, one cannot "imagine" accounting for these more systemic, global effects ten years ago.[233] Biofuels policies also acknowledge that already fragile ecosystems on which agriculture depends should not be further damaged, and ideally, should be improved if all human needs are to be met. Biofuels certification achieves this not only through improved enforcement of existing agro-environmental measures, but by developing new "first order" innovations such as practice standards that incorporate site and shed ecological considerations, and that do not merely rubber-stamp individual yield and no-till soil practices as the only denominator of sustainability.

Second, development of local knowledge systems beyond "standard scientific knowledge" evidences an agro-ecological perspective.[234] Instead, such systems are informed by area or site-specific ecology and develop in conjunction with local socio-political conditions.[235] They are also resilient in the face of "ecotechnocratic discourses associated with globalization."[236] Assuming innovation is a "learning process," standards organizations serve as a valuable "niche" not only for developing sustainable practices, but also in promoting information flows, learning, and social interaction between diverse sets of producers and end-users that ultimately informs that development.[237]

In this regard, biofuels sustainability standards are taking first steps toward fostering local knowledge systems, thus ensuring longer-term uptake and further innovation. CSBP

(c) 2012, Jody Freeman. No circulation without the permission of Jody Freeman

[231] *Id.*; Foxon, *supra* note 228, at S152.
[232] Marsden, *supra* note 222, at 75.
[233] John Sheehan, *Fuelish Choices: Brazil, biofuels and the ethic of sustainable development*, 3.3 MOMENTUM 31-33 (Fall 2011), *available at* http://environment.umn.edu/momentum/issue/3.3f11/momentum_fall_11_lowres.pdf.
[234] Marden, *supra* note 225, at 80.
[235] *Id.*
[236] *Id.*
[237] Knickel, *supra* note 177, at 142; Foxon & Pearson, *supra* note 228, at S152-S153.

field testing is on the ground with groups of local growers to determine levels of knowledge that will be necessary to achieve certification as it currently stands. In many cases knowledge of "shed" level issues is low among growers or local authorities. That is, there is growing consensus that sustainability the natural (watershed, ecosystem) and socio-economic (the community, the geographic radius from which a biorefinery will draw its biomass).

Even though government agencies and academics may possess knowledge of ecosystems and the necessary social interactions inherent in protecting them, these resources are not readily accessible to growers. Few biomass growers associations exist. When pursuing certification under most standards, producers must conduct assessments and management planning that may assist in identifying knowledge and other gaps in support. Standards should take care to include whether peripheral support structures exist in such assessments, such as the availability of lenders and crop insurance agents who are knowledgeable of local ecosystems and ways to improve them through sustainability practices.[238] If these are not available, the operation likely will not receive necessary financing for innovative concepts.

Foundations of agro-ecology also lie in "collective forms of social action" and a systems view of finding solutions.[239] As to the former, whether the formation of biofuels sustainability standard setting groups constitutes "a new form of associationalism"[240] requires further study. While initial experience in the CSBP demonstrates some farmer representatives' alignment with environmentalists in seeking innovative ways to profit while at the same time improving the environment, this does not serve as a proxy for an entire movement. The collaboration within CSBP has not translated into alternative, larger-scale grower-industry associations. Instead, perennial cropping and environmental stakeholders remain on the sidelines of industry organizations such as the Renewable Fuels Association, which is dominated by commodity corn and global input manufacturers. The emergence of state-level associations, such as the Illinois Biomass Working Group, could be the situs for further dialogue, but development of a "social movement" toward sustainable practices through such a group is not likely because its small scale. Sustainability standards certainly are taking a "systems" view, not only by integrating all types of stakeholders in the process, but elevating the search for sustainability denominators to the shed level—whether that is an ecosystem, watershed, or human community. Whether these efforts will translate more broadly into government agri-environmental policymaking is yet to be seen, but undeniably biomass sustainability discussions have been at the forefront of shed-level movements.

b. The Role of Biofuels Businesses in Creating Technological and Institutional Innovation

The paradigm shift to agro-ecology requires the economic system to embrace of sustainable practices. One indicator is the emergence of business strategies and practices focused on agri-environmental innovation. "Incumbent" businesses, however, typically exhibit "dualistic" behavior–resisting change to maintain benefits accrued from the existing industrial paradigm, while at the same time paying lip service to sustainability.[241] In an

(c) 2011 – Jody Endres. No distribution without the permission of Jody Endres

[238] TRACI BRUCKNER AND KIM PRESTON, CREDIT, CROP INSURANCE AND SUSTAINABLE AGRICULTURE IN IOWA 2 (Center for Rural Affairs 2011), http://www.leopold.iastate.edu/sites/default/files/pubs-and-papers/2011-08-credit-crop-insurance-and-sustainable-agriculture-iowa.pdf (last visited Nov. 1, 2011).
[239] Marden, *supra* note 222, at 80.
[240] *Id.*
[241] Bradley D. Parrish & Timonthy J. Foxon, *Sustainability Entrepreneurship and Equitable Transitions to a Low-Carbon Economy*, 55 GREENER MGMT. INT'L 47, 56 (Winter 2009); Robert Falkner, *Private Environmental Governance and International Relations: Exploring the Links*, 3 GLOBAL ENVTL. POLITICS 72, 83 (May 2003)

industry led by demand from oil companies obligated to blend biofuels, will these heavy weights lead a transition to more sustainable agricultural landscapes? Businesses adopt strategies within broader institutional frames, each co-evolving to forge pathways to reduce transaction costs.[242] Business strategies aimed at increasing agricultural sustainability are more likely to succeed when the business can commit to longer term investment and is less constrained by transaction costs, and cognitive and institutional legitimacy barriers[243]. Cognitive legitimacy measures the extent to which businesses understand the actors, organizations and technological processes involved in a particular strategy.[244] Socio-political legitimacy refers to the degree to which the components of a strategy coincide with societal "rules, norms, values and sensibilities."[245]

With these principles in mind, developing new, innovative sustainable farming practices from within the biofuels sector will be extremely challenging. Sustainable practices have little cognitive legitimacy among end-user oil companies and electricity companies, both of which have no experience in farming, conventional or otherwise. These companies would incur significant transaction costs in developing sustainable practices even if vertically integrated. Of the renewable fuels associations in the US (e.g., the Renewable Fuels Association/the Advanced Ethanol Council, Growth Energy, and the Advanced Biofuels Association), few second generation growers are participants in these processes, and thus few opportunities exist for knowledge exchange except within the existing agri-industrial paradigm.

Socio-political legitimacy of agri-environmental innovation in the view of oil companies is likely incredibly low. The mandates and tax breaks oil companies depend on are caught in the tug-of-war politics of deficit reduction (or the protection of equally powerful agribusiness and grocer's lobbies who compete for feedstocks), and thus no incentive exists to commit longer term financing to developing more sustainable technologies if their entire business model is under threat. Consumer and organization pressure has not risen to the level of a societal norm that effectively questions the disconnect between these claims and oil companies' record profits, or that profits are invested in first-generation energy production such as environmentally destructive Albertan tar sands instead of biofuels generally and sustainable agricultural practices specifically. Whether biofuels policies mandate increased sustainability would not necessarily increase the socio-political legitimacy of environmental innovation, as oil companies who publically support biofuels mandates on one hand dualistically are funding the American Petroleum Institute's lawsuits against GHG and biofuels regulation.[246]

(noting that corporations "often find it in their economic interest to preserve such traditional, state-centric, forms of governance" even while at the same time working toward harmonization of environmental standards).

[242] Parrish and Foxon, *supra* note 241, at 56, 57.

[243] *Id.*

[244] *Id.*

[245] *Id.*

[246] *Coalition for Responsible Regulation, et al., v. Envtl. Protection Agency*, No. 09-1322 (D.C. Cir. 2009) (contending that EPA's GHG endangerment finding violates the Clean Air Act); *Amer. Elec. Power Co. et al., v. State of Conn.*, No. 10-174, *Brief of American Petroleum Institute and National Petrochemical and Refiners Association as Amici Curiae in Support of Petitioners* (Feb. 7, 2011), http://www.americanbar.org/content/dam/aba/publishing/previewbriefs/10_174_brief_updates/10-174_PetitionerAmCuAmericanPetroleumInstitute.authcheckdam.pdf (last visited Nov. 1, 2011) (arguing that the Supreme Court should overrule a lower court's finding that a state may pursue a federal common law public nuisance against power company GHG emissions, while at the same time arguing that comprehensive Congressional legislation is the only, but "difficult and polycentric" solution to guide federal agency action); *Nat'l Petrochemical & Refiners Ass'n v. Envtl. Protection Agency*, 630 F.3d 145 (Dec. 21, 2010) (denying a challenge to EPA's retroactive application of Renewable Fuel Standard mandates), *cert. denied*, 132 S. Ct. 571 (2011).

© 2012 Andy Endres. No distribution without the permission of Andy Endres

Poet represents a different model. Because its only business is agricultural-based biofuels, Poet may attribute more legitimacy to agro-environmental innovation because cognitively it possesses more in-depth and broad knowledge of agricultural practices. Poet has participated in USDA studies to determine the maximum corn residue removal that would be agronomically prudent. The community in which Poet is headquartered and operates is dominated by the agricultural sector and small rural communities. The norms and values of rural communities, however, are shaped largely by conventional corn farmers who depend on multi-national agribusiness for inputs. Poet is the driving force behind Growth Energy, whose current CEO was the former President of the National Farmers Union (NFU) and a former aide to democratic politicians. The NFU takes more farmer- and environmentally-friendly positions compared to the AFB.

Business strategies, if successful, can "reshape institutional bases of legitimacy" by "altering selection criteria or by changing the replicative capacity of individual entities."[247] In this respect, bioenergy policies constitute *per se* institutional innovation, which is co-evolving with other institutional (private certification organizations and aggregators) and technological (e.g., developing sustainability practices to address shed-level problems) innovations. Selection pressures against environmental innovation for biomass cropping can be reduced if businesses overcome the technical and institutional barriers highlighted above. In addition to certification organizations, third-party "aggregators" are emerging to assist end-users throughout the supply chain, from procuring sufficient supplies of biomass to ensuring the biomass is produced in a sustainable way. This lowers transaction costs stemming from information asymmetry, and through increased efficiency in resource use. Biofuels standards can develop practice standards that achieve environmental improvement, not just for Clean Air Act compliance but also to qualify for ecosystem services payments (e.g., nitrogen credits[248]). Thus the industry will have "replicated" a sustainability convention specific to biofuels within the "wider domain" of agro-ecology.

Private biofuels sustainability standards organizations are cultivating new "niches of dynamic activity" which are self-reinforcing just by their continued existence and continued incremental successes.[249] Looking forward, however, these organizations' continued viability depends on companies' willingness to subscribe to the standard. Two scholars have concluded in their case study of decoupled carbon offsets in the electricity sector that ultimately the critical factor in the success of a sustainable business strategy is "embrac[ing] the potential to make more meaningful environmental contributions."[250] Without long-term commitments to sustainability transcending short-term profits, agro-environmental innovation in the biofuels sector faces a very uncertain future.

C. International Harmonization of Biofuels Sustainability Standards

Without some level of public-level, international harmonization of sustainability standards, international trade could come to a standstill. The stage is being set. The American Soybean Association (ASA) formally complained to the Office of the U.S. Trade Representative and USDA in early 2011 regarding the E.U.'s application of its GHG calculations to disqualify soy biodiesel as a renewable source under the RED.[251] Developing countries warned the EU in the early stages of RED development that if it implemented

[247] Parrish, *supra* note 241, at 50, 51.
[248] *See supra* section III.B.1.a.
[249] Parrish, *supra* note 241, at 57.
[250] *Id.* at 54.
[251] Amer. Soybean Assoc., *ASA Expresses Concerns about EU Renewable Energy Directive to USDA and USTR* (Mar. 9, 2011), *available at* http://www.soygrowers.com/newsroom/releases/2011_releases/r030911.htm .

(c) 2012, Judy Endres. No distribution without the permission of Judy Endres

"unjustifiably complex" a third-party certification program, they might pursue a complaint under world trade agreements.[252] Some assert that only a binding international minimum standard can truly ensure all market players achieve a level of sustainability.[253] The notion naively ignores symptoms of the world's broader failures to reach consensus on how to address climate change, fair and equitable agricultural trade, and labor standards that protect vulnerable people against exploitation.[254] Parties to any harmonization of biofuels sustainability standards would have to agree on how to account for direct and indirect carbon emissions, and as post-Kyoto negotiations on carbon accounting demonstrate, this is highly unlikely even as GHG emissions dangerously escalate even beyond previous estimates.[255] As for the "other" aspects of biofuels sustainability such as soil, water and biodiversity protection, the Marrakesh agricultural trade negotiations prove the difficulties in reaching consensus. They have yielded nothing, for example, in response to Brazil's request that biofuels be classified as an "environmental" good versus an agricultural good.[256]

Regardless, any signatory to the World Trade Organization Agreement on Technical Barriers to Trade (TBT) treaty must give positive consideration to the exporting country's technical regulations in conducting conformity assessments, but where an international standard exists, this must be applied.[257] Efforts are underway in the International Organization for Standardization (ISO)[258] and the European Committee for Standardization (CEN)[259] to finalize frameworks for biomass sustainability standards. The ISO process for sustainability criteria for bioenergy contains workgroups for GHGs and indirect effects, which could presumably include food insecurity and ILUC accounting for GHG emissions. It is impossible to assess at this juncture what direction the ISO technical committee is leaning, however, because ISO rulemaking is ironically inaccessible to the general public although ISO maintains a code for good standard setting that includes provisions for transparency.[260]

---

[252] Tom Young, *Biofuel producers warn EU over "unjustifiably complex" sustainability rules*, businessGreen (Nov. 7, 2008), *available at* http://www.businessgreen.com/bg/news/1805590/biofuel-producers-warn-eu-unjustifiably-complex-sustainability-rules.

[253] *See e.g.*, Renate Schubert & Julia Blasch, *Sustainability standards for bioenergy–A means to reduce climate change risks?* 38 ENERGY POL'Y 2797, 2803 (2010).

[254] Timo Kaphengst et al., *At a tipping point? How the debate on biofuel standards sparks innovative ideas for the general future of standardization and certification schemes*, 17 J. OF CLEANER PROD. S99, S101 (2009) (noting that standards "can only be part of the game" and that "[a]dditional and accompanying policy measures and institutional frameworks" are necessary).

[255] *Biggest spike ever in global warming gases: US*, INT'L HERALD TRIBUNE (Nov. 6, 2011).

[256] Int'l Ctr. For Trade & Sustain. Develop., *Brazil's Call for Biofuel Liberalisation Causes Stir in Envt'l Goods Talks* (Oct. 10, 2007), http://ictsd.org/i/news/bridgesweekly/7627/ (last visited Nov. 1, 2011).

[257] Jody M. Endres, *Clearing the Air: The Meta-Standard Approach to Ensuring Biofuels Environmental and Social Sustainability*, 28 VA. ENVTL. L.J. 73, 108-11 (2010) (explaining the General Agreement on Tariffs and Trade, and TBT, with regard to the procedure for applying a sustainability standard to an imported product).

[258] ISO/WD 13065,TECHNICAL COMMITTEE 248, SUSTAINABILITY CRITERIA FOR BIOENERGY, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=52528 (last visited Nov. 1, 2011).

[259] European Committee for Standardization, *Sustainability criteria for biomass (CEN/TC 383)*, *available at* http://www.cen.eu/cen/Sectors/Sectors/UtilitiesAndEnergy/Fuels/Pages/Sustainability.aspx; BioGrace, Standardization: BioGrace Stakeholder workshop, *available at* http://www.biograce.net/app/webroot/files/file/Standardization_processes.pdf (stating that the final CEN/TC 383 standard should be out by early 2012, and explaining how the group has addressed the various aspects of biomass sustainability).

[260] None of the ISO Directives, Supplements, or other policies indicate that the public has access to the standard drafting process. *See* International Organization for Standardization Directives and Supplements, *available at* http://www.iso.org/iso/standards_development/processes_and_procedures/iso_iec_directives_and_iso_supplement.htm (listing the documents that guide the standard setting process); International Organization for Standardization, ISO Code of Conduct for Technical Work (Jul. 24, 2011), available at http://www.iso.org/iso/codes_of_conduct.pdf. *See also supra* text and notes at section III.A.4 (describing the

Only when a draft standard is complete can individual country members make the document available for public review.[261] When the ISO process is complete for sustainability criteria for bioenergy, a country will be required under the TBT to apply ISO methodology for ILUC and food security calculations, if they are indeed included.[262]

One step toward public international harmonization of sustainability standards has been the success achieved by the United Nation's collaborative program for the Reduction of Emissions from Deforestation and Degradation (REDD+). For example, REDD+ may provide one "way out" of calculating indirect land use change–arguably the controversial aspect of biofuels' carbon accounting. That is, if REDD+ is successful in curtailing directly deforestation, then either ILUC would not have to be calculated at all, or future emissions in ILUC models could be adjusted based on a predicted effect of REDD+ programs on deforestation. REDD environmental and social principles recently issued for draft comment,[263] but it remains to be seen whether REDD generally will receive enough support from the developing world to be effective.

Even if the international community could reach some type of agreement on principles of biofuels' sustainability, some scholars and developing countries view similar agreements with skepticism, contending that developed countries put standards in place not to achieve sustainability, but merely to "[foster] the legal protection of corporations from the environmental harms they produce," and "[maintain] nation-state power via protectionism of industry and the denunciation of global scientific knowledge."[264] One scholar contends that neoliberalists cannot sing the praises of international standards harmonization, while at the same time claim that environmental standards are by their nature locally and regionally ecologically dependent as a pretext for domestic agricultural protectionism.[265] His empirical research shows U.S. attempts to thwart implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer with regard to the use of methyl bromide, which the U.S. claims must be used by its strawberry growers despite scientific evidence to the contrary. He concludes that like other studies, his proves that "neoliberal globalization represents an effort to force market competition on the global South while continuing to protect key industries in the North."[266] Any binding agreement on biofuels sustainability could face similar pushback given the agricultural nature of biofuels, and the nascency in understanding biomass agronomic practices. One interesting, emerging consideration is whether food insecurity metrics, which the RSB imposes on biorefineries within potentially food insecure areas,[267] should apply in the U.S. because food insecurity can manifest itself in

---

ISO guides for standards development); Ann Rhodes, *Note & Comment: ISO Enters the Public Sector Through the United States Forest Service*, 18 COLO. J. INT'L L. & POL'Y 417, 431- (Spring 2007) (noting that criticism of the ISO process is "based on the perception that the process [is] dominated by industry" and that this results in a lack of "substance in terms of hard requirements for environmental performance").

[261] THE WTO AGREEMENT ON TECHNICAL BARRIERS TO TRADE, ANNEX 3(L), http://www.wto.org/english/tratop_e/tbt_e/tbtagr_e.htm (last visited Nov. 1, 2011).

[262] Endres, *supra* note 257, at 110-111.

[263] UNITED NATIONS FOOD AND AGRICULTURE ORGANIZATION (FAO), DEVELOPMENT PROGRAMME, AND ENVIRONMENTAL PROGRAMME, U.N. REDD PROGRAMME SOCIAL AND ENVIRONMENTAL PRINCIPLES AND CRITERIA, VERSION 3 DRAFT FOR CONSULTATION (Sept. 2011), http://www.unredd.net/index.php?option=com_docman&task=doc_download&gid=5993&Itemid=53 (last visited Nov. 1, 2011).

[264] Brian J. Gareau, *Dangerous Holes in Global Environmental Governance: The Roles of Neoliberal Discourse, Science, and California Agriculture in the Montreal Protocol*, ANTIPODE 102, 104 (2008).

[265] *See generally*, *id.*

[266] *Id.* at 105.

[267] RSB, *Food Security Guidelines, Version 1.0* (2009), *available at* http://rsb.epfl.ch/files/content/sites/rsb2/files/Biofuels/Version%20One/Version%201.0/Food%20security%20guidelines.pdf.

© 2011 Amy Endres. Use constitutes acceptance of the personal use policy.

different ways. For example, in rural areas of the Midwestern U.S., many people lack easy access to grocery stores, or at least stores that sell fresh, healthy food. Should food security metrics apply in this context, or do ethical considerations embedded in social metrics for biofuels only extend to situations where people face starvation?

Thus, while fruitful in fostering dialogue, the Global Bioenergy Partnership's (GBEP) progress toward building biofuels sustainability standards, and its ultimate effectiveness, should not be exaggerated. Its framework to guide country-specific regulation consists of indicators that are vague and non-committal, which reflects carry-over of these more general failures to agree internationally on GHG or agricultural sustainability metrics.[268] Its GHG accounting framework expressly refuses to promote or endorse "one methodology or approach over another" with regard to life cycle analysis "due to differences in national circumstances or legitimate differences of opinion regarding what should be included in lifecycle analysis."[269] This begs the question of how to resolve those differences when international trade occurs. While its social indicators emphasize food security through "assessment" and "allocation" of land resources, the GBEP has not explained how countries such as the U.S., with well-developed private property rights regimes, would "allocate" lands for food and energy biomass production. Again, although the GBEP food security indicator may be intended only to apply in underdeveloped countries with food insecurity problems, arguably developed countries should be under the same requirement as major actors in a fully globalized market economy for food commodities. If the U.S. is to implement food security considerations through land use zoning, Constitutional hurdles may stand in the way. The U.S. Constitution sanctions the attachment of conditions to federal spending (e.g, to receive a production subsidy, a certain crop must be grown), it is questionable under the Fifth Amendment takings clause whether the federal government could allocate land for food cropping versus energy biomass cropping as a way to ensure global food security.[270] Ultimately, the difficulties in actually implementing the GBEP provision for food security highlights the need for a more comprehensive international approach to food security that does not rest solely (and unfairly) on biofuels sustainability criteria.

Although science is increasingly recognizing that the most effective solutions to sustainability involve outcomes at the system level, the GBEP relies on actions within and between jurisdictional boundaries that typically do not coincide with ecological or social systems. Countries are only beginning to recognize that their regulation and other policies should take into account the complex interactions that occur environmentally within ecosystems or "sheds." The U.S. EPA's recent efforts to reduce agricultural pollution loading in the Chesapeake Bay demonstrate aptly the challenges that countries face in tackling agriculture's environmental problems from a systems perspective. EPA has relied on modeling to establish maximum pollution loading for each state, but it has proved no panacea, however, as plaintiffs are now challenging in court the agency's use of modeled

(c) 2012 Jody Endres. No distribution without the permission of Jody Endres

[268] GLOBAL BIOENERGY PARTNERSHIP, SUSTAINABILITY INDICATORS FOR BIOENERGY (Dec. 2011), *available at* http://www.globalbioenergy.org/fileadmin/user_upload/gbep/docs/Indicators/The_GBEP_Sustainability_Indicators_for_Bioenergy_FINAL.pdf.

[269] GLOBAL BIOENERGY PARTNERSHIP, THE GLOBAL BIOENERGY PARTNERSHIP COMMON METHODOLOGICAL FRAMEWORK FOR GHG LIFECYCLE ANALYSIS OF BIOENERGY 4 (Oct. 1, 2010), *available at* http://www.globalbioenergy.org/fileadmin/user_upload/gbep/docs/GHG_clearing_house/GBEP_Meth_Framework_V_1.pdf .

[270] The Fifth Amendment to the U.S. Constitution protects against private property taken for public use, within just compensation. U.S. CONST. ART. 5. A reviewing court would apply the complex and typically *ad hoc* balancing test from *Penn Central Transp. Co. v. N.Y. City*, 438 U.S. 104 (1978).

results that they argue are too uncertain and thus are unlawfully arbitrary in application.[271] If the U.S. lacks the scientific and legal infrastructure to design systems-level solutions to sustainability, the GBEP must consider how producers in lesser developed countries could comply with standards that seek system-level outcomes. The GBEP has great potential to serve as a global research network to test sustainability principles across ecoregions, and to disseminate knowledge gained.

Even if scientific capabilities were in place, countries may not fundamentally share a common "web of norms" yet to form the foundation for agreement on biofuels' place within a sustainable system.[272] Although the GBEP involves the participation of over 45 countries and 24 international organizations and institutions constituting "the majority of bioenergy produced in the world,"[273] developing countries have accused similar international processes as excluding their viewpoints.[274] While networks of association are important in coordinating globalized economies,[275] "the legitimacy of decision making becomes more strained as the sense of community thins and the distance between those exercising authority and the public grows."[276] The GBEP must be very careful, therefore, to observe tenets of legitimacy in standard setting, such as transparency, notice and comment and stakeholder inclusion.

IV. Conclusion

Environmental and societal provisions in bioenergy laws reflect concern that biomass energy mandates to resolve one set of problems (climate change, rural decline, and petroleum dependence) may result in unacceptable tradeoffs such as deforestation, increased water pollution and scarcity, food insecurity, and displacement of vulnerable peoples. Society should ask itself, however, why existing laws are insufficient to prevent these harms, and if none are in place, why not. Perceived environmentally and socially destructive legacies of industrialized agriculture and forestry may in part be behind pressure to put meaning into the "bio" in bioenergy. Institutional answers to increasing environmental and social sustainability have traditionally favored neoliberal government deregulation and emphasized the private sector's role in defining, building and policing standards. The EU RED's private standard accreditation to gauge bioenergy sustainability exemplifies this strategy.

Backing up a step, much room remains to build on foundational scholarship addressing the legitimacy and economic tradeoffs in various institutional arrangements emerging in the context of sustainable bioenergy. Put another way, is third party private certification the most effective choice of governance mechanism, or could governments rely on purely market-driven mechanisms to achieve sustainability? Vandenbergh[277] asserts that in the absence of standards (which arguably is the case in the U.S.), consumer, shareholder and looming regulatory pressure can lead to private supply chain contracting for sustainability that amounts to its own discrete form of governance, which in turn must be evaluated carefully on democratic principles of efficacy and accountability. Menard and

(c) 2012 Stoel Rives LLP. No distribution without the permission of Stoel Rives LLP.

[271] *See e.g.*, *Amer. Farm Bur. Fed. et al. v. U.S. Envtl. Protection Agency*, No. 11-67 (M.D. Penn. 2011) (claiming, among other things, that "EPA never adequately defined the level of uncertainty associated with its computer modeling" thus leading to "numerous errors and compounding uncertainties").
[272] *See generally* Palmujoki, *supra* note 111.
[273] GBEP, Partners and Memberships, *available at* http://www.globalbioenergy.org/aboutgbep/partners-membership/en/.
[274] Jennifer Clapp, *ISO Environmental Standards: Industry's Gift to a Polluted Globe or the Developed World's Competition-Killing Strategy?* YEARBOOK OF INTERNATIONAL CO-OPERATION ON ENVIRONMENTAL AND DEVELOPMENT (2001/02) (Olav Schram Stokke and Øystein B. Thommessen, eds). at 30.
[275] Chesire & Lawrence, *supra* note 91, at 39.
[276] Etsy, *supra* note 97, at 1505.
[277] *See generally* Vandenbergh, *supra* note 97.

Valceschini examine institutional behavior through Oliver Williamson's transaction costs lens.[278] Under this logic, as corporations must make expensive investments in specific practices (e.g., sustainable agronomy) and uncertainty grows surrounding consumer preferences and willingness to pay, corporations tend to favor more a more integrated supply chain to reduce these costs and uncertainty. Thus perversely, sustainability requirements could discourage the corporations responsible for meeting bioenergy mandates from sourcing from a variety of smallholders unless underlying policies reward such behavior. The authors caution that comparing approaches is useful in order to account for the possibility that private institutional arrangements may remain unaccountable for costs passed to future generations, particularly if sustainability in agriculture requires difficult measurement.[279]

Midway between government-mandated certification and solely managing sustainability through contract is for the corporation to adopt voluntarily certification to garner market support. As explained, *supra*, Benjamin Cashore constructs a framework for evaluating the legitimacy of what he terms non-state market driven (NSMD) sustainability standards through forest sustainability programs.[280] Instead of focusing on standards organizations' processes as a source of legitimacy, he discusses why different organizations, from standards users to environmental organizations, grant private standards legitimacy. Thus, entities external to private standard setters and government, such as an educated consumer base and local community groups, can play an important role in pushing private sustainability innovations.[281] Where third party certifiers lack credibility and societal infrastructure is not well enough developed to serve in an oversight role, a hybrid model of government oversight of private certification bodies would strike a balance in the debate concerning public and private approaches to effectively and efficiently governing the environment.[282] Ripe for exploration is whether energy companies' emerging role in agricultural landscapes and emphasis on biofuels sustainability will spark new avenues for environmental and social advocacy that seek increased accountability for the social and environmental externalities of industrialized agriculture.

Private standards cannot work without equipping industry participants with tools and other guidance to implement sustainability requirements. Legacy tools from commodity food production outlined *supra* are useful, but perennial cropping presents unique practice challenges. Sustainability innovations are greatly needed in the agricultural landscape, and standards can be "technology forcing" to a certain extent. The second order innovations necessary to achieve significant, integrated gains will require building community knowledge and association perhaps farmer by farmer and long-term commitments by biofuels businesses to sustainability. Biofuels sustainability standards, do however, arguably represent social innovation in itself, as such standards in traditional commodity landscapes have proven elusive. It remains to be seen, however, whether businesses can and will proactively adopt them without economic or government incentives.

While questions of legitimacy and tools are relevant at local and national levels, emerging international markets for biofuels created by European and U.S. demand are driving efforts to arrive at some type of international sustainability baseline. International negotiations have resulted in general indicators, but how those are operationalized at each individual country level remains to be seen. I predict that a rough road lies ahead in

[278] Claude Ménard & Egizio Valceschini, *New institutions for governing the agri-food industry*, 32 EUR. REV. OF AGRIC. ECON. 421-440 (2005).
[279] *Id.* at 437.
[280] Cashore, *supra* note 105, at 504.
[281] Starobin, *supra* note 124, at 13.
[282] Mari Hatanaka, *et al.*, *Third-party certification in the global agrifood system*, 30 FOOD POL'Y 354, 356 (2005); Ewald Rametsteiner, *The role of governments in forest certification—a normative analysis based on new institutional economics theories*, 4 FOREST POL'Y AND ECON. 163, 167-173 (2001).

© 2010 by Joel Eisner. Not distributed without the permission of Joel Eisner

harmonizing approaches to measuring biofuels' sustainability, as has been the case with any agricultural or carbon commodity. If agreement cannot be reached, European standards will likely drive biofuels sustainability policy, as already has been seen in Brazilian standards development. The U.S. should not stand on the sidelines in the debate over biofuels sustainability, or it risks decreased access to European markets by its producers which in turn stunts domestic development of bioenergy enterprises. U.S. policy ambivalence also can deprive perennial biomass cropping of its beneficial sustainability voice in the "reset" of agro-environmental policy domestically that undoubtedly already is occurring through more aggressive application of environmental laws to agricultural practices.

(c) 2012, Jody Endres. No distribution without the permission of Jody Endres