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Legitimacy and Standard Development in Multi-stakeholder Initiatives: A Case Study of the Leonardo Academy's Sustainable Agriculture Standard Initiative

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Abstract. Non-state, market-driven forms of governance, especially those that use multi-stakeholder initiatives (MSIs), have become a prominent mechanism for regulating food and agriculture. While the standards generated by MSIs and their implementation have been studied widely, the internal practices of MSIs have received less attention. This article addresses this research gap using a case study of the Leonardo Academy's sustainable agriculture standard initiative. Specifically, the focus is on the relationship between the standard-development process and legitimacy. Using a framework that conceptualizes legitimacy in MSIs as consisting of three interrelated processes – input, procedural, and output – we examine: 1. how the practices of the standard-development process affect the legitimacy of the Leonardo Academy's sustainable agriculture standard initiative, and 2. how the quest for legitimacy affects the initiative. In conclusion, we contend that input, procedural, and output legitimacy may not always positively correlate, that legitimacy is best understood as relational, and that legitimacy in MSIs is performative.

Introduction

Non-state, market-driven (NSMD) forms of governance have become a prominent regulatory approach in the US food and agriculture sector. A distinguishing characteristic of NSMD governance is that it enables a variety of actors – from retailers to social movement organizations – to participate directly in the governance of food and agriculture, most notably through the development of standards. Increasingly, both conventional agricultural interests and proponents of alternative food and agriculture are using NSMD forms of governance to construct a US food and agricultural system that reflects their interests. Alternative agri-food activists turned largely to NSMD governance in an attempt to bypass uncooperative states. Industry organizations began to use NSMD governance to develop industry-to-industry standards and, more recently, in an effort to counter alternative agri-food initiatives (Fridell et al., 2008; Jaffee and Howard, 2010). Hence, NSMD governance is becoming an arena

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in which the differences between conventional and alternative food and agriculture are contested and negotiated (Hatanaka et al., 2012).

A key area of contestation that has emerged between proponents of conventional and alternative food and agriculture is sustainable agriculture. Currently, there are multiple efforts to develop sustainability metrics and/or standards for US agriculture using NSMD governance. One effort is the Leonardo Academy's sustainable agriculture multi-stakeholder initiative (MSI).[1] MSIs are a form of NSMD governance that seek to bring together representatives of all potentially affected actors, and use democratic, consensus-based, and transparent practices to develop standards (Tamm Hallström and Boström, 2010; Cheyns, 2011). Thus, compared to other forms of NSMD governance, which are often perceived as biased towards either social and/or environmental movement or industry interests, MSIs are considered to be more legitimate (Tamm Hallström and Boström, 2010; Cheyns, 2011).

While the standards produced by MSIs and their implementation have been widely studied, the internal practices of MSIs are understudied. For example, Djama et al. (2011, p. 188) note, 'most scholars interested in multi-stakeholder initiatives have shown a peculiar lack of interest in exploring concrete dimensions of governance and questions related to how it [governance] is operationalized'. This article addresses this gap in the research by examining the standard-development process of the Leonardo Academy's sustainable agriculture standard (LEO-4000) initiative. In doing so, we focus on a key challenge for NSMD governance – i.e. legitimation. Numerous observers point to legitimacy as a primary issue for NSMD governance organizations, which do not have 'authority' in the same way as governments do (Bernstein and Cashore, 2007; Tamm Hallström and Boström, 2010). Against this backdrop, we examine the ways that the need for legitimacy affects the standard-development process of the LEO-4000 initiative, and how the standard-development process affects the legitimacy of the initiative.

To accomplish these objectives, we draw on recent research on legitimacy and governance. Broadly defined, we conceptualize legitimacy as the relational process through which objects, processes, and practices gain credibility (Weber, 1978). This means that, first, legitimacy is an ongoing process that needs to be actively established and maintained (Tamm Hallström and Boström, 2010; Botzem and Dobusch, 2012; Brunsson et al., 2012). Second, legitimacy is a negotiated agreement. Third, understandings of what counts as legitimate may vary according to the standpoint of actors. To analyse the standard-development process of the LEO-4000 initiative, we use Tamm Hallström and Boström's (2010) three-part framework for assessing the legitimacy of NSMD standard development. Specifically, they divide legitimacy into three distinct, but interrelated processes: input, procedural, and output legitimacy. Input legitimacy refers to the inclusion and balance of stakeholders, procedural refers to the decision-making practices, and output refers to the extent to which the standard is endorsed. Generally, a positive relationship is assumed between input, procedural, and output legitimacy in that legitimacy in one process indicates legitimacy in the others.

The LEO-4000 initiative is an MSI that began in 2007 and held its first standards committee meeting in 2008. The initiative seeks to bring together all relevant actors, which includes actors throughout the supply chain, environmental and labour organizations, and scientific experts. As the Leonardo Academy is an American National Standards Institute (ANSI) accredited standard-development organization, it follows specific procedures to ensure democratic and transparent decision-making

in its standard-development process (American National Standards Institute, 2012). However, given the politicized character of sustainable agriculture, the process has been highly contested from the outset. Consequently, the LEO-4000 initiative is an ideal case study for examining the complex and dialectical relationship between the development of standards and legitimacy in MSIs.

The findings presented in this article are based on three sets of data. First, 17 in-depth interviews were conducted in 2011–2012. Interviewees include 11 current standard committee members, two observers, three ex-members, and one facilitator with the Leonardo Academy.[2] Interviews ranged from approximately 45 minutes to 3 hours and all except two were conducted in person. Interviews focused on two primary topics: how the standard-development process works and understandings of sustainable agriculture. Second, beginning in 2011, participant-observation has been undertaken at a variety of standard committee meetings – both face-to-face and virtual meetings. Lastly, content analysis of the Leonardo Academy's documentation of the LEO-4000 initiative, as well as press releases, letters, and media coverage related to the initiative, was conducted. Regarding documentation of the initiative, the Leonardo Academy makes meeting notes and motions, subcommittee reports, and meeting presentations publicly available on the Internet. Additionally, they have a publicly available wiki link that contains documents related to the LEO-4000 initiative. Using the Nvivo software programme, all three sets of data were, then, analysed using a combination of inductive and deductive codes and line-by-line analysis.

The remaining portions of the article are organized as follows. First, we review relevant literature on standard development, MSIs, and legitimacy. Second, we provide an overview of the LEO-4000 initiative to date. Third, drawing on Tamm Hallström and Boström's (2010) framework of input, procedural, and output legitimacy, we examine the relationship between the standard-development process and legitimacy in the LEO-4000 initiative. Specifically, the focus is on the complex character of establishing and maintaining legitimacy, and the contradictory relationships among input, procedural, and output legitimacy. In conclusion, we present three preliminary observations on standard development and legitimacy in MSIs. First, we contend that input, procedural, and output legitimacy may not always correlate positively. Second, we maintain that legitimacy is best understood as relational in that understandings of what counts as legitimate may vary according to the standpoint of actors. Lastly, we argue that legitimacy in MSIs is performative, as it continually has to be maintained.

Standards, Multi-stakeholder Initiatives and Legitimacy

NSMD governance has become a prominent mechanism for regulating food and agriculture (Higgins and Lawrence, 2005; Marsden et al., 2010; Busch, 2011). Typically, NSMD governance entails the development of standards by non-state actors and the oversight of the implementation of the standards by third-party bodies (Cashore et al., 2004; Hatanaka et al., 2005). In NSMD governance, standards tend to be developed through one of four processes (Djama et al., 2011). First, individual firms may develop their own private standards. This is often done in conjunction with suppliers. Standards for non-genetically modified foods tend to be developed in this way (Konefal and Busch, 2010). Second, industry associations can develop their own standards. This approach is found in aquaculture, where the Global Aquaculture Al-

liance has produced a set of best-practice standards. Third, non-governmental actors, such as certification bodies, can develop their own standards. In the US, multiple certification bodies have developed their own standards for sustainable agriculture (e.g. Food Alliance and Sure Harvest). Lastly, standards may be developed through MSIs. While standards for US agriculture continue to be developed through each of these processes, MSIs are rapidly becoming the norm.[3] This is largely because MSIs tend to be viewed as more legitimate than other forms of standard development, which are often viewed as biased towards particular interests (Tamm Hallström and Boström, 2010; Cheyns, 2011).

Unlike government regulations, which have legitimacy bestowed on them largely as a result of the authority of governments, NSMD governance initiatives have to actively develop and maintain legitimacy (Bernstein and Cashore, 2007; Tamm Hallström and Boström, 2010; Fuchs et al., 2011; Brunsson et al., 2012). Botzem and Dobusch (2012, p. 741) observe that, 'given the regulatory void at the transnational level, being legitimate is important in standardization processes as it signals "the rightfulness and appropriateness of authority" in bringing about political and social order setters'. In other words, establishing legitimacy is fundamental for NSMD governance organizations, as the degree to which they are able to do so significantly affects the adoption of standards.

Broadly defined, legitimacy is the processes by which objects and relations gain credibility (Weber, 2004). This takes places through making objects and relations consistent with the shared culture and practices of a given community (Johnson et al., 2006; Bernstein, 2011). Put differently, for a relation or object to be considered legitimate, it needs to be viewed as valid and credible, and also considered appropriate by a particular group (Johnson et al., 2006).[4] This means that for NSMD governance to be legitimate, stakeholders need to have confidence in it, and support and trust it. Specifically, first, stakeholders have to believe NSMD governance is a valid and credible mechanism. In other words, NSMD governance has to be thought of as fair, objective, accountable, and effective. Second, stakeholders need to view NSMD governance as an appropriate form of governance. That is, given current conditions (e.g. neo-liberalization and globalization) and/or the issue or problem being addressed, NSMD governance needs to be viewed as the best approach among stakeholders.

Over the last decade, there have been a number of innovations in NSMD governance aimed at increasing its legitimacy (Loconto and Busch, 2010). One such effort is the increasing use of MSIs to develop standards. Because of their structure and practices, MSIs have emerged as the most legitimate approach for developing standards in contemporary society. Specifically, MSIs seek to bring together stakeholder representatives from all areas potentially affected by the proposed standard, use democratic and transparent decision-making procedures, and often seek to develop standards by consensus (Tamm Hallström and Boström, 2010; Cheyns, 2011). Tamm Hallström and Boström (2010) note that the structure and practices of MSIs often lead to positive assumptions about them. That is, their inclusive, participatory, consensus-based practices are often assumed to lead to standards that are both democratic and effective. Hence, MSIs are increasingly recognized as the best approach for developing standards and consequently, their use is proliferating (Tamm Hallström and Boström, 2010; Cheyns, 2011). While the efficacy of MSIs is largely presumed, stakeholders and scholars sometimes question the degree to which particular standard-development initiatives meet the criteria of an MSI (Cheyns, 2011; Murphy and Yates, 2011).[5]

To assess whether standard-development initiatives fulfil the criteria of MSIs and thus are legitimate, existing studies examine a combination of who gets to participate, the balance of participants, decision-making processes, transparency, and/or the resultant standard (Tamm Hallström and Boström, 2010; Fuchs et al., 2011; Partzsch, 2011). Two frameworks have been developed specifically for analysing the legitimacy of MSIs. Tamm Hallström and Boström (2010) have developed a three-part framework that consists of input, procedural, and output legitimacy. Input legitimacy refers to the balance of stakeholders, procedural refers to the decision-making process, and output refers to the usefulness of the standard. Fuchs et al. (2011) have also formulated a three-part framework that examines participation, transparency, and accountability. In their framework, to be legitimate, a MSI needs to include all potentially affected actors, ensure all participants have access to information (i.e. internal transparency), be open to public scrutiny (i.e. external transparency), and both stakeholders and the initiative need to be subject to oversight to ensure accountability.

Both frameworks identify several characteristics MSIs have to exhibit if they are to be deemed legitimate. First, MSIs have to be inclusive and balanced in their representation of interests. Research indicates that having a diverse set of stakeholders participating in standard development facilitates information sharing, and increases the likelihood that the standard will be adopted (i.e. output legitimacy) (Brunsson et al., 2012; Van den Ende, 2012). Second, to be considered legitimate, MSIs must be participatory, transparent, and entail consensus-based decision-making.

Despite having much in common, the frameworks of Tamm Hallström and Boström (2010) and Fuchs et al. (2011) diverge in their treatment of output legitimacy. Whereas Tamm Hallström and Boström (2010) include output legitimacy in their framework, Fuchs et al. (2012) dismiss it as a useful measure. Specifically, Fuchs et al. (2012, p. 359) argue that evaluating output legitimacy is empirically difficult, as 'different stakeholders will tend to define different objectives, or even similar objectives differently'. While we agree with Fuchs et al. (2011) that output legitimacy is a negotiated outcome, we contend that this does not preclude output legitimacy from empirical assessment.[6] Thus, we concur with Tamm Hallström and Boström's (2010) notion that the resultant standards need to be adopted and endorsed by relevant stakeholders to be legitimate (i.e. output legitimacy). Consequently, while informed by both frameworks, our analysis draws explicitly on Tamm Hallström and Boström's (2010) framework, as it also allows for analysis of the degree to which the standard is adopted. Building on the above observations on legitimacy in MSIs, the remaining sections of the article examine the ways that the Leonardo Academy has sought to achieve and maintain legitimacy in its LEO-4000 initiative, and how this has affected the standard-development process.

Making the Standard: The LEO-4000 Initiative

This section provides an overview of the LEO-4000 initiative to date. First, the different understandings of sustainable agriculture that currently exist in US agriculture are briefly outlined. Second, a chronology of the LEO-4000 initiative to date is provided. The chronology focuses on the Leonardo Academy's efforts to comply with ANSI requirements for standard development, and points of contention that have occurred in the standard-development process.

Developing a national sustainable standard for US agriculture requires coordinating and bridging diverse understandings of agriculture and sustainability. As stakeholders in agriculture and sustainability (e.g. farmers, retailers, certifiers, environmentalist, and farmworkers) have different interests and concerns, their perspective on what constitutes sustainable agriculture varies significantly. For example, some actors envision sustainable agriculture as chemical free and thus, similar to organics. Others view sustainable agriculture as more encompassing in that it would include provisions on economic and social sustainability, which are not part of the US organic standard. And still others see sustainable agriculture as being a bridge between conventional and organic agriculture. Advocates of this position argue that sustainable agriculture should accept at least some chemical use, and be open to all technologies, including genetically modified organisms (GMOs).

Seeking to codify these different understandings on 'sustainability', various agricultural actors (e.g. input companies, farmers, processors, and retailers), social movement organizations (e.g. labour, and environmental organizations), and certifying bodies have begun to develop, often jointly, sustainable agriculture standards and/or metrics. Current efforts include the Leonardo Academy's LEO-4000, the Keystone Center's Field to Market initiative, the Stewardship Index for Specialty Crops, and the Sustainability Consortium. This article focuses on one of these efforts, the LEO-4000 initiative.

It was Scientific Certification Systems (SCS), a certifying body, that began the effort to develop a US sustainable agriculture standard. After developing a draft standard for sustainable agriculture (SCS-001), SCS asked the Leonardo Academy, which is a non-profit standard-development organization accredited by ANSI, to coordinate the process. In September 2007, the Leonardo Academy became officially responsible for managing the development of the standard and facilitating a MSI process.[7]

As an ANSI accredited process, the initiative has to adhere to certain guidelines for standard development, including committee membership and due process (American National Standards Institute, 2012). Regarding standard committee membership, the committee must include representatives of all potentially affected actors and balance different interests. Based on ANSI protocol, the Leonardo Academy issued a public call for applicants to serve on the standard-development committee. Potential participants included representatives from producers, industry, environmental organizations, certifiers, and academics. Based on applicants' qualifications as to their expertise, experiences, and the roles the applicants' organizations play in agriculture, the Leonardo Academy selected 58 committee members from diverse organizations and backgrounds. SCS, who initiated the whole process, applied and became one of the 58 committee members. Furthermore, observers are also allowed to attend and participate in standard committee meetings. Similar to committee members, there is an application process that interested parties must go through to become an observer. While observers do not have voting rights, they can participate in all meetings and comment on drafts of the standards.

However, before the first meeting of the standard-development committee, significant controversy arose regarding the initiative. In the winter of 2008, the Biotechnology Industry Association expressed concerns with the draft standard and the standard-development process in a letter to President of the Leonardo Academy, Mr. Michael Arny (Biotechnology Industry Association et al., 2008). First, as the draft standard was largely a beyond organic proposal, concern was expressed

that the standard from the outset excludes particular management practices and technologies. Second, the letter stated that the Leonardo Academy did not notify adequately all 'materially affected stakeholders' regarding the adoption of the draft standard (Biotechnology Industry Association et al., 2008, p. 2). In a letter, Mr. Arny responded that the draft standard was a 'placeholder document' and that all aspects of the standard were open to modification (Arny, 2008). In May 2008 and June 2008, the US Deputy Secretary of Agriculture, Mr. Charles F. Conner, expressed 'serious concerns' regarding the process in two letters to the Leonardo Academy. Similar to the letter from the Biotechnology Industry Association, concerns were raised as to the ways that sustainable agriculture was defined in the draft standard, and that such a narrow view of sustainable agriculture excludes 'modern biotechnology, synthetic fertilizers, or other technologies' that 'are well within sustainable agriculture as defined by the law' (Conner, 2008, p. 2). Subsequently on 11 and 12 September 2008, Mr. Lloyd Day, Administrator of the USDA/Agriculture Marketing Service, and Ms. Belinda Collins, Director of Technology Services in the Department of Commerce, sent letters to ANSI reiterating the concerns expressed earlier by the Biotechnology Industry Association and USDA and called for the Leonardo Academy to be de-accredited as an ANSI standards developer (Collins, 2008; Day, 2008). On 19 December 2008 the Leonardo Academy and the USDA presented their cases in front of the ANSI Standards Committee (Clapp, 2009), and on 13 January 2009 the committee denied the USDA claim (Caldes, 2009). However, ANSI did warn the Leonardo Academy to make sure that all stakeholders were sufficiently represented on its sustainable agriculture standard-development committee.

In the midst of the ongoing controversy between the Leonardo Academy, the Biotechnology Industry Association, and the USDA, the first standard committee meeting on the LEO-4000 standard was held on 25–26 September 2008. There were two primary agendas at this meeting. First, in response to the ongoing controversy, the bulk of the meeting was devoted to the SCS-001 draft standard and whether or not to set it aside. Given the concerns that many expressed, the committee voted, with two objections, to set aside SCS-001 and treat it as a reference document. The second key area of discussion was the purpose of the standard. Specifically, there were four points of contention: 1. what sustainability entailed, 2. whether such a standard was needed in the first place, 3. whether the standard would be a public or business-to-business standard, and 4. whether it was meant to be a standard with wide market adoption or a niche market standard. One important outcome of the first standard committee meeting was the establishment of task forces to begin to tackle these issues (Leonardo Academy, 2008).

Prior to the second standard committee meeting, the chairs and co-chairs of each of the task forces met on 21 January 2009 and 25 March 2009. At the 25 March meeting, the leaders of the task forces agreed on three recommendations to make to the standard committee at the upcoming May meeting. These were: 1. the standard should end at the farm gate, 2. the standard should initially be limited to crop production, and 3. the standard should be performance based. At the second annual standard committee meeting in May 2009, the three recommendations presented by the task force leaders were adopted. Furthermore, through a committee-wide discussion, the most contentious issues that the committee would need to overcome were identified. What they referred to as 'elephant issues' included:

- 'acceptability of various technologies in the standard (agrochemicals, fertilizer, biotechnology);

- coexistence between the existing agricultural systems (side-by-side conventional, organic and biotech crops);
- what constitutes valid scientific data, documentation and research?
- whose science is acceptable and whose is not?
- minimum thresholds for a sustainability scorecard/measurement' (Leonardo Academy, 2009b).

An important outcome of the second standard committee meeting was the establishment of seven subcommittees, which replaced the task forces and would take the lead on developing positions on each of the elephant issues. The first three were criteria development committees with a separate committee focused on economic, social, and environmental sustainability. Additionally, there were committees formed for reference library and information, structure and process of standard development, fundraising and communications, and an executive committee. The subcommittees were charged with 'taking a direct role in exploring key issues, developing draft criteria, and providing recommendations and guidance to the standard committee' (Leonardo Academy, 2012a). Membership of the subcommittees was open to all interested parties, and committee members and observers were expected to serve on one or more of the subcommittees.

Subcommittees were expected to meet monthly via teleconference to work on their tasks. At this point it was decided that the Leonardo Academy would increase the number of standard committee meetings to four per year: three via teleconference (about two hours) and one face-to-face (two days) where subcommittees would present their work for discussion and voting. Using this format, everybody on the standard committee would have the opportunity to comment on the draft standards and the work of the subcommittees. Thus, the idea was that through discussion, standard committee members would try to work out their differences and find middle ground, which all the stakeholders would eventually support. Once general consensus was reached, a vote would be held to formally move the process forward.

The third annual standard committee meeting was held at the University of Arkansas on 14–15 June 2010. The bulk of this meeting was devoted to subcommittee reports and discussion of them. The first day of the meeting largely entailed subcommittee reports, whereas the majority of the second day was devoted to discussion and voting on subcommittee deliverables. Several important deliverables were approved. First, a timeline for the development of the standard was approved, with the standard to be completed in October 2012. Second, guiding sustainability principles were approved for economic, social, and environmental criteria. However, for each of the three sets of principles the votes were quite close. Thus, while a majority of participants approved the guiding principles, there was significant disagreement among members of the standard committee. Lastly, there was discussion as to whether to make the standard a tiered standard with different levels of sustainability.

On 18 October 2010, 10 committee members representing conventional agriculture, including representatives from the National Corn Growers Association, the American Soybean Association, the American Farm Bureau, and the United Fresh Produce Association, sent a resignation letter to the Leonardo Academy and the media. Additionally, 46 national agriculture organizations – from the American Seed Trade Association to Washington State Potato Commission – co-signed the letter (Williams et al., 2010). In the letter they contended that the Leonardo Academy's process of standard development was 'biased against a balanced and open analysis

of modern agriculture'. In a press release, Mr. Arny of the Leonardo Academy responded that he and other officials of the Leonardo Academy were saddened by the organizations' resignation, but they were welcome to rejoin the process in the future (Leonardo Academy, 2010). On 28 October 2010, the Leonardo Academy issued a call for new members in the producer, user, and general interest categories. On 9 February 2011, three more committee members representing conventional agriculture resigned by sending a resignation letter to both Mr. Arny and the media (Greenhouse Grower, 2011). Similarly, in their resignation letter, they claimed that 'the current committee make-up and established process' would not 'lead to the intended outcome of a National Standard acceptable to agricultural businesses'. Additionally, they noted that other initiatives currently underway are likely to 'develop meaningful standards for our industry much faster' (Greenhouse Grower, 2011).

After the withdrawal of a substantial number of the committee members, work in the subcommittees largely came to a halt. The Leonardo Academy needed to refill the standard committee and reassign volunteers to serve on the different subcommittees. As one interviewee commented, 'when such a massive number of people resigned, it slowed down the process significantly'. By the next annual standard committee meeting in April 2011, seven new members were added to the standard committee. The April 2011 meeting was focused largely on 'reactivating the subcommittees', as another interviewee claimed. Since April 2011, the focus has been on filling vacant committee seats, and the subcommittees have focused on drafting the standard. A draft of the standard were presented at the fifth standard committee meeting in Washington DC in April 2012. Currently, the standard committee is revising the draft standard for release for public comment.

Legitimating Standards and Ensuring Legitimation: Analysis of LEO-4000

Drawing on Tamm Hallström and Boström's (2010) framework of input, procedural, and output legitimacy, the standard-development process of the LEO-4000 initiative is analysed in the sections below. Specifically, the representativeness and balance of the standard committee, the kinds of decision-making practices used, and the potential for the standard to be adopted are assessed. At the end of each subsection, we present some preliminary observations on standard-development and legitimacy in MSIs.

Input Legitimacy

At first glance, the Leonardo Academy's sustainable agriculture standard-development initiative appears to meet the requirements of input legitimacy. The LEO-4000 standard-development committee consists of members from four diverse categories: producer, user, environmental and general interest. As noted above, through a formal application process, the Leonardo Academy carefully selected an initial 58 representatives from a pool of nearly 200 applicants based on their experiences, skills, and credentials. As a result, the committee included representatives from 'a broad range of perspectives from across all areas of agriculture, including commodity producers, specialty crop producers, agricultural product processors and distributors, food retailers, environmental, labor, and development organizations, NGOs, industry trade associations, government representatives, academics, regulatory officials and certi-

fiers' (Leonardo Academy, 2012b). In particular, given the potentially contentious character of the standard, the Leonardo Academy paid close attention to balancing representatives from conventional and alternative agriculture on the committee.

However, analysis of the LEO-4000 standard-development process indicates that establishing and maintaining input legitimacy is more complex than ensuring balanced representation. First, at least in the case of the LEO-4000 initiative, committee membership has not been stable. Since the first standard committee meeting in September 2008, there have been several changes in the committee's membership. Most notable was the resignation of representatives of conventional agriculture in late 2010 and early 2011. When committee seats opened up, the Leonardo Academy advertised them and solicited new applications, and also tried to fill the vacancies from the pool of previous applicants who were not selected. However, while sometimes the Leonardo Academy has replaced departed members fairly quickly, other times filling vacated seats has taken considerable time. Furthermore, in some instances, committee members have not been replaced. For example, whereas the standard committee meetings in 2008 and 2009 had 59 and 58 members on the committee, as of early 2012 there were only 48 members on the committee (Leonardo Academy, 2012b). As the number of committee members fluctuates, the balance between stakeholder categories also varies. Thus, depending on the point in time at which the standard committee membership of LEO-4000 is assessed, it may have more or less input legitimacy.

The second factor that needs to be considered in assessing input legitimacy is the standpoint of actors. Research on MSIs indicates that not all actors always agree on what constitutes a balanced committee (Tamm Hallström and Boström, 2010; Brunsson et al., 2012). From the first standard committee meeting in 2008, the make-up of the committee was a contested point. Points of contention included whether or not all affected stakeholders were represented adequately, as well as the balance of stakeholders. For example, at the first standard committee meeting, Dr. A.J. Bussan from the Department of Horticulture at the University of Wisconsin noted on multiple occasions that key stakeholders were missing from the committee. Specifically, he maintained, 'many interest groups are not represented on the committee – animal agriculture and related fields' and asked 'how will we deal with this as a committee?' (Leonardo Academy, 2008). At the same time, Mr. Jonathan Kaplan from the National Resources Defense Council, countered that 'environmentalists feel underrepresented (less than 1 in 4). Probably more than half of [committee members] are already producers'. Thus, he expressed that he was 'leery of adding more producers' (Leonardo Academy, 2008).

The question of the balance of committee members has continued to be a key point of contention throughout the standard-development process. It came to a head with the resignation of the 13 committee members in 2010 and 2011. The initial 10 members who resigned, alleged that the LEO-4000 initiative was 'biased against a balanced and open analysis of modern agriculture' (Williams et al., 2010). Specifically, they stated:

> 'Mainstream agriculture has been given a decided minor voice in Leonardo Academy's process… Despite the Leonardo Academy's claim that the Committee is made up of members from "across all areas of agriculture," in reality the Committee is dominated by environmental groups, certification consultants, agro-ecology and organic farming proponents. These groups have neither the vision nor desire to speak for mainstream agriculture and

> the 95 percent of farmers who will be materially affected by any resulting standard' (Williams et al., 2010).

However, other committee members contested this interpretation of the committee membership, noting that it was well balanced. For example, one interviewee, commenting on the resignations, said, 'Well, it probably is a lot less balanced now, right?… Because they walked away. But I think it was pretty balanced before.' Additionally, in interviews, proponents of alternative agriculture noted that the 13 committee members resigned only after they narrowly lost votes on principles that defined sustainability in ways with which they disagreed. Hence, they argued that the members resigned because the initiative was advancing a notion of sustainability that they disagreed with. Thus, the interpretations of committee membership indicate that actors' social location affects their perception of a balanced committee.

Based on the case of LEO-4000, several preliminary observations regarding input legitimacy can be made. First, in highly politicized areas, such as sustainable agriculture, input legitimacy may not be possible. This is because what counts as balanced representation is subjective and thus, likely to vary significantly between representatives of conventional or alternative agriculture. Second, what constitutes a balanced committee is not a simply a technical practice, but also a political question. Put differently, establishing and maintaining input legitimacy entails not only selecting representatives, but convincing both committee members and interested parties that the representatives on the standard committee are both appropriate and balanced. Lastly, input legitimacy is a process that actors can contest in order to try to discredit and/or stop an MSI. Today, regardless of their standpoint, interviewees largely agree that the committee is not as balanced as it initially was. With the withdrawal of many of the representatives from conventional agriculture, the committee tends to favour advocates of alternative agriculture now.

Procedural Legitimacy

The LEO-4000 initiative *structurally* has procedural legitimacy in that the standard-development process is characterized by participatory, democratic, and transparent practices. First, regardless of the size or influence of the organization they represent, every committee member has an equal voting right (i.e. one vote). Second, committee members, as well as observers, can and are encouraged to serve on the subcommittees of their choice and participate in writing the standards. Third, the work conducted in each subcommittee is shared in the full committee meetings, where everyone has the opportunity to comment. Fourth, discussion is encouraged in order to try and reach consensus. Lastly, nearly all of the meeting minutes are publicly available, as they are posted on the Leonardo Academy's website.

A key aim of the practices of MSIs is generating agreement among the diverse participants. Whereas input legitimacy requires the inclusion of diverse stakeholders, procedural legitimacy is designed to facilitate cooperation and consensus among committee members. In other words, the procedures of MSIs are designed not to eliminate interests and politics, but to overcome them by developing middle-ground positions that a majority of participants can support. The outcome, then, is as one interviewee commented, 'some middle ground that people can agree is beneficial to both sets of interests, but maybe not perfect for either one'. Additionally, to help facilitate consensus, MSIs tend to require that positions be supported by science.

In joining the LEO-4000 initiative, most stakeholders had the intent of advancing their own interests. For example, one current committee member, in interviews, described the standard-development process as follows.

> '[In a MSI] you don't maintain neutrality... You argue your invested interest. You argue your position and then after arguing you have a discussion and you try to come to acceptable middle ground… It's really not about neutrality, it's about… working through a process. You are provided a neutral environment. It's facilitated by Leonardo… So, people are representing their organization… So they are wearing the hat of that organization. It's not value-neutral.'

Thus, on the one hand, there were representatives of conventional agriculture on the committee who would like the standard to allow for, at least, some chemical use, and be open to all technologies, including GMOs. Consequently, for such committee members a sustainable agriculture standard should focus more on quantitative measures, techniques, and technologies that lessen the negative impacts of agriculture. On the other hand, many advocates of alternative agriculture opposed to the inclusion of GMOs in the standard, and wanted to develop a standard that would set 'aspirational goals'.

As the LEO-4000 initiative progressed, the committee members largely divided themselves into three groups based on their interests and understanding of sustainable agriculture. First, there were proponents of conventional agriculture, most notably larger industry and producer groups (e.g. the Farm Bureau, National Corn Growers Association, and the American Soybean Association). Second, there were supporters of alternative agriculture that were represented by environmental groups, certifiers, and academics. Third, there were those actors who were neutral' in the sense that they were not aligned with either of the aforementioned groups. In the language of interviewees, 'a conventional agriculture perspective' claims that 'current agricultural practices can be labeled as sustainable' and 'believe that they can continue to farm the way they are farming now indefinitely'. In contrast, from the 'progressive agriculture perspective', current agricultural practices 'need to be changed to be sustainable'.

At the third standard committee meeting in Fayetteville, Arkansas in June 2010, the tensions between conventional and alternative agriculture came to a head. As indicated by interviewees, prior to the meeting, it became clear that the meeting would be crucial in determining the future direction and potential outcome of the LEO-4000 initiative. Formally, the primary concern was whether the proposed standard would take the form of a graduated standard with different levels of qualification or a yes/no standard with a single qualifying line. However, the underlying tension was whether or not GMOs would be allowed in the standard. Reflecting back on the meeting, one interviewee, who is aligned with alternative agriculture, commented, 'the issue that the Earthworms felt, and we were there to make sure it did not happen, was that the GMOs would be part of the basic definition of sustainable agriculture'.[8]

Prior to the Arkansas meeting, committee members representing both conventional and alternative agriculture were working to strengthen their positions. For example, prior to and at the meeting, both groups collectively strategized. One member, who was aligned with alternative agriculture, described their strategizing:

> 'There were a lot of emails back and forth [prior to the meeting] and we were very active… Some of the leaders of the Earthworm group… organized the LISTSERV and organized the group through this LISTSERV… The Earthworms, we, were all linked together through the whole process and as important things came up we could talk to each other on our laptops… and we could coordinate the voting.'

Thus, there was clearly collective action and mobilization being undertaken by committee members representing alternative agriculture. Similarly, one ex-committee member interviewee noted that conventional agriculture committee members were also collaborating. He commented that it became rapidly apparent that because the 'alternatives had banded together' the 'conventional agriculture people had no choice but to work together'.

While the votes on the sustainability principles at the Arkansas meeting were quite close, they tended to favour the positions of alternative agriculture. Several months after the meeting, first 10 and then three more committee members publicly resigned from the LEO-4000 initiative. One interviewee noted that they undertook what is referred to as 'best alternative to a negotiated agreement' (BANTA), which is a right that all participants have in MSIs. He further explained that, 'when you're in a multi-stakeholder negotiation… either side can decide at some point it's no longer in our interest to negotiate and we're going to walk away. It has just happened and the mainstream agriculture interests reached that point.'

Two general positions emerged with respect to the resignation of the committee members. On the one hand, the committee members who resigned, together with other representatives of conventional agriculture, justified the action by claiming that the committee was unbalanced and undemocratic, as representatives of alternative agriculture dominated the LEO-4000 standard-development process. For example, one interviewee who resigned from the process argued that the proponents of the alternative agriculture did not act in good faith at the Arkansas meeting. He stated,

> 'They [advocates of alternative agriculture] weren't, in my opinion, being open and transparent. They were trying to do things at the last second. And they had the votes to do it, so they waited patiently while everybody thought they were on board with a consensus. Then at the last second they just changed it [their position].'

As a result, he and other members decided to leave the initiative. On the other hand, many committee members and observers, including some who considered themselves neutral, viewed the resignation as 'a political move' to try and delegitimize the initiative. For example, several interviewees explained that after the meeting in Arkansas, 'they [the committee members who resigned] didn't communicate to the committee for four months'. The other committee members tried to set up the subcommittee meetings to continue to move the initiative forward; however, nobody, including Mr. Arny, could get hold of these committee members. 'Then without any warning, they all quit… with this… press release… It was completely orchestrated.' Hence, interviewees commented that the representatives from conventional agriculture were strategically using the media to construct the Leonardo Academy's sustainable agriculture initiative as biased and undemocratic.

Thus, whereas structurally the Leonardo Academy's standard-development process met the criteria for procedural legitimacy, in practice achieving and maintain-

ing procedural legitimacy has been difficult. Our findings indicate that, first, having procedural structure and rules in place did not always lead to practices that encouraged consensus building. Specifically, the procedures were not able to overcome the pre-existing differences that many of the committee members entered the process with. For example, one interviewee commented,

> 'I think it [the LEO-4000 initiative] has been democratic and transparent. But the problem with democracy is if you have a vote, and the vote is 27 to 25, the 27 win but the 25 are not happy. And a lot of them left. And that's the problem with democracy.'

Several interviewees affiliated with alternative agriculture commented that if the vote went the other way, and alternative agriculture lost, then there is a good chance that they would have resigned from the process. Additionally, several interviewees, who are affiliated with conventional agriculture, were critical of how consensus was defined in the initiative. Prior to the fourth annual meeting in 2011 in San Francisco – the first meeting after the mass resignations – a motion only needed a majority to pass.[9] On this, one ex-committee member commented, 'If you're going to say majority rules then say majority rules, don't say you're going to rule by consensus. That was a problem.' Thus, even if MSIs adhere to the practices of procedural legitimacy, this does not mean that they will be able to overcome pre-existing differences, especially in highly politicized areas such as sustainable agriculture.

Second, we found that, within the rules and procedures, there is significant space for politicking, maneuvering, and negotiating. Thus, as the standard-development process was highly politically laden, it became a battlefield among multiple stakeholders with diverse understandings of sustainability. Consequently, instead of being a forum to develop consensus, the standard-development process became a contested arena between two highly organized groups. For example, one interviewee described the process as 'everyone had their guns drawn' in that they were there to 'protect their own interests'. Hence, to channel the standard in the direction that each side viewed as appropriate, the various interests manoeuvred within and outside of the standard-development process. Lastly, similar to input legitimacy, standpoint affects assessment of the procedural legitimacy of the LEO-4000 initiative. Whereas some interviewees commented that the process has been very open, fair, and transparent, others have argued otherwise.

Output Legitimacy

The third type of legitimacy necessary for the successful development of standards in MSIs is output legitimacy. Output legitimacy refers to the standard being supported and adopted by relevant actors (Tamm Hallström and Boström, 2010; Botzem and Dobusch, 2012). In the case of the LEO-4000 initiative, this entails the standard being adopted by farmers and supported by processors, retailers, consumers, and social and environmental advocacy organizations. Put differently, to be legitimate the standard needs to have both market and moral authority (Tamm Hallström and Boström, 2010). Since the LEO-4000 standard is still being developed and is at a draft stage, the extent to which it achieves output legitimacy cannot be fully assessed. However, based on its input and procedural legitimacy to date, whether the LEO-4000 will have output legitimacy can be preliminarily examined.

As noted above, to maximize its input legitimacy, the Leonardo Academy sought to have broad participation on the standard committee of all potentially affected stakeholders. Research indicates that high input legitimacy often increases adoption of the standard in that it increases the applicability of the standard and enrols more potential adoptees of the standard (Botzem and Dobusch, 2012; Van den Ende, 2012). However, in the case of the LEO-4000 initiative, high input legitimacy, coupled with a breakdown in procedural legitimacy, may limit the output legitimacy of the standard. Specifically, in trying to maximize inclusiveness, the Leonardo Academy created a committee with diverse and, in many instances, conflicting understandings of what sustainable agriculture entails. Furthermore, the procedures were not able to lead to consensus on sustainable agriculture, as illustrated by 13 representatives of conventional agriculture having resigned from the committee. One outcome is that the standard committee now largely favours the views of advocates of alternative agriculture. Consequently, some committee members have expressed concern as to the effect this will potentially have on the resultant standard. For example, one interviewee commented that the resignation of the 13 committee members might 'permanently damage the process and… it [the initiative] may not be possible to come up with a national standard in sustainable agriculture through ANSI'. Hence, there is now concern that the resultant standard may not be perceived as legitimate because of a deficit of input and procedural legitimacy.

Additionally, with the resignation of the 13 committee members, the initiative has lost many of the key actors that could facilitate the adoption of the standard. Research indicates that networks and relationships are important for facilitating the adoption of standards (Van den Ende, 2012). Thus, without having committee members who represent conventional agriculture, which continues to constitute the overwhelming majority of US food and agriculture, the LEO-4000 standard is at a disadvantage in the marketplace. For example, when asked about the impact of the potential LEO-4000 standard, actors from conventional agriculture responded that it would be either a 'niche' standard or 'irrelevant'.

The resignation of the 13 committee members also raises questions as to the relationship between input and output legitimacy. Indeed, it is generally presumed that the more diverse stakeholders are involved in the standard-development process the more legitimacy an MSI has. Thus, ideally, MSIs should try to maximize their diversity of stakeholders. However, often not taken into consideration is that diverse stakeholder involvement also means that the resultant standard is likely to be less rigorous in terms of sustainability and ethics. For example, on this point, one interviewee commented,

> 'If it [the standard] were written in a way that could have included all those major field crop operations, then the standards would have necessarily been weaker in order to accommodate them. So… you have to do the math: weaker standards over greater acres versus stronger standards over smaller acres. Which is better for the environment? I don't know whether there is a conclusive answer to that.'

Thus, the LEO-4000 initiative points to a conundrum faced by MSIs. Specifically, how is output legitimacy maximized – through stringent standards that have lower rates of adoption, or weaker standards that have higher rates of adoption? Furthermore, if the standard leans too far on one side or the other, it faces undermining its

output legitimacy. In short, the LEO-4000 initiative raises the question of whether a 'legitimate' standard that is also stringent can be developed through MSIs.

Conclusion

MSIs are becoming an increasingly prevalent form of NSMD governance in food and agriculture. This article has examined the LEO-4000 initiative to assess the relationship between standard-development processes and legitimacy in MSIs. While ensuring legitimacy is a key task of MSIs, our case study of the LEO-4000 initiative indicates that this can be a complex and difficult process. Building on our analysis of the LEO-4000 initiative, in conclusion, we present three preliminary observations on legitimacy and developing standards.

First, whereas the prevailing position is that there are positive synergies between input, procedural, and output legitimacy, our findings indicate that this may not always be the case. Most notable is that a high level of input legitimacy may negatively impact procedural and output legitimacy. Specifically, in maximizing input legitimacy, the Leonardo Academy created a standard committee that was too diverse and divided to generate consensus. As a result, the standard-development process became a battleground between conventional and alternative agriculture, where each side used various strategies to try and advance their position. Additionally, as many representatives of conventional agriculture have resigned, the standard-development process now has less input legitimacy, but may have more procedural legitimacy in that it has become more cooperative and efficient. Nevertheless, given the controversies with respect to both input and procedural legitimacy, the output legitimacy of the potential standard is in question.

Second, we contend that legitimacy is relational. By this, we mean that the standpoint of a given actor or group affects how they view a MSI and the degree to which it is a legitimate. Unlike most 'technical' standards that have a single audience, 'social' standards, such as sustainability standards for agriculture, have multiple audiences (Murphy and Yates, 2011). This means that MSIs for social standards have to convince multiple audiences of their credibility. As the case study of the LEO-4000 initiative illustrates, this can be difficult in situations where there is significant variation in interests and perspectives. This raises questions as to the ability of MSIs to make standards that are legitimate, in the sense of broad and balanced participation, democratic- and consensus-based practices, and significant adoption, in areas that are politicized.

Lastly, our findings on the LEO-4000 initiative support other studies that conceptualize legitimacy as fragile for MSIs (Tamm Hallström and Boström, 2010; Botzem and Dobusch, 2012; Brunsson et al., 2012). As the LEO-4000 case demonstrates, legitimacy is an ongoing process, and the possibility of delegitimization is always present. Hence, borrowing from science and technology studies, we suggest that legitimacy in MSIs is performative. That is, legitimacy for MSIs is best understood as 'webs of relations [that] only hold if they are enacted, enacted again, and enacted yet again' (Law, 2008, p. 635). This means achieving and maintaining legitimacy entails constructing and stabilizing networks both internally (i.e. among the committee members) and externally (i.e. the larger networks that committee members are part of). We contend that such an understanding of legitimacy raises questions regarding whether the quest for legitimacy may overtake the objective of MSIs. In other words, given the current structure of NSMD governance, there is a danger that

enacting legitimacy may become primary objective of MSIs, and the actual content of the standards may become secondary. Given the above findings, we contend a dialectical perspective best captures the complex relations between legitimation and standard development in MSIs.

Notes

1. Other initiatives include the Field to Market Initiative, the Stewardship index for Specialty Crops, and the Sustainability Consortium.
2. One interviewee was with an organization that resigned from the LEO-4000 standard-development committee, but was not the actual person who resigned. Instead, the interviewee was the person in charge of sustainability for that organization.
3. This also seems to be the case globally, where MSIs are being used to develop many global standards. Prominent global examples include the Aquaculture Dialogues, Round Table for Responsible Soy, and the Roundtable on Sustainable Palm Oil.
4. What counts as appropriate is subjective and can entail any number of criteria, such as efficiency or democracy. Consequently, how actors or groups define what is 'appropriate' may vary.
5. For example, there has been debate as to whether small producers have been sufficiently included in the Roundtable on Sustainable Palm Oil and the Round Table for Responsible Soy (Cheyns, 2011).
6. Additionally, in making such a distinction between output legitimacy and the components of their framework, we contend that Fuchs et al. (2011) reify participation, transparency, and accountability. As our findings indicate, these are also negotiated outcomes and not objective criteria. This is a point on which we elaborate in the conclusion.
7. ANSI has two routes for initiating the standard-development process: 1. draft standards for trial use (DSFTU) and 2. project identification numbering systems (PINS). The DSFTU starts with a draft standard, whereas the PINS option does not begin with a pre-established draft standard. Given that SCS had developed a draft standard, the Leonardo Academy initiated a DSFTU process.
8. Over the course of the standard-development process, the proponents of the alternative agriculture on the standard committee began to call themselves the 'Earthworms' to distinguish themselves from other committee members.
9. At the San Francisco meeting, the guidelines were revised from 50% to 60% of the present members of the standard committee for a motion to be passed.

References

American National Standards Institute (2012) *ANSI Essential Requirements: Due Process Requirements for American National Standards*. New York: American National Standards Institute.

Arny, M. (2008) *Response to Procedural Complaint: National Sustainable Agriculture Product Standard: SCS-001*, Letter to Jane Earley, Earley and White Consulting Group, LLC and the Conventional Agriculture Associations. Leonardo Academy, 25 February. Published online <http://www.leonardoacademy.org/projects/SustainAgStdDevelopment.htm>, accessed 20 April 2009.

Bernstein, S. (2011) Legitimacy in intergovernmental and non-state global governance, *Review of International Political Economy*, 18(1), pp. 17–51.

Bernstein, S. and Cashore, B. (2007) Can non-state global governance be legitimate? An analytical framework, *Regulation and Governance*, 1, pp 347–371.

Biotechnology Industry Association et al. (2008) *Letter to Michael Arny, President of Leonardo Academy*. Published online <http://www.leonardoacademy.org/projects/SustainAgStdDevelopment.htm>, accessed 20 April 2009.

Botzem, S. and Dobusch, L. (2012) Standardization cycles: a process perspective on the formation and diffusion of transnational standards, *Organization Studies*, 33(5–6), pp. 737–762.

Brunsson, N., Rasche, A. and Seidl, D. (2012) The Dynamics of standardization: three perspectives on standards in organization studies, *Organization Studies*, 33(5–6), pp. 613–632.

Busch, L. (2011) The private governance of food: equitable exchange or bizarre bazaar?, *Agriculture and Human Values*, 28(3), pp. 345–352.

Caldes, A. (2009) *ANSI Executive Standards Council: Summary Decisions*. Published online <http://www.leonardoacadcemy.org/projects/SustainAgStdDevelopment.htm>, accessed 20 April 2009.

Cashore, B., Auld, G. and Newsom, D. (2004) *Governing through Markets: Forest Certification and the Emergence of Non-state Authority*. New Haven, CT: Yale University Press.

Clapp, S. (2009) USDA fails to derail ANSI sustainable ag standard, *Food Chemical News*, 50(48), pp. 17–18.
Collins, B.L. (2008) *In Support of the USDA/AMS Appeals Letter*, letter to Anne Caldas, ANSI, 12 September. Published online <http://www. leonardoacademy.org/projects/SustainAgStdDevelopment.htm>, accessed 20 April 2009.
Conner, C. (2008) *Expressing Concerns over ANSI Standards Process, Methodology, and Contents*, letter to Michael Arny, President of the Leonardo Academy, 6 June. Published online <http://www.leonardo academy.org/projects/SustainAgStdDevelopment.htm>, accessed 20 April 2009.
Cheyns, E. (2011) Multi-stakeholder iniatives for sustainable agriculture: limits of the 'inclusiveness' paradigm, in: S. Ponte, P. Gibbons and J. Vestergaard (eds) *Governing through Standards: Origins, Drivers and Limitations*. New York: Palgrave Macmillan, pp. 210–235.
Day, L. (2008) *Request for Leonardo Academy ANSI Accreditation to Be Revoked*, letter to Anne Caldas, ANSI, 11 September. Published online <http://www.leonardoacademy.org/projects/SustainAgStdDevelop ment.htm>, accessed 20 April 2009.
Djama, M., Fouilleux, E. and Vagneron, I. (2011) Standard-setting, certifying and benchmarking: a governmentality approach to sustainability standards in the agro-food sector, in: S. Ponte, P. Gibbons and J. Vestergaard (eds) *Governing through Standards: Origins, Drivers and Limitations*. New York: Palgrave Macmillan, pp. 184–209.
Ende, J. van den, Kaa, G., van de, Uijl, S. den and Vries, H.J. de (2012) The paradox of standard flexibility: the effects of co-evolution between standard and interorganizational network, *Organization Studies*, 33(5–6), pp. 705–736.
Fridell, M., Hudson, I. and Hudson, M. (2008) With friends like these: the corporate response to fair trade coffee, *Review of International Political Economy*, 40, pp. 8–34.
Fuchs, D., Kalfagianni, A. and Havinga, T. (2011) Actors in private food governance: the legitimacy of retail standards and mutlistakeholder initiatives with civil society participation, *Agriculture and Human Values*, 28(3), pp. 353–367.
Greenhouse Grower (2011) *Industry Leaders Resign from ANSI Committees*. Published online <http://www .greenhousegrower.com/article/4113>, accessed 9 March 2012.
Hatanaka, M., Bain, C. and Busch, L. (2005) Third-party certification in the global agrifood system: causes and consequences, *Food Policy*, 30 (3), pp. 354–369.
Hatanaka, M., Konefal, J. and Constance, D.H. (2012) A tripartite standards regime analysis of the contested development of a sustainable agriculture standard, *Agriculture and Human Values*, 29, pp. 65–78.
Higgins, V. and Lawrence, G. (2005) Introduction: globalization and agricultural governance, in: V. Higgins and G. Lawrence (eds) *Agricultural Governance: Globalization and the New Politics of Regulation*. New York: Routledge, pp. 1–15.
Jaffee, D. and Howard, P.H. (2010) Corporate cooptation of organic and fair trade standards, *Agriculture and Human Values*, 27, pp. 387–399.
Johnson, C., Dowd, T.J. and Ridgeway, C.L. (2006) Legitimacy as a social process, *Annual Review of Sociology*, 32, pp. 53–78.
Konefal, J. and Busch, L. (2010) Markets of multitudes: how biotechnologies are standardising and differentiating corn and soybean, *Sociologia Ruralis*, 50, pp. 409–427.
Law, J. (2008) On sociology and STS, *Sociological Review*, 56, pp. 623–649.
Leonardo Academy (2008) *National Sustainable Agriculture Standard Standards Committee Meeting Notes*. Published online <https://sites.google.com/site/sustainableagstandards/sept-2008-standards-com mittee-meeting>, accessed 9 March 2012.
Leonardo Academy (2009a) *National Sustainable Agriculture Standard Standards Committee Officer and Task Force Chair/Co-Chair Meeting Notes*. Published online <https://sites.google.com/site/sustainableag standards/taskforces>, accessed 9 March 2012.
Leonardo Academy (2009b) *National Sustainable Agriculture Standard Standards Committee Meeting Notes*. Published online <https://sites.google.com/site/sustainableagstandards/may-2009-standards-com mittee-meeting>, accessed 9 March 2012.
Leonardo Academy (2010) *Development Continues: Leonardo Academy Responds to Recent Resignations and Welcomes Participation from All Stakeholders*, Press Release. Published online <http://www.leonardo academy.org/newsandevents/press-release/369-national-sustainable-agriculture-standard-develop ment-update.html>, accessed 9 March 2012.
Leonardo Academy (2012a) *Subcommittees – General Information*. Published online <https://sites.google .com/site/sustainableagstandards/subcommittees>, accessed 9 March 2012.
Leonardo Academy (2012b) *Standards Committee Members*. Published online <https://sites.google.com /site/sustainableagstandards/standards-committee-members-1>, accessed 9 March 2012.
Loconto, A. and Busch, L. (2010) Standards, techno-economic networks, and playing fields: performing the global market economy, *Review of International Political Economy*, 17(3), pp. 507–536.

Marsden, T., Lee, R., Flynn, A. and Thankappan, S. (2010) *The New Regulation and Governance of Food: Beyond the Food Crisis?* New York: Routledge.

Murphy, C.N. and Yates, J. (2011) ISO 26000, alternative standards, and the 'social movement engineers' involved with standard setting, in: S. Ponte, P. Gibbon and J. Vestergaard (eds) *Governing through Standards: Origins, Drivers and Limitations*. New York: Palgrave Macmillan, pp. 159–183.

Partzsch, L. (2011) The legitimacy of biofuel certification, *Agriculture and Human Values*, 28, pp. 413–425.

Tamm Hallström, K. and Boström, M. (2010) *Transnational Multi-Stakeholder Standardization*. Northampton, MA: Edward Elgar.

Weber, M. (1978) *Economy and Society*. Berkeley, CA: University of California Press.

Williams, R., Allan, J.T., Moore, R., Peterson, B., Thorne, J., Johnson, D.B., Barach, J., McCauley, K., Norman, B.M. and Guenther, R. (2010) *Resignation Letter*, Letter to Mr. Arny, 18 October. Published online <http://www.bio.org/sites/default/files/Resignation_Letter_of_Ag_Leonardo_Academy.pdf>, accessed 9 March 2012.