NICHOLAS SCHOOL OF THE ENVIRONMENT

Defining Green

Lessons Learned from Eco-labelling in the Consumer Goods Industry

Alexandra Michalko, MEM Candidate

4/21/2010

Masters project submitted in partial fulfillment of the requirements for the Master of Environmental Management degree in the Nicholas School of the Environment of Duke University

"You are making a difference."™
- Back label of Seventh Generation's Natural Dish Liquid bottle

Table of Contents

Abstract

In recent years, companies have been under increasing pressure to communicate their sustainability performance to interested stakeholders. Reliable metrics and third-party validation in particular play an important role in the effort to quantify a company's impact on the environments and communities in which it operates. This increasing focus on corporate environmental and social performance has led to a proliferation of ecolabels, but there are currently no comprehensive efforts to assess best practices in labeling. I conducted research to

understand the current landscape of consumer goods ecolabels by creating a framework of success across the dimensions of market and field, analyzing survey data, and performing case studies. I discussed emerging best practices and lessons learned and made recommendations for how we can better design labels in the future. I conclude by identifying the implications of my research findings for ecolabels design and highlighting areas requiring further research.

Introduction

In recent years, companies have been under increasing pressure to communicate their sustainability performance to interested stakeholders. Reliable metrics and third-party validation in particular play an important role in the effort to quantify a company's impact on the environments and communities in which it operates. This increasing focus on corporate environmental and social performance has led to a proliferation of sustainability measurement systems, including standards, codes, labels, indices, and certifications.[1] Although ratings agencies have developed a multitude of eco-labels[2], there are currently no comprehensive efforts to assess the best practices that have emerged in labeling. I conducted research to understand the current landscape of consumer goods ecolabels in the food and beverage category, perform case studies of several widely adopted ecolabels, draw lessons learned from the last twenty years of experience with these labels, and make recommendations for how we can better design them in the future.

[1] A note of terminology clarification: for the purposes of my research, "certification" refers to a broad set of mechanisms for making sustainability performance transparent. Eco-labels, defined below, are a subset of certifications.

[2] Using Ecolabelling.org's working definition of an eco-label: "any consumer facing logo that claims an added environmental or social benefit"

Objective

The objectives of my research are twofold. First, I will assess the current landscape of eco-labels. I will accomplish this through conducting a literature review, performing data analysis of a survey of eco-labelling organizations, and compiling case studies of several individual ecolabels in one industry. I will use the following selection criteria in identifying eco-labels to profile. In order to qualify, the label must be:

- Specific to consumer goods in the food and beverage industry, not just processes or companies (ie. the labels will include certifications on product packaging, but not inclusion in indices)
- Adopted in North America
- Currently in use on products sold in Walmart and other major retailers
- Widespread – at least 1,000 products worldwide carry the eco-label

In my analysis, I will address the following questions:

- What is the current state of eco-labelling? How many labels are there, what do they measure, and how much traction have they gained in the marketplace?
- Are eco-labels successful on the ground and in the field? Do they have a measurable impact on the environment?
- What is the governance of the prominent eco-labelling systems?

Second, I will use the results of my analysis to assess best practices in eco-label design and to develop a set of recommendations to improve the effectiveness and value of future efforts to

certify the sustainability of consumer goods. My research in this area will address or further refine the following research questions:

- How do executives use eco-labels and certifications in product and brand development and management?
- What do we know about how consumers currently interact with eco-labels?
- What are the sales trends for products with eco-labels compared to those without?
- How might government-sponsored, corporate, and independent labeling and certification systems be better aligned?
- What strategies and institutions might improve the effectiveness and credibility of green labels and standards and better educate the general public?

Materials and Methods

The data source for my analysis will be Ecolabelling.org's survey of eco-labellers. Ecolabelling.org is a non-profit web platform that catalogs existing eco-labels and provides information to educate companies and consumers about eco-labels. The Ecolabelling.org survey was developed in collaboration with the World Resources Institute and Duke University's Corporate Sustainability Initiative and was sent to 340 labellers from over 42 countries. The survey was sent to participants in November 2009 with a January 2010 completion deadline. Initial contact for this survey was made by email. Follow-up with survey participants was made by phone. Attempts were made to contact all 340 labels, but of this number only approximately 220 could be reached directly. Of these 220, approximately 127 ecolabels completed the survey, for a 37.35% response rate. Approximately 35 labels (10% of the total) declined to participate,

either directly or indirectly. 130 labels (38% of the total) could not be reached. 48 labels (15% of the total) started the survey but did not complete it, sometimes due to issues such as staff turnover.

In my research, I aim to provide insights about best practices in eco-label design. In order to identify best practices, it will be necessary to broadly categorize eco-labels according to their success across two key dimensions: the marketplace and the field. The first of these dimensions (marketplace) is consumer-driven, as it relates to an eco-label's ability to appeal to consumers. The second dimension (field) is company-driven, as it relates to the eco-label's ability to cause on-the-ground change in producers' behavior. In order for an eco-label to be effective, I believe it needs to be successful both in the marketplace (measured through indicators such as number of products certified or ability to command a price premium) and in the field (measured through demonstrated environmental or social impact). Eco-labels may have varying degrees of success along these metrics but can be generally divided into four quadrants (see Figure 1).

Figure 1. Marketplace vs. field success framework: a perceptual map of the relative success of ecolabels across two dimensions – on-the-ground ecological impact and marketplace penetration.

Eco-labels that succeed in gaining market share and are able to demonstrate positive social or environmental impact are "winners." Those that are popular with consumers but have little to no demonstrated impact are "greenwashers," while those that have proven positive environmental results but little market penetration are "wallflowers." The final category, "weeds," are those eco-labels that have failed in both dimensions. It is worth noting that any new player to the market would almost certainly fall into the weeds category, so this framework is best applied to eco-labels that have been in existence for some time. The labels I have chosen for case studies have all existed for at least eight years. I will evaluate emerging best practices in eco-labeling by using the above framework of key dimensions of success

Literature Review

Introduction

Since their emergence in the 1970's, ecolabels have expanded rapidly in number, diversity, and popularity. At present, there are over 300 ecolabels, according to cataloguer Ecolabelling.org. Competition between labels carries benefits and pitfalls – it can raise the bar on performance, but it also tends to create confusion among consumers, who are left wondering whether organic trumps local, whether recycled or recyclable matters more. To date, there has been limited research on ecolabel design, and very little is known about what drivers affect a label's market penetration and associated product sales. Gallastegui writes that "the literature on the topic is relatively scarce and mainly descriptive, and lacks a systematic analysis of the problems" (Gallastegui, 2002)

As with any emerging industry, there will be "inefficiencies arising from poor coordination, duplicative activity, and confusion over language." (Olsen & Galimidi, 2008) A study by the Social Venture Technology Group on approaches to impact measurement in private ventures found that "there is not one single measurement answer. Instead the answer depends on what solution is most appropriate for a particular investor's 'impact profile' defined as the investor's level of risk tolerance and desired financial return, the particular sector in which the investor operates, geography, and credibility level of information about impact that the investor requires." (Olsen & Galimidi, 2008)

Current Ecolabel Landscape: Using an environmental rather than social lens

The landscape of sustainability labels is dominated by environmental as opposed to social metrics. This is consistent with the content of supply chain management literature research, which also still favors environmental issues. As Seuring and Muller write, "social aspects and also the integration of the three dimensions of sustainability are still rare." (Seuring & Muller, From a literature review to a conceptual framework for sustainable supply chain management, 2008) This is perhaps "due to the great variety and diversity of social aspects and the lack of a common foundation in natural sciences as found for environmental aspects it is very difficult to achieve a comprehensive classification of social aspects." (Figge, Hahn, Schaltegger, & Wagner, 2002)

In a separate article, Seuring and Muller point to the notable lack of publications relating to the social aspects of integrated supply chain management and say that this "will be one of the challenges for future research." (Seuring & Muller, Integrated chain management in Germany - Identifying schools of thought based on a literature review, 2007)

External Influences: Competitive and regulatory implications

Although the ecolabels market has been growing rapidly over the last few decades, it is unclear what the trend will be going forward. Kim and Mauborgne argue that the shared set of intra-industry beliefs about customer identity and values has resulted in competitive convergence. Many companies have centered their efforts on improving their competitive positioning within their industry, when they should be striving to create new market space altogether. Successful companies recognize that "profitable growth is not sustainable without creating and re-creating markets." (Kim & Mauborgne, 1999) Of course, not any market will do. In order for trends to

have the potential to create a new value curve, they must be "decisive to your business, they must be irreversible, and they must have a clear trajectory." Sustainability is arguably decisive to business and irreversible, but the lack of clear regulations governing environmental impact reporting and emission reduction requirements has meant that the trajectory is unclear.

One argument in favor of increased government oversight of labeling organizations is that "everybody wants to do the right thing, but no one quite knows how because there is no particular standard. You're only as good as the organization certifying." (Sustainability: The Journal of Record, 2008) Regardless of whether or not the Federal Trade Commission becomes involved in regulating environmental claims, "more integrative contributions are needed in the longer term, including intra- and inter-firm diffusion of best practices, green technology transfer and environmental performance measurement." (Srivastava, 2007)

Green Consumerism: Fact or Fiction?

Some manufacturers argue that the green consumer doesn't really exist – that customers might say they are willing to pay more for environmentally-friendly products, but that when it comes time to pay at the register, the price premium on eco-friendly goods mean they rarely make the cut. Gallastegui accounts for the gap between what consumers say they are willing to pay and what they really pay by reasoning that "consumers are skeptical about environmental claims due to the unverified and misleading claims often used." (Gallastegui, 2002) The implication is that accurate ecolabels can "enhance trust in environmental claims," improve information symmetry

between producer and consumer, and ultimately elevate actual payment levels to meet stated willingness-to-pay.

For the conscious consumer, environmental performance should be a necessary but not sufficient condition for purchase. After all, as Ottoman writes, because "one buys a laundry detergent to get clothes clean, not to save the planet […] a product which fails to measure up to consumers' needs and expectations, however good its eco-performance, will not succeed in the market place." (Ottoman, 1992)

An interesting consideration that Gallestegui raises is the effect of social pressure on consumer choice patterns. Ecolabels do not impact purchasing decisions equally across product categories. Four variables in particular determine consumption practices when it comes to buying green: purchase visibility, consumption visibility, durability, and perishability. Ecolabels matter more for nondurable, frequently used, and highly visible consumer goods. (Gallastegui, 2002) So being an environmentally responsible soft drink producer should carry more of a competitive advantage than being an ecofriendly insulation manufacturer.

The Role of the Retailer

Retailers, acting as mega consumers, have a powerful role to play in the future of ecolabeling. Walmart's decision to include sustainability in its merchandising calculus has made headlines around the world, and new consulting firms have been created with the express purpose of advising Walmart suppliers on how to respond to the challenge. Seuring and Miller reason that

the introduction of sustainability-focused supplier evaluation schemes has a double aim: "the first objective is to avoid related risk […] the second one is to improve the overall supply chain performance." (Seuring & Muller, From a literature review to a conceptual framework for sustainable supply chain management, 2008)

Challenges in Ecolabel Design

Ecolabeling suffers from a variety of weaknesses. Among the potential pitfalls identified by Gallastegui are "the lack of objectivity in setting the criteria, the difficulty of setting product category boundaries since no two goods are perfect substitutes for one another, […] the arbitrariness of the process of selecting and updating criteria, […] the lack of estimated demands for labeled goods, the lack of real rewards for environmental improvements, […] and the shortness of the validity period of the label before its revision." (Gallastegui, 2002)

Teisl et al. found that consumers' perceptions of the eco-friendliness of a durable good (such as a car) is primarily driven by comparisons between goods in the same category. The implication for non-durable goods is that ratings should, at a minimum, compare products that are functionally equivalent.

Stu Hart writes that "companies must become educators rather than mere marketers of products." (Hart, 1997) Labels should be informative, rather than simply exclamatory. But there are tradeoffs. Atlee and Kirchain argue that in developing impact metrics that are useful, feasible, and robust, primary consideration should be given to the balance between information value and

cost. They suggest that "developers of reporting requirements and metrics must be cognizant of data collection difficulties and the ratio of informative value to data collection expense." (Atlee & Kirchain, 2006)

A Social Venture Technology Group study found that "a key dichotomy within ongoing performance tracking and improvement is whether the methodology actually measures the real outcomes or impacts that result from the… company's work, or tracks leading indicators, or proxies, of impact." In their stages of impact assessment framework, Olsen and Galimidi also draw distinctions between implied impact ("we believe it works"), proven impact (i.e. "we can predict our impact using proxies"), and optimized impact (i.e. "we assess our proven impact and its interrelationship with financial performance"). Olsen and Galimidi highlight the importance of not only the content, but also the accessibility of the information gathered in ecolabelling certification programs. They write that "the value of an organization's impact measurement efforts increases exponentially when the results can be easily found, understood and related to by others" and suggest that information design presents "one of the great emerging opportunities in the field of impact measurement." In creating a standard information design protocol, it will be important to improve both "access to information, and ease of use of the information itself." (Olsen & Galimidi, 2008)

Creating Value from Information

Ultimately, the goal is not to increase the volume of information but to help consumers make more informed decisions. Teisl et al. state that "the effectiveness of an eco-label is influenced by

the way the information is presented *and* by the capacity of the consumer to absorb and act on it." (Teisl, Rubin, & Noblet, 2008) There are conflicting views as to whether more information is better. When consumers are able to distinguish between competing products based on key environmental performance attributes, a label is more effective (Lee & Geistfeld, 1998). More information can improve the perceived credibility of a label (Teisl M. F., 2003), but too much information creates an overload that confuses consumers. This confusion extends to the practice of ecolabelling as well. A UK study found that consumers "perceived the information with respect to the fair trade issue and fair trade products as too scarce, not widely available enough, uncontrollable, unprofessional and incredible if not justified." (De Pelsmacker & Janssens, 2007)

As McGovern writes, "we cannot judge information on the fact that it physically exists in some content form. We must judge it on the results it delivers. To understand what the results should be we must first understand the tasks of the people this information is intended for." He emphasizes the importance of managing the task rather than the content or the technology by relating the story of a woman who manages a health website. The woman claims that task success did not apply to her website, which was just a repository of information. McGovern counters, "let's say I have a rash on my hand. If I go to a health website, I'm not looking for information. I'm looking to get rid of the rash." (McGovern, 2009) As noted marketing consultant Marshall writes, "nobody who bought a drill every really wanted a drill. They wanted a hole. Therefore, if you want to sell drills, you should deliver information about making holes, not about drills!" (Marshall, 2010) In the case of ecolabels, what consumers want is to make responsible purchases, not to be inundated with data about greenhouse gas emissions.

The particular challenge with ecolabels, though, according to Chatterji and Levine, is that "the metrics that are easiest to report are not always the most informative." (Chatterji & Levine, 2006) What labeling organizations must do, they argue, is make a greater effort to communicate relevant information, rather than simply more information to consumers at the point of sale.

Information matters on the manufacturing side, too. But "reporting is just the first step – there is no point in reporting if it does not influence management such that actual environmental impacts are minimized, and social and human factors are valued." (Vaccaro, 2009)

The Role of Business

Manufacturers stand to gain from their involvement with ecolabelling programs. The Rainforest Alliance conducted a study to analyze the changes that SmartWood, a forestry certification program of Rainforest Alliance that is accredited by the Forestry Stewardship Council, required of forestry operations in order to become certified. The study found that in addition to improved protection of high value conservation habitat, "certification promoted economic sustainability, including improved understanding of profitability and efficiency, greater accountability, transparency and compliance with laws, and better management planning, monitoring, and chain-of-custody practices." In the case of forestry, then, the high standards of certification "make good business sense, partly because consumers are increasingly demanding them and partly because they make forestry operations more efficient, sustainable and ultimately more

competitive." (Green Biz Staff, 2005) The interplay between manufacturers and labelers is a complicated one because of the lack of clearly defined roles, the exchange of finances, and the overlap between labeler and labeled.

Chatterji and Levine acknowledge that defining the appropriate role for industry to play in developing metrics is a challenge. On the one hand, "business participation is essential for metrics to be widely accepted and continuously improved." At the same time, though, "participation of business can also reduce the legitimacy (and sometimes the validity) of the resulting standards." They argue that "corporations can add the most value through partnerships with NGOs and other stakeholders, rather than leading initiatives themselves. In addition, businesses can lead in designing a common language that reduces reporting costs while describing performance, even if NGOs continue to push toward what level of performance is required to be accredited." (Chatterji & Levine, 2006)

What do Ecolabels Measure?

The question of "what does a label measure?" has varied answers. Ecolabels can be categorized as either single-attribute or multi-attribute standards. Single-attribute standards relate to only one environmental characteristic, such as energy efficiency or recycled content. Single-attribute labels have been criticized for failing to "accurately define 'how green' a product is" since it is difficult to compare the environmental impact of products with two different single-attribute labels. For example, a product manufactured with recycled content is not necessary better for the

environment than one created from virgin materials. Although single-attribute labels are criticized for oversimplifying, they are simple, easy to understand by consumers, and can be uniformly applied to products across industries. As a result, retailers tend to favor single-attribute labels. Multi-attribute labels, on the other hand, assess products across a range of environmental impacts, generally across lifecycle stages. Although generally less complex than a full lifecycle assessment, multi-attribute labels are significantly more data-intensive than single-attribute labels. Both types of labels play an important role in product certification. Sanders argues that "while having three hundred ecolabels in the market is not beneficial (and consolidation in the market will eventually take place), having competing types of labels provides solutions to different market needs." (Sanders, 2009)

What Don't Ecolabels Measure?

When all is said and done, do labels even matter? At the end of the day, what labels *don't* measure could be equally, if not more important than what they *do* measure. Labels that cut across the product lifecycle to include the consumer use phase make a lot of assumptions about how consumers will use the product, so the environmental impact assessment of the product is at best a guess. The Wall Street Journal suggests that "how a product affects the planet often depends more on how consumers use it than on how it is made." (Ball, 2009) A notable example of a consumer packaged good whose environmental impact is heavily determined by the consumer use phase is laundry detergent. Although the manufacturer might have gone to great lengths to improve factory efficiency, use biodegradable materials, and minimize packaging, at the end of the day, what determines the size of the product's environmental footprint is the consumer's decision to use hot or cold water to do the wash. (Ball, 2009)

Data Analysis

I analyzed the data from Ecolabelling.org's survey of labeling organizations. The evidence from the survey corroborates most of the anecdotal findings of the specific research studies discussed in the literature review above. In this section I will discuss my findings in more detail.

Market Penetration

To better understand the pace of adoption of ecolabels, I analyzed the number of certificates or registrations awarded by ecolabels per year. Among responding single-standard certifications, there was virtually no market penetration until 2004, at which point the cumulative number of products certified grew rapidly, expanding from 510 in 2005 to 13,650 in 2008 (see Figure 2).

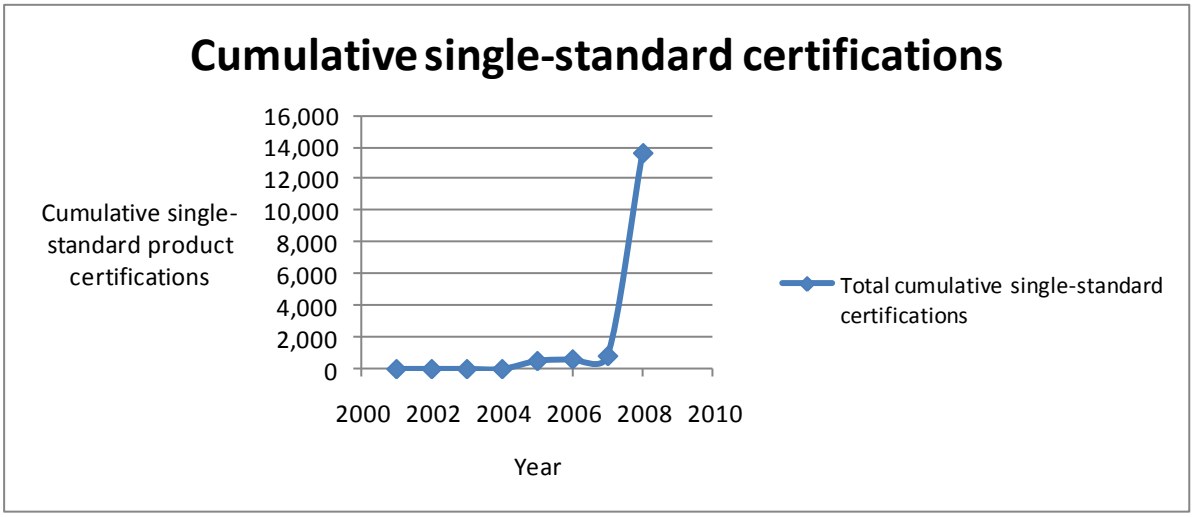

Figure 2. Cumulative single-standard certifications by year.

Growth in the number of certified products on the market has experienced increased acceleration, as the number of new single-standard certifications added per year has followed a similar growth trend to cumulative certifications (see Figure 3).

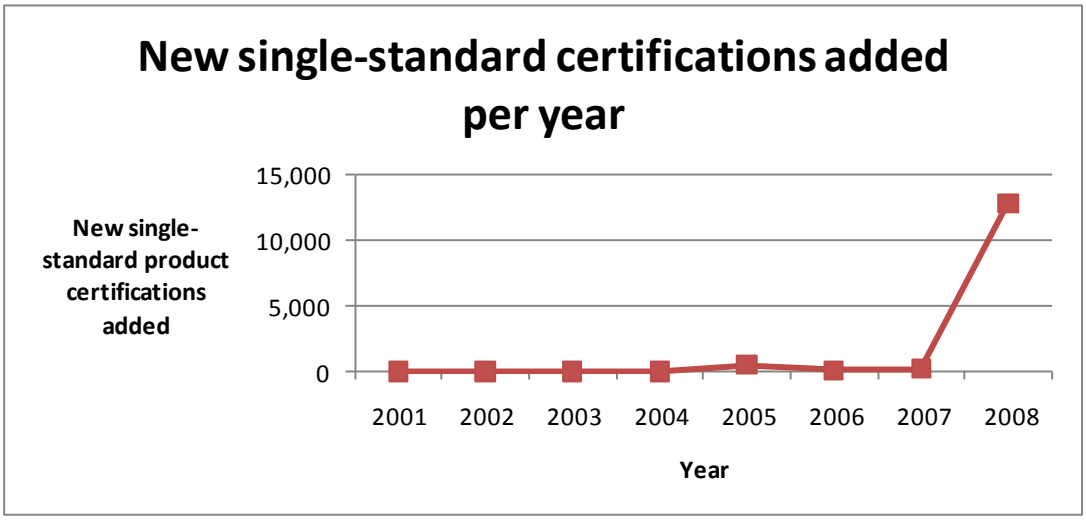

Figure 3. Single-standard certification additions by year.

Market Share

Most ecolabelling organizations do not know the market share of products, services, or organizations carrying their ecolabels. Only 34% of labelers were aware of studies that assessed the market share of products carrying their label (see Figure 4).

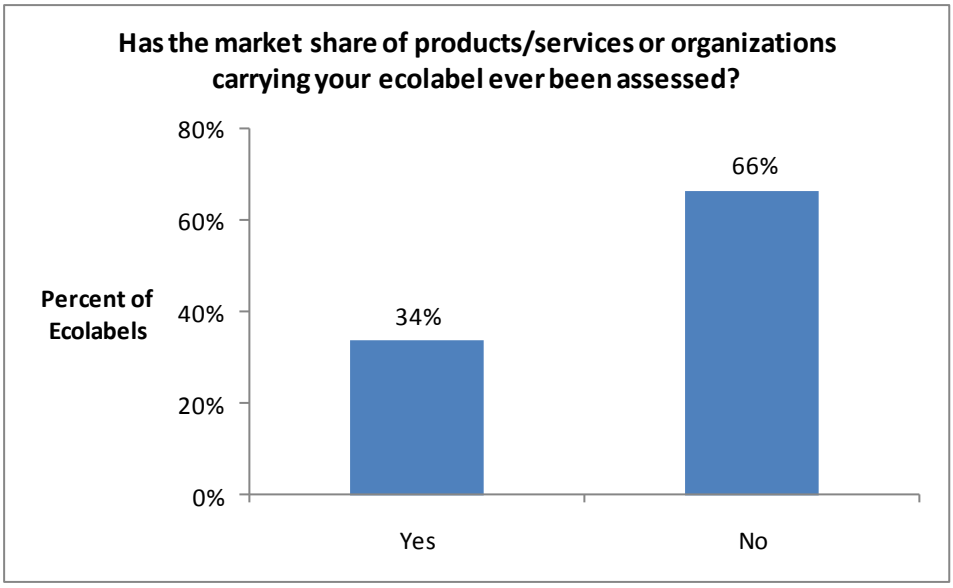

Figure 4. Market share study completion.

Redundancy

The rapid increase in proliferation of ecolabels in the market is accompanied by a high level of redundancy among ecolabels. I evaluated the proportion of ecolabels involved co-recognition (when a label both recognizes others as being equivalent and is recognized by others as being equivalent) and one-directional recognition (when a label is either recognized by other labels or recognizes other labels as being equivalent, but not both).

33% of responding ecolabels recognized other labels as being equivalent (see Figure 5).

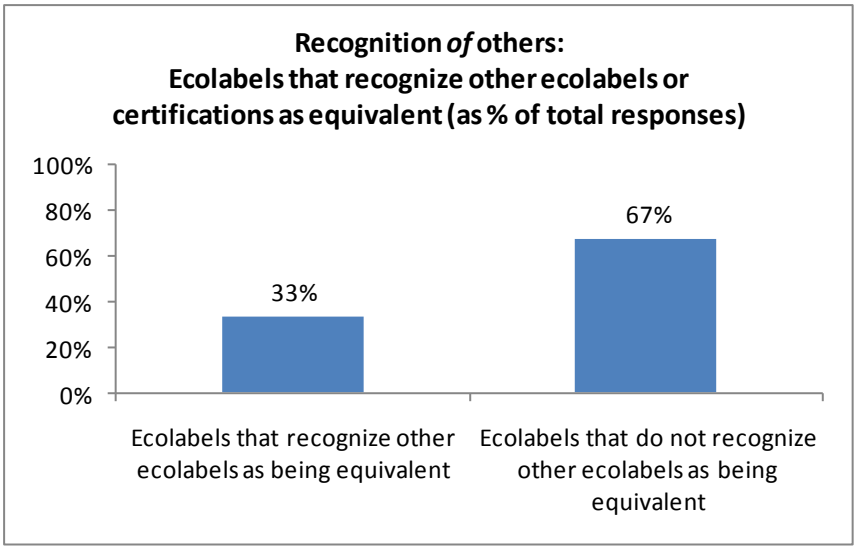

Figure 5. Recognition of equivalent labels.

33% of ecolabels that responded to the survey were recognized by other labels as being equivalent (see Figure 6).

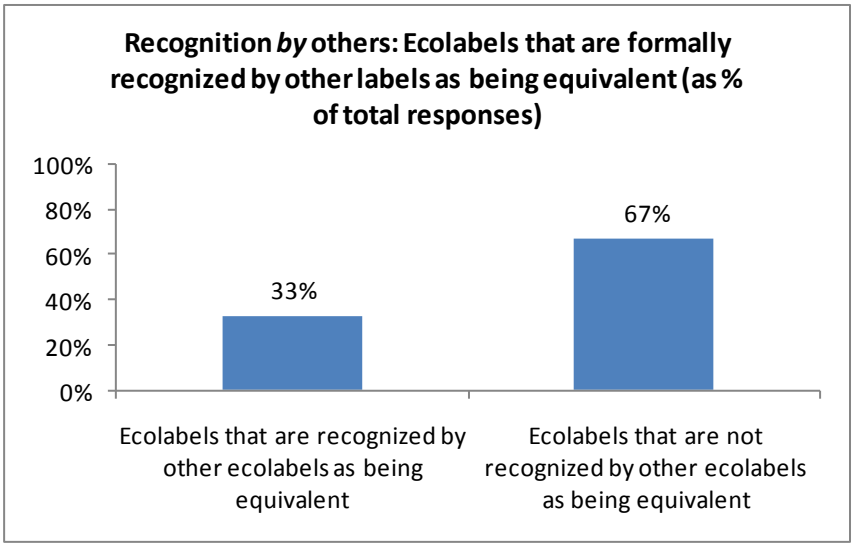

Figure 6. Recognition by equivalent labels.

In total, 45% of ecolabels surveyed were involved in recognition (see Figure 7), suggesting that there is some form of redundancy among close to half of all ecolabels.

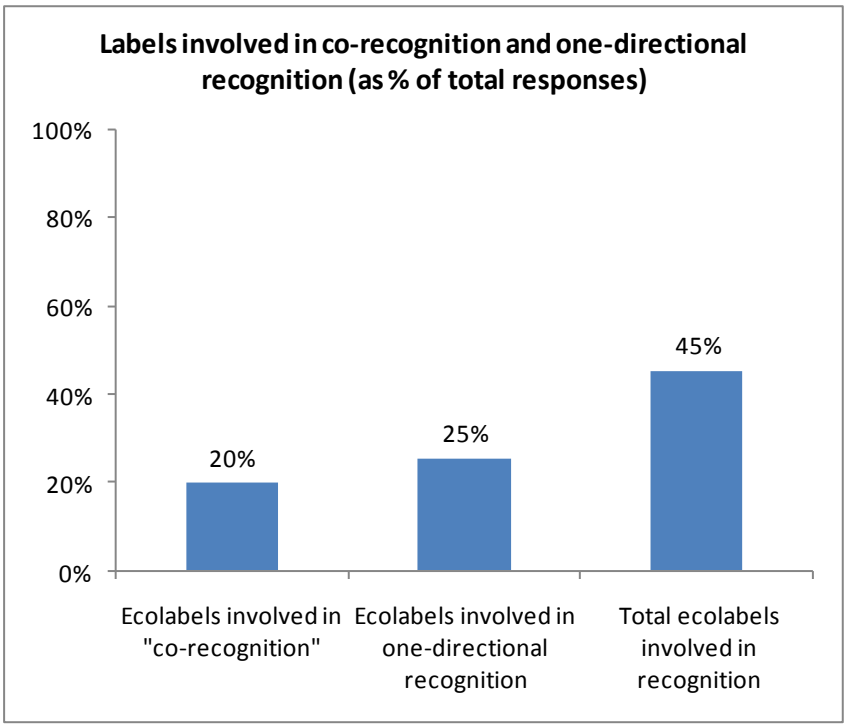

Figure 7. Co-recognition and one-directional recognition prevalence.

Time to Certification

There is a fair amount of variation in the length of time it takes a manufacturer to become certified. Among single-standard ecolabels, the most common response among labels for time required to certification was 3 to 6 months, with 37% of respondents falling into this category (see Figure 8). However, 12% of labels offer certification in less than 2 weeks, with some providing next-day certification. At the other end of the spectrum, some labels require 1 to 2 years for certification. Although the average time to certification across single-standard labels is 4.33 months, the standard deviation is 4.37 months, indicating that there is still a significant lack of uniformity in the market.

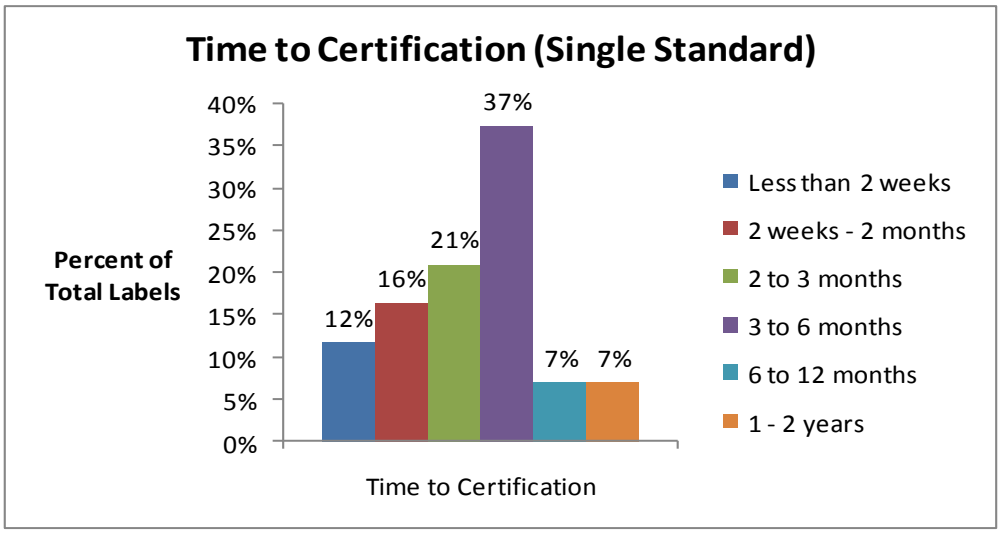

Figure 8. Single-standard labels -time required for certification.

The time to certification among multiple-standards ecolabels is more concentrated, with an average of 3.48 months and a standard deviation of 3.06 months (see Figure 9).

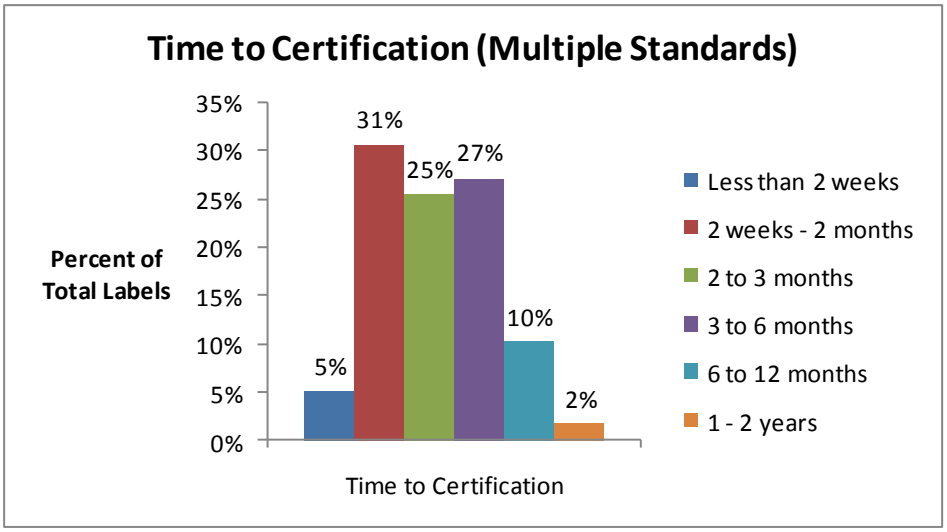

Figure 9. Multiple-standard labels -time required for certification.

Duration of Certification

As might be expected from the variation in time-to-certification, once a product is certified, there is no clear standard for the length of time the manufacturer is allowed to display the label before reassessment. In the single-standard category, 45% of labels offer certification that lasts 1 to 2 years, but 16% of labels last less than one year, and 14% last forever (see Figure 10).

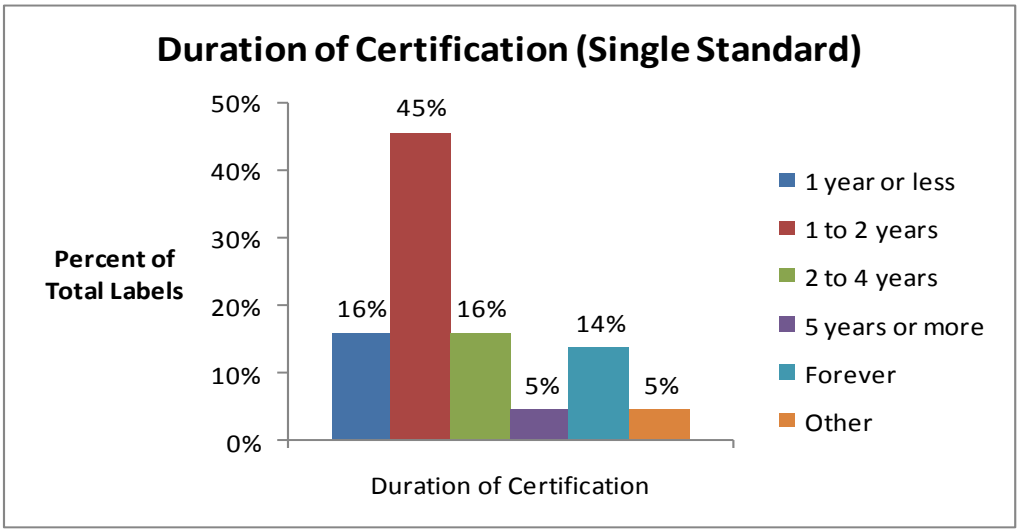

Figure 10. Certification duration for single-standard ecolabels.

There is even more variation among multiple-standards ecolabels, where roughly one-third of ecolabels certify for less than two years, one-third certify for two-to-four years, and one-third certify for five years or more (see Figure 11).

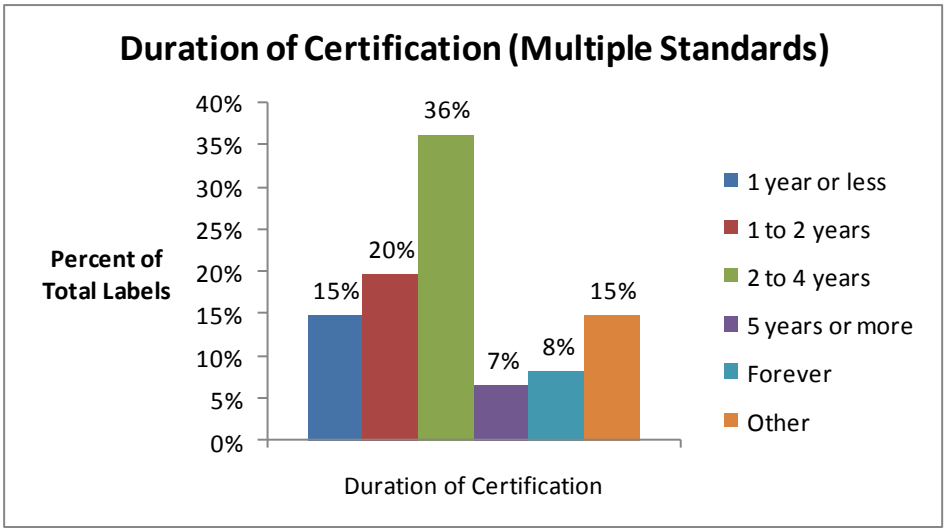

Figure 11. Certification duration for multiple-standards ecolabels.

Impact Measurement

One of the criteria I identified for a successful label is the extent to which the organization can demonstrate positive on-the-ground impacts resulting from its labeling program. I expected that the majority of labels would have conducted studies to assess the benefits of their labeling programs. Instead, my survey data analysis indicates that only 44% of single-standard labels have conducted an impact study (see Figure 12). 55% of responding labels indicated that they had not conducted such a study, with 22% indicating that they had plans to do so. One-third of labelers surveyed had made no attempt to monitor or evaluate the environmental and social benefits of ecolabels programs and have no intention of doing so.

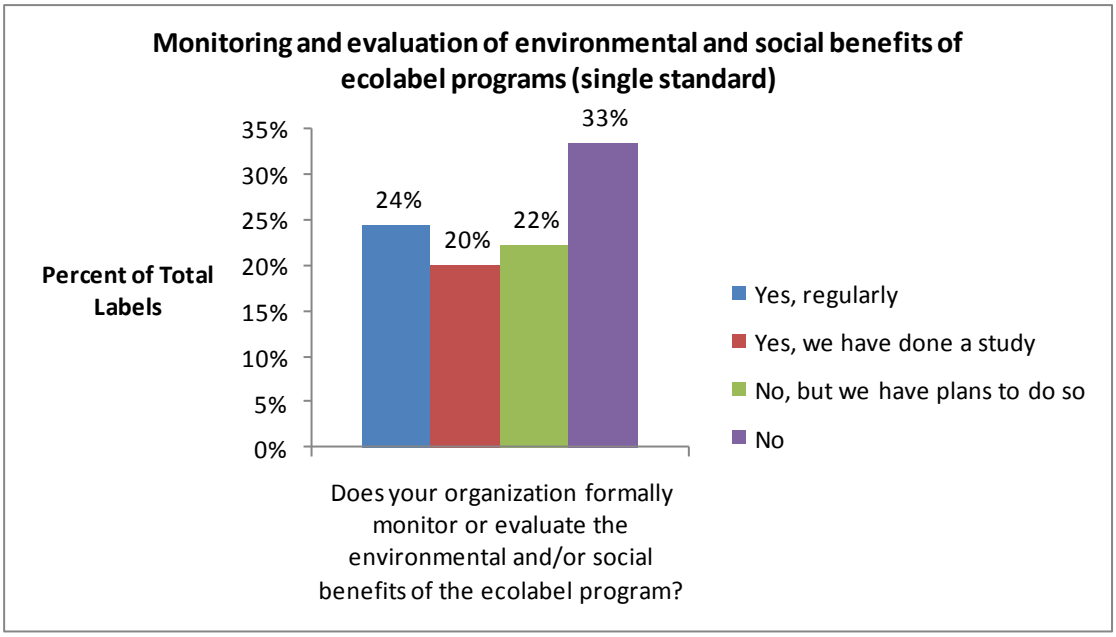

Figure 12. Impact measurement for single-standard ecolabels.

Impact measurement appears to be more the norm among multiple-standards ecolabels, where 43% of labels regularly conduct such studies, and only 21% do not indicate plans to do so (see Figure 13).

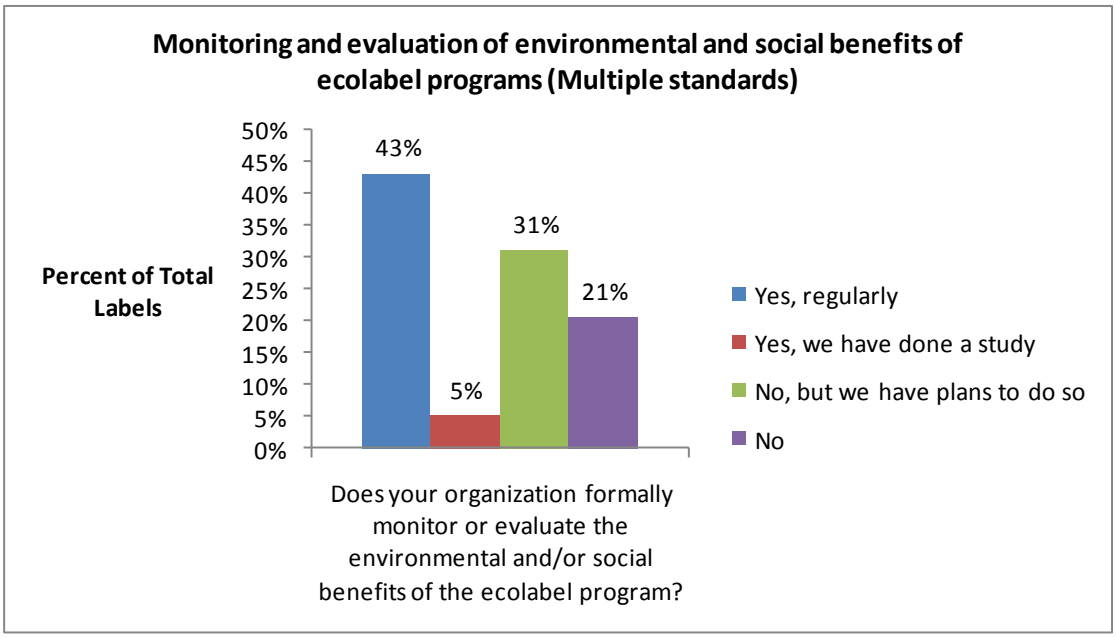

Figure 13. Impact measurement for multiple-standards ecolabels.

Organizational Structure

Ecolabels can be administered by a variety of organizations. The respondents to Ecolabelling.org's survey were largely non-profits (49%), with 15% indicating that they are for-profit and 15% public/private partnership (see Figure 14). The remaining categories (hybrid/social venture, industry association, government, and other) each comprise no more than 8% of the total.

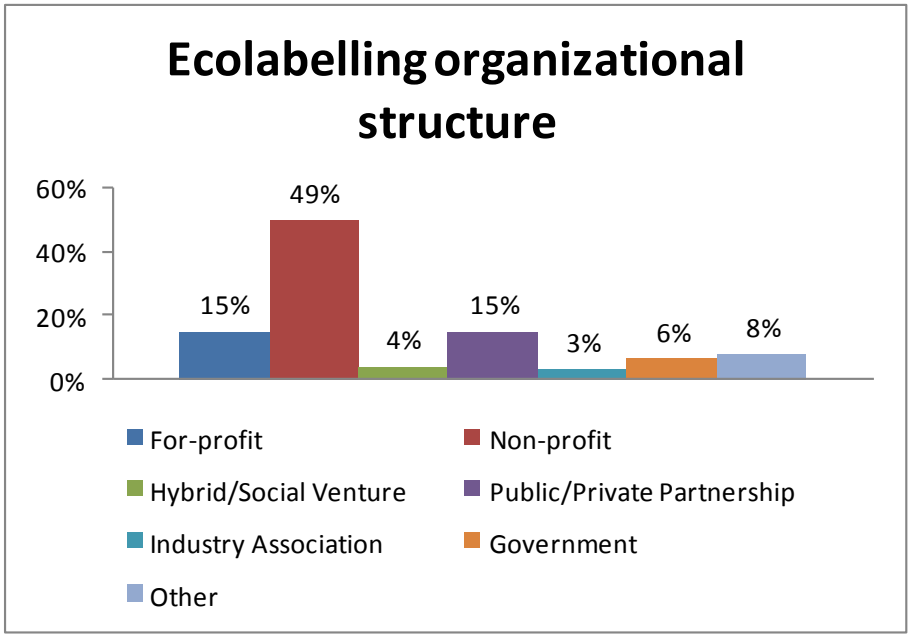

Figure 14. Organizational structure of ecolabelling organizations.

Transparency

I analyzed the survey results to assess three key indicators of transparency in ecolabel design:

- Was the ecolabel's standard developed using an open, consensus-based process?

- Does the labeling organization have a procedure for stakeholders to raise objections, or a dispute resolution procedure?
- Is the list of current board members for the ecolabels publicly available?

I aggregated the data by organization type to see if there was a difference in responses for ecolabellers run by non-profits, for-profits, government, hybrid/social ventures, or industry associations. As expected, non-profits scored highest on stakeholder objections/dispute resolution and public listing of board members (see Figure 15). Only industry associations scored higher on the consensus-based process dimension. It is worth noting, however, that of the respondents for this question, there were only two labeling organizations each in the categories of government, hybrids, and industry associations. Because 65% of single-standard labeling organizations responding were either non-profits or for-profits, I focused my analysis on a comparison of these two organization types. Non-profits score higher in all three transparency categories, with the greatest difference in the public availability of the list of board members.

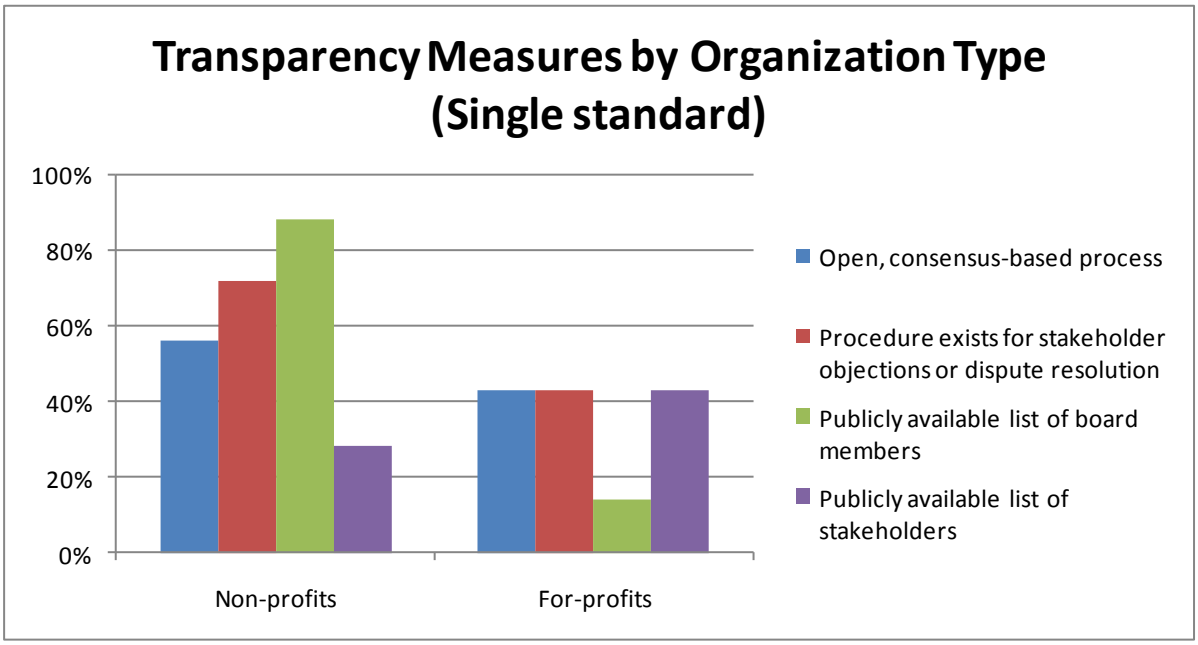

Figure 15. Transparency measures by organizational structure (single-standard labels).

Multiple-standards ecolabels had more government organizations, but even in this category, non-profits were more consistently transparent (see Figure 16).

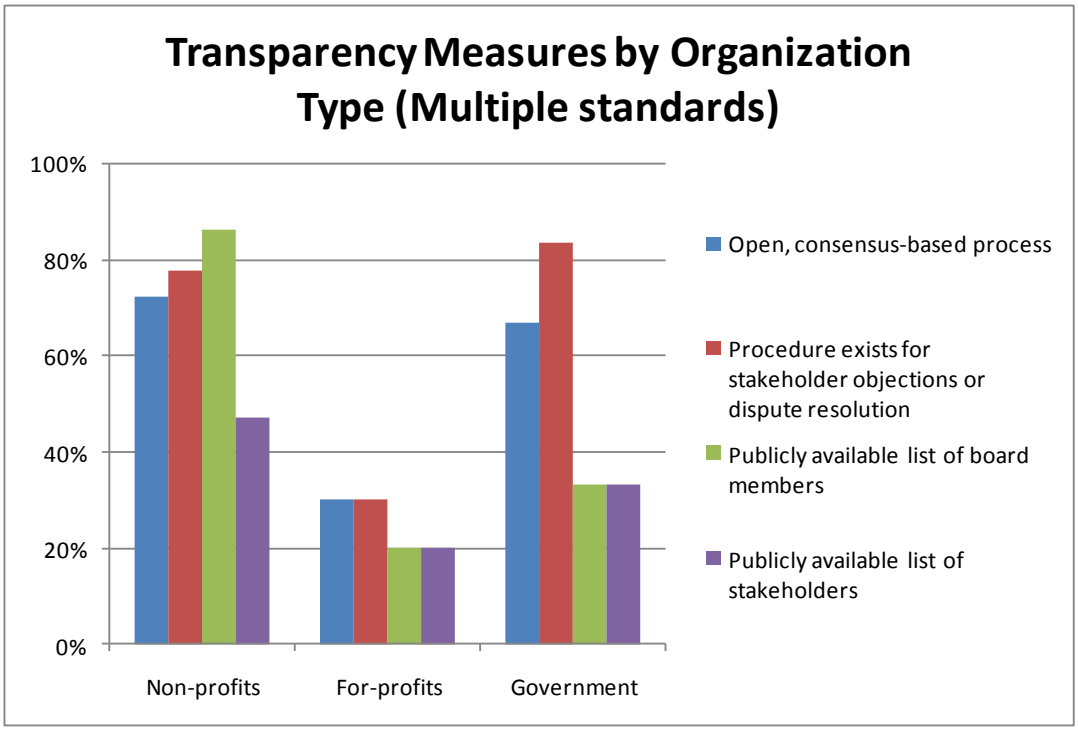

Figure 16. Transparency measures by organizational structure (multiple-standard labels).

Speed to Market Advantage

I expected that there might be a first-mover advantage in ecolabelling, such that labels that entered the market early on would be able to secure more market share (as measured by the number of certifications issued). However, the evidence does not support this theory. Instead, it appears that the labels that entered the market earlier generally have certified fewer products (see Figure 17). Interestingly, there is a large cluster of labels established recently (within the last five years or so) that have issued hardly any certifications.

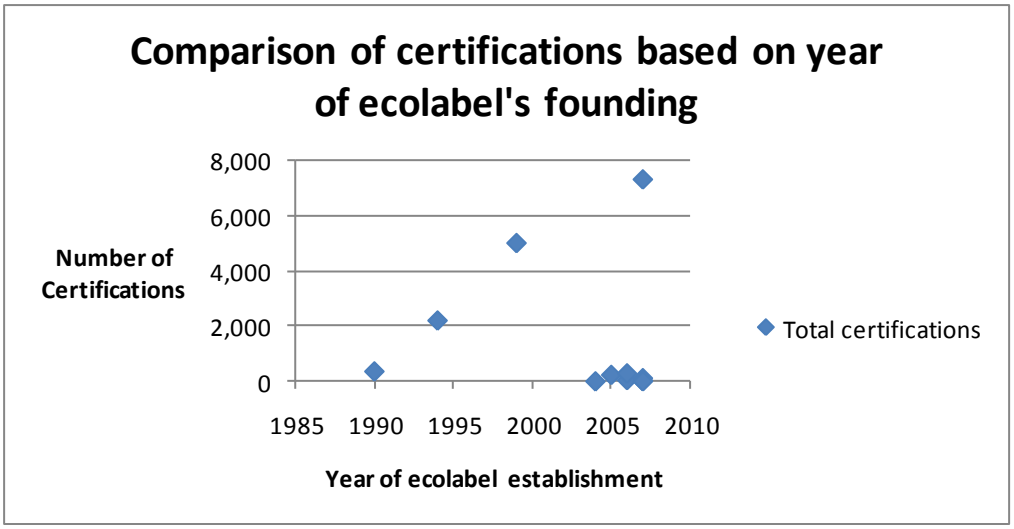

Figure 17. Volume of certification vs. year of ecolabel's founding.

Financing

Ecolabelling organizations draw their funding from a variety of sources. Licensing fees are the most common source of funding, with 67% of labels securing at least some revenue from this source (see Figure 18). However, application fees and other services are also common funding pools, with 47% and 42% of labels, respectively, relying upon them. Only 13% of labels secure funding from the government.

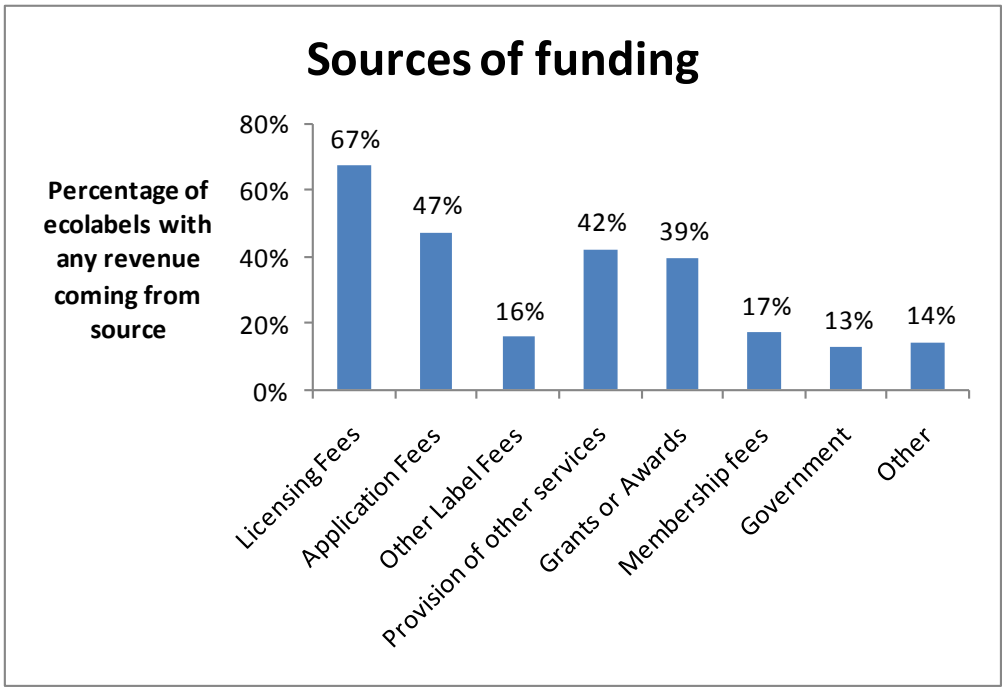

Figure 18. Funding sources.

It is important to consider not only the source of funding but also the extent of funding by source. To assess this, I looked at the average percentage of funding from each source for labels that earned at least some revenue from that source. I found that although governments are rarely a source of funding, when they do provide funding, they play a major role (see Figure 19). Among the labeling organizations that receive government funding, the government provided 87% of the organization's funding. Similarly, although only 17% of organizations received funding from membership fees, the membership fees that were collected accounted for 43% of their labeling organizations' revenue. Although licensing fees were the most common funding source, they accounted for a proportionally smaller amount of revenue for labelers that licensed.

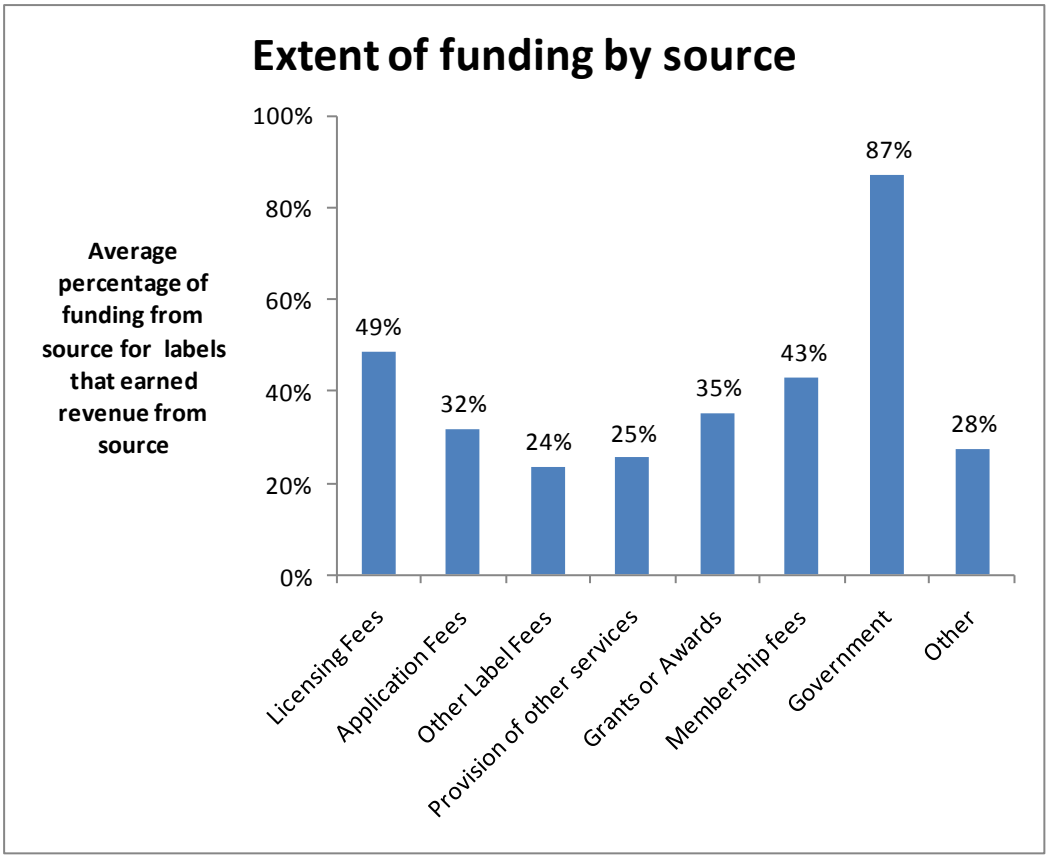

Figure 19. Extent of funding by source.

Rigor

Ecolabels vary in the rigor of their standards. Some signs point toward a high degree of credibility among ecolabels. For example, the vast majority of ecolabels (95%) do require certification before the ecolabel is awarded (see Figure 20).

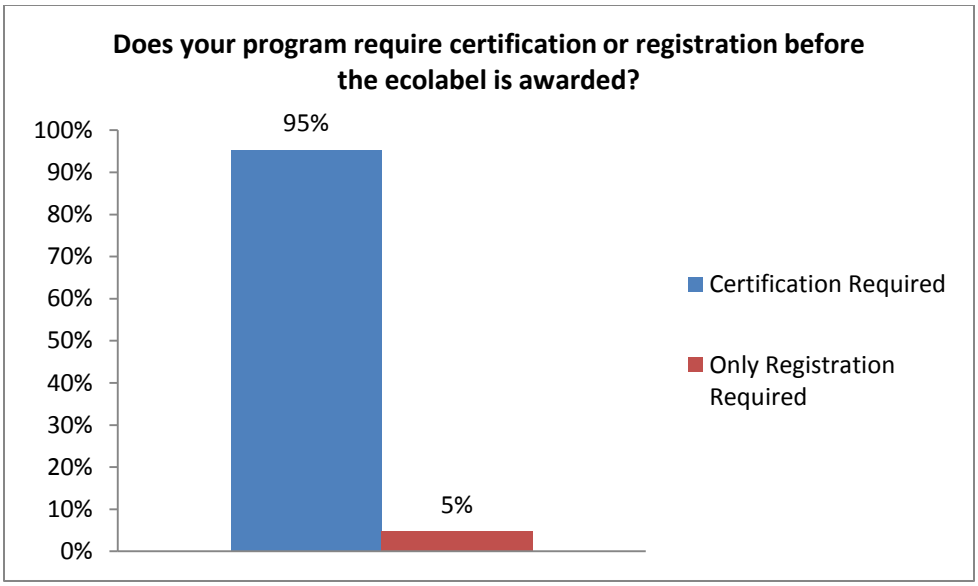

Figure 20. Certification/registration requirements before award of ecolabel.

Additionally, most ecolabels require site or field visits prior to certification, with 76% of both single-standard and multiple-standards ecolabels requiring at site visits in at least some cases (see Figures 21 and 22).

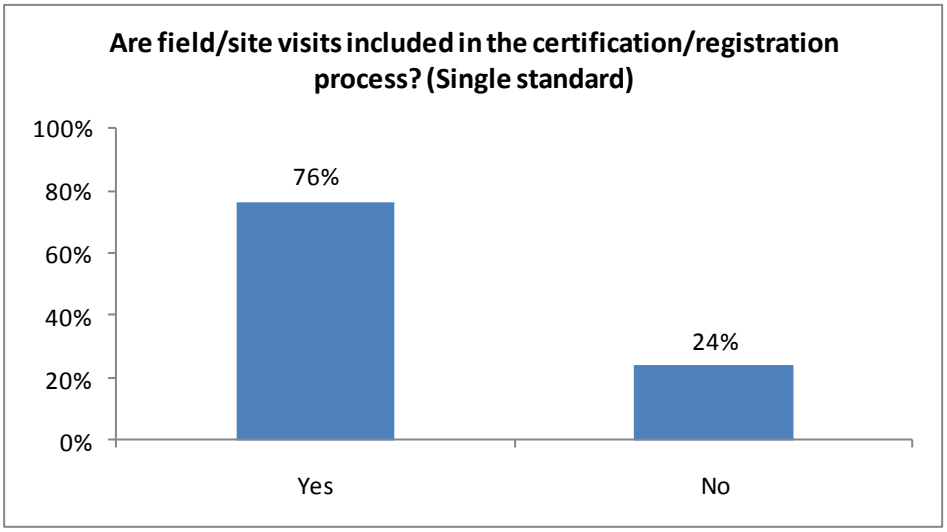

Figure 21. Field visit requirements prior to certification (single-standard labels).

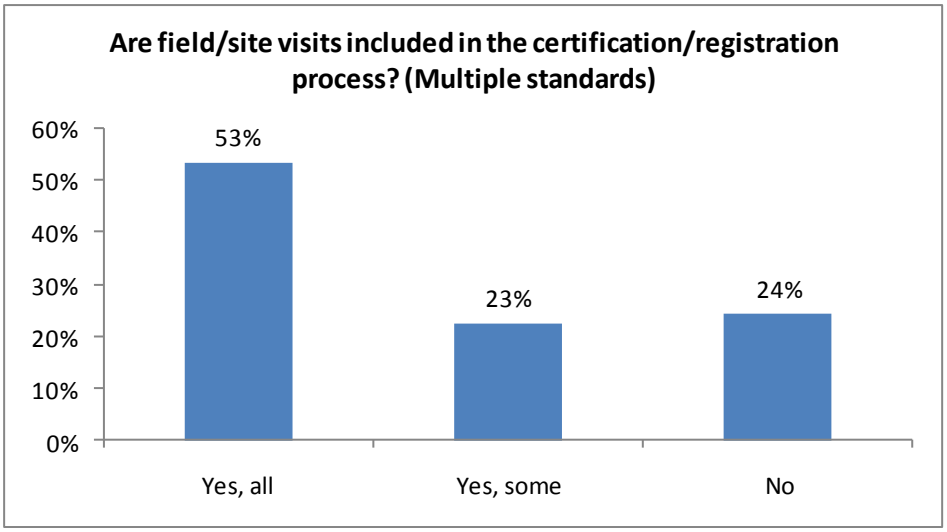

Figure 22. Field visit requirements prior to certification (multiple-standards labels).

However, some signs do not suggest high levels of credibility. When ecolabelling organizations issue certifications, some do so through third-party verifiers or certifiers. When third-party organizations are used, they must be accredited (by either the labeling organization itself or another organization) 92% of the time (see Figure 23). These figures are high, but it might still be seen as surprising that even 8% of multiple-standards labels do not make the effort to certify organizations that award their label.

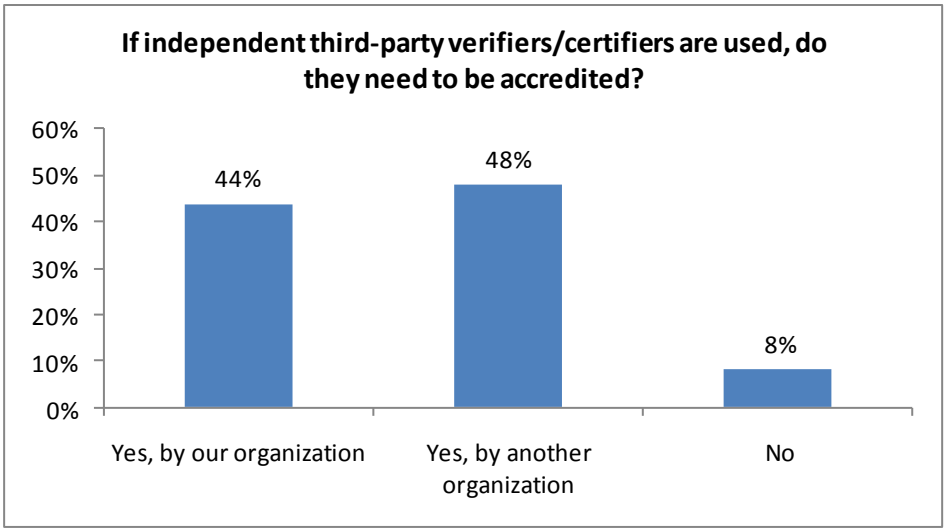

Figure 23. Accreditation requirements of third-party verifiers.

Auditors range in their post-report actions. Among single-standard labels, 85% of them issue corrective action reports, and of those reports, 84% of them are mandatory prior to certification (see Figures 24 and 25). Among multiple-standards labels, 56% issue corrective action reports in all of their standards and 22% issue them in some standards. Here though, 73% of the time the actions are mandatory, while 28% of the time they are only recommended.

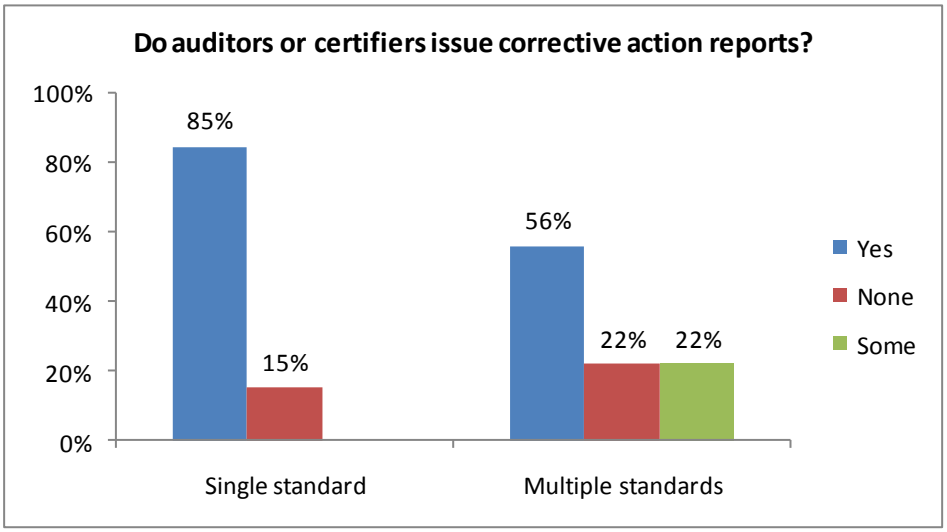

Figure 24. Corrective action report issuance.

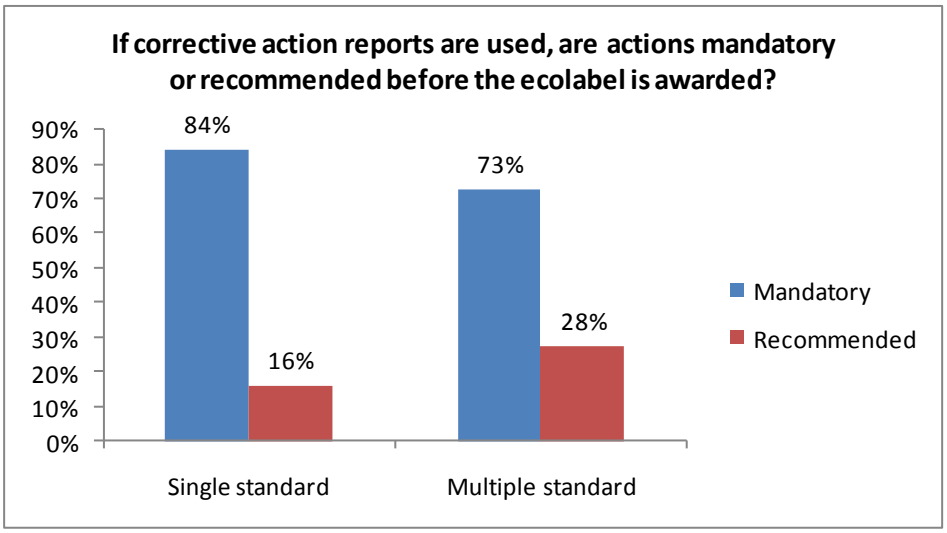

Figure 25. Mandatory vs. recommended corrective action reports.

59% of labels require improvement in performance over time, while 41% have static standards (see Figure 26).

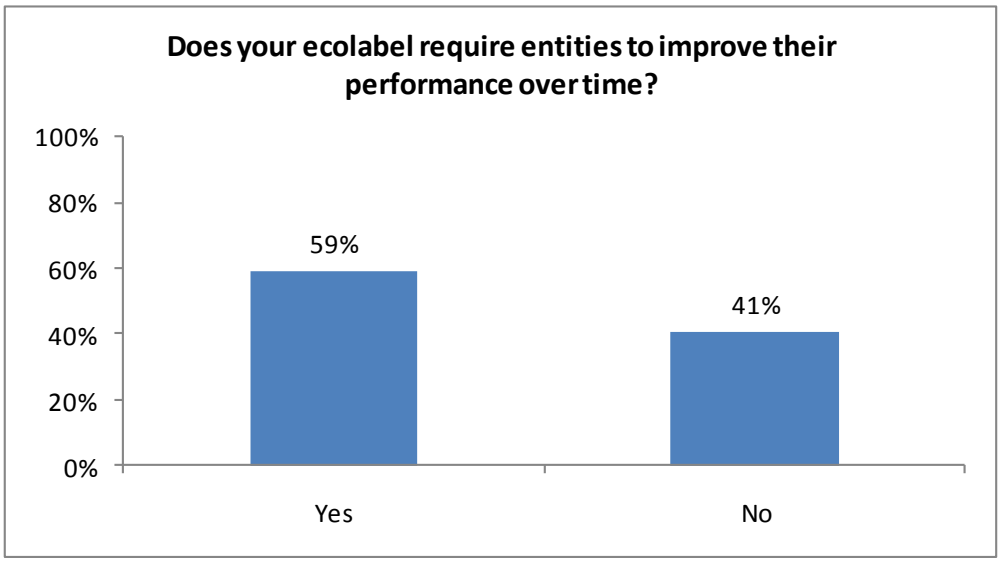

Figure 26. Requirements for performance improvement over time.

Improving Effectiveness

Finally, the survey asked labelers "what would help you to improve the overall effectiveness of your ecolabels program?" I created 10 categories of "effectiveness factors" to accommodate the variety of responses received. These categories were:

- Increased membership
- Increased public awareness or consumer awareness
- Increased marketing
- More funding
- Partnerships
- Increased consumer purchases of labeled products

- More personnel
- More expertise
- Refinement of ecolabel criteria
- Harmonization of the various ecolabels standards

Some responses mentioned only one "effectiveness factor," while others mentioned multiple factors, and responses were recorded accordingly.

Responses to this question suggest that most labeling organizations see opportunities for improvement in their external relations rather than internal operations. Few labels saw a need for more staffing, improved expertise, or more refined criteria (with 14% or fewer of label respondents mentioning each of these criteria). However, 51% cited a need for more public/consumer awareness (see Figure 27). Perhaps unsurprisingly, 27% of labelers believed that increased funding would make them more effective. What was surprising was that only 2% of respondents listed increased consumer purchases of labeled products as something that would increase their effectiveness. The survey design might account for this statistic, since this question was an open-ended question with a text box provided for the response. I suspect that if the survey were re-administered with each of these ten categories listed and radio buttons provided for responses, we might see different results.

Increased membership, marketing, and funding were cited more frequently by single-standard labelers, while partnership, personnel, and expertise resonated more with multiple-standard labelers.

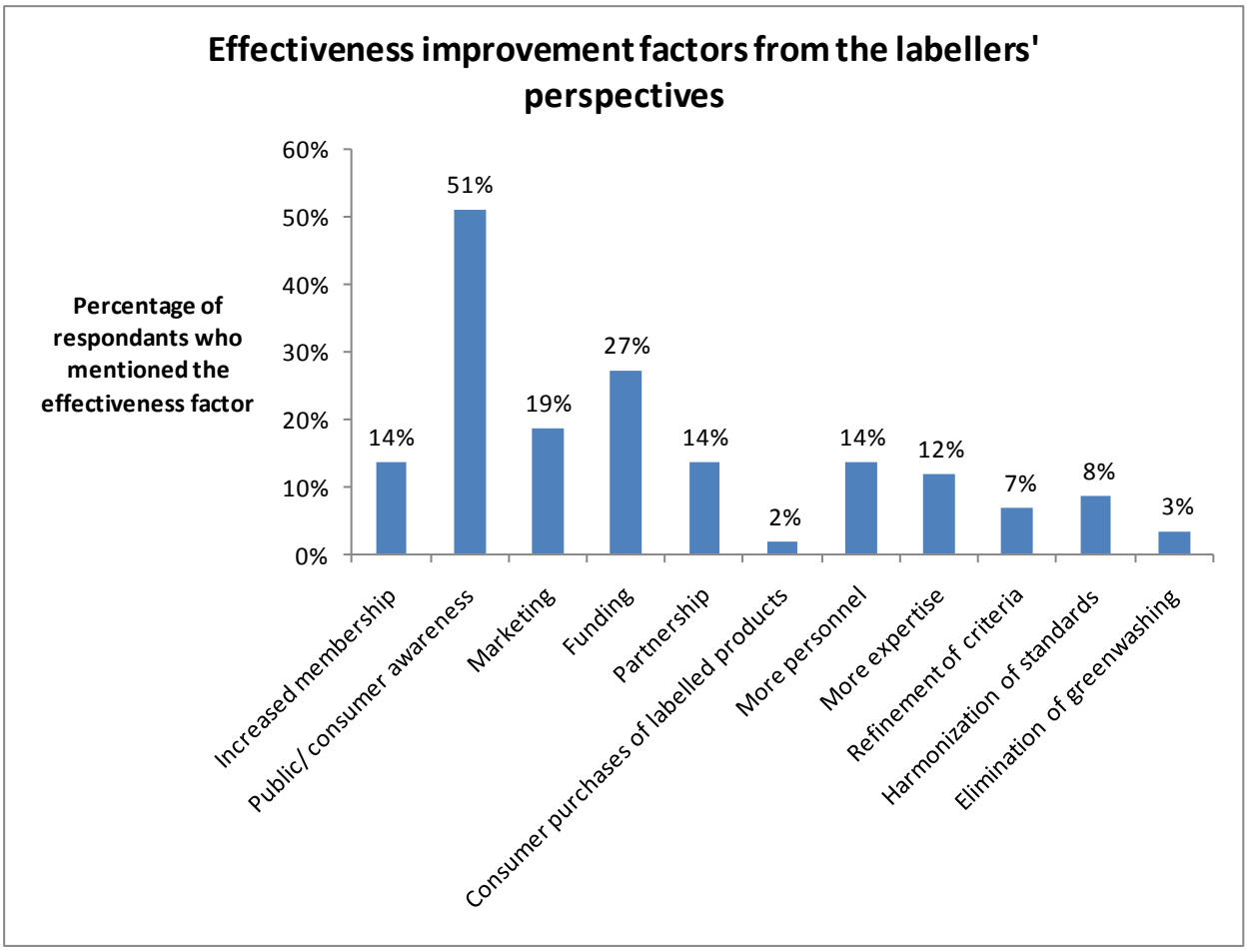

Figure 27. Effectiveness improvement factors.

Landscape Characterization and Category Summary

I conducted a broad, landscape-level assessment of ecolabels in the food and beverage category, using the data available on Ecolabelling.org as a primary source of information. I present the results of this characterization in the summary below.

Total label count in this category

90

Overview

Ecolabels within the food category overlap most with the "other" category (12 labels cross both categories), followed by retail goods (11 labels) and textiles (10 labels). The least overlap is with buildings (2 labels) and energy (only 1 label crosses both categories here). The food labels with less penetration tend to be single-attribute, more recently developed (1990s or later), and highly country- or product-specific.

Most widely adopted label

The most widely adopted food label is the USDA Organic label, which has certified 35,000 products and companies. This certification was established in 1992 and covers multiple environmental and social attributes. Certification holders are audited annually by an independent third party.

Other prominent labels include The Rainforest Alliance Sustainable Agricultural Network, which has 23,929 certifications, and Fairtrade with 5,246 products and company certifications, and the Marine Stewardship Council with 2,643. Other labels generally have certified no more than 200 or 300 products.

Product range

Unlike labels in other industry categories like textiles, electronics, or forest products, ecolabels in the food category tend to be found only on food products. There is very little crossover to other industries or products.

Geographic distribution

Food ecolabels are most common in the United States, where there are 19 labels. Canada is next with 9, followed by Australia and the United Kingdom with 6 each. China, Germany, and New Zealand each have 5 food ecolabels, while Switzerland has 4. Brazil, Finland, France, and Spain each have 3. The remaining countries (Austria, Belgium, Denmark, Estonia, Greece, India, Italy, and Japan) have only 2 each.

Food labels are unevenly distributed at the regional level as well. Of the 90 labels in the food category, Europe and North America have the highest proportion of labels, with 29 in each country. Asia and the general "global" category each have 13 labels, while Oceania has 10, Latin America 5, and Africa only 1.

Case Studies

I performed an in-depth study of three prominent ecolabels in the food and beverage sector. I identified the salient features of these labels in the areas of governance, impact measurement,

and market success. I discuss their relative success or challenges in creation, adoption, and implementation. I discuss each case below.

USDA Organic

Description

The national Organic Foods Production Act (OFPA) of 1990 created the legal definition of organic crop production. The U.S. Department of Agriculture has put in place a set of national standards that food labeled "organic" must meet, whether it is grown in the United States or imported from other countries.[3]

Organic meat, poultry, eggs, and dairy products come from animals that are given no antibiotics or growth hormones. Organic food is produced without using most conventional pesticides; fertilizers made with synthetic ingredients or sewage sludge; bioengineering; or ionizing radiation. With certain exceptions, the Act prohibits the use of synthetic chemicals in the

[3] Certified Naturally Grown is a grassroots alternative to the USDA's National Organic Program meant primarily for small farmers distributing through local channels - farmer's markets, roadside stands, local restaurants, Community Supported Agriculture (CSA) programs and small local grocery stores. It was developed in 2002 and has certified 500 farms.

production of organic foods. The National List distinguishes between allowed, restricted, and prohibited inputs. In order for food to qualify as organic, the land on which it is grown must have been free from prohibited chemical substance use for at least three years immediately prior to harvest.

Product Information

The organic ecolabel is found only on food.

Year Established

1992

Managing Organization

USDA, National Organic Standards Board, National Organic Program (government organization)

Region

North America

Products or Companies Certified

35,000

Standard Details

The USDA Organic Standard covers multiple environmental/social attributes and a single life cycle phase.

Duration of Certification

Indefinite

Verification

According to the USDA's Agricultural Marketing Service, the OFPA "required the U.S. Department of Agriculture (USDA) to develop national standards for organically produced agricultural products to assure consumers that agricultural products marketed as organic meet consistent, uniform standards. The OFPA and the National Organic Program (NOP) regulations require that agricultural products labeled as organic originate from farms or handling operations certified by a State or private entity that has been accredited by USDA." (United States Department of Agriculture) Certifiers make "initial, annual, and spot inspections, and occasionally sample crops, soils, and machinery for prohibited residues." (Guthman, 2004) They also verify that buffer zones between conventional and organic crops are adequate, and that chemical substances used in nearby conventional operations are sufficiently separated from organic operations. In effect, it is the land, not the farm or the farmer, that is certified. As long as a piece of land continues to pass annual inspections, the organic certification can be passed on from one owner or lessee to the next. Conversely, a farmer who has been operating an organic facility and moves to a new piece of land must begin the transition and certification process anew.

Audit Requirements

Certification holders are audited every year. Audits are conducted by an independent third party.

Market Success

Organic agriculture is still considered a niche market, with market share of 2 to 3%, but the segment has exhibited rapid growth, reaching $26 billion in global sales in 2001. (Guthman, 2004) Global food scares, like mad cow disease in the mid-1990s, helped promote organic food as an alternative to conventionally-grown and processed food. In 2006, Walmart announced that it would "double its organic offerings and strive to become the 'mass market provider' of organic foods." (Codron, Siriex, & Reardon, 2006)

The stringent certification requirements of the USDA organic program create significant barriers to entry. The application process requires a substantial investment of time and money. There is considerable paperwork involved for the farmer, and a variety of fees, dues, and assessments must be paid to the certifier and sometimes to the state program as well. Perhaps the greatest challenge is the three-year transition period requirement. As farmers stop using conventional chemicals, crop yields generally decline. However, because the farm is still considered to be "in transition" and has not yet been certified, the crops must still be sold at conventional prices. During the transition period, then, many farmers operate at a loss.

At the same time though, barriers to entry are what allow price premiums to exist, and it is the allure of higher margins that encourages farmers to become certified. The transition period requirement for organic farming used to be only one year. In response to complaints from early adopters of organic farming, the transition period was increased to three years, reinforcing the barriers to entry that help protect organic price premiums. An interesting recent trend in organic farming has been the facilitation of market entry for small farms by institutional buyers, who pay the certification fees for small farmers or offer a guarantee to purchase their crops (sometimes at organic prices) during the transition phase.

Prices of organic food at the retail level "reflect markups over conventional produce of 10% to 100% (Guthman, 2004), which provides the impetus for farmers to seek organic certification despite the startup costs and risks involved. However, it is not clear if these price premiums hold across food categories. In the case of coffee, for example, researchers have found that "certified farmers did not receive consistently higher prices… than uncertified farmers" (Philpott, Bichier, Rice, & Greenberg, 2007) and the modest increases in income farmers did receive were not sufficient to eliminate the need for government subsidies.

Even if there is a price premium, it remains to be seen whether organic food will still command a price premium as it grows in popularity. Unlike many consumer packaged goods, "agriculture is competitive to the point of systematic overproduction, and there is little demand elasticity for food… in effect, the introduction or promotion of a new food simply 'cannibalizes,' or displaces,

another." As the market share of organic food increases, price competition could increase as well, which would diminish profitability and thereby limit the incentives for farmers to pursue organic certification.

I am unaware of any systematic efforts to measure the impact on land values of organic farming. However, there are anecdotal reports of higher prices associated with organic land. Guthman notes in her research that in at least some cases, landowners sought out organic growers or asked current tenants to convert to organic product in order to share in the higher profit margins, and in other cases, land that had completed the transition period and been certified organic cost more to lease that similar conventional land. (Guthman, 2004)

Field Success

It is difficult to determine whether the organic label succeeds in reducing environmental impacts. Some studies report that "in general, the risk of harmful environmental effects is lower with organic than with conventional farming practices." (Hansen, Alroe, & Kristensen, 2001) However, although organic production reduces pesticide use, it also decreases yields, requiring more land under cultivation to produce the same amount of food.

A report from England's Department for Environment, Food and Rural Affairs (DEFRA) found that "there is certainly insufficient evidence available to state that organic agriculture overall would have less of an environmental impact than conventional agriculture. In particular, organic agriculture poses its own environmental problems in the production of some foods, either in

terms of nutrient release to water or in terms of climate change burdens." (Foster & Green, 2006) In the case of milk, for example, organic farming requires 80% more land than conventional milk and creates nearly twice the amount of byproducts that lead to eutrophication and soil acidification. Poultry and vegetables appear to be two other categories where organic production is more resource-intensive than conventional production.

It appears that in some cases, organic production might be less impactful on the environment than conventional production, but not for all foods and not for all categories of environmental impact. The lesson here, then, is that it is easier to nail down environmental impact for single-attribute ecolabels than multiple-attribute labels.

More studies will be necessary to determine whether, or under what circumstances, organic farming is ecologically preferable to conventional farming methods. As the DEFRA study suggests, "for organic agriculture to offer an approach to food production that is better than conventional agriculture, yields need to rise and methods need to be developed (or if they exist, adopted) that reduce releases of nitrogen compounds, particularly to the water environment." (Foster & Green, 2006)

Rainforest Alliance Certified

Description

The Rainforest Alliance ecolabel is awarded by independent, third party certifiers who verify that products bearing the label are the result of practices carried out according to a specific set of criteria balancing ecological, economic and social considerations. The Sustainable Agriculture Network (SAN) awards the Rainforest Alliance Certified eco-label to farms, not companies or individual products. Farmers may apply for certification for all land in production and companies may request that all of their source farms be certified.

SAN has certified farms for coffee, bananas, cocoa, orange, pineapple, flower and fern farms according to environmental and social standards. Some smaller crops, often grown in association with these commodities, are also certified, including macadamia nuts, passion fruit and plantains.

Rainforest Alliance Certified differs from the USDA Organic certification in that it allows for some limited uses of agrochemicals, requiring continual reduction of agrochemical use and encouraging the use of biological alternatives whenever possible. It also has standards for wildlife conservation and worker welfare, which the USDA Organic label does not.

Product Information

The Rainforest Alliance ecolabel is found on food, forest products, and in the tourism sector.

Year Established

1991

Managing Organization

Rainforest Alliance (a non-profit organization) and Sustainable Agricultural Network (an international organization of conservation groups)

Region

North America for Rainforest Alliance, Global for SAN

Products or Companies Certified

23,939

Standard Details

The Rainforest Alliance Certified standard covers multiple environmental/social attributes and a full life cycle phase.

Duration of Certification

One year

Verification

Certification for farms is conducted by Sustainable Farm Certification International, an independent certification company.

Audit Requirements

Annual audits are required.

Market Success

The Rainforest Alliance Certified seal is awarded to farms that produce cocoa, coffee, flowers, fruits, and tea. By 2010, over 64,000 farms and cooperatives around the world with a combined total of just over 1.2 million acres had been certified by SAN. (Rainforest Alliance, 2010)

Field Success

There is a notable lack of studies on the environmental impact of the Rainforest Alliance's agriculture certification. However, the criteria for certification include reduced pesticide use (although some agrochemicals are allowed), improved soil conservation, reduced deforestation, and improved water conservation. One of the products certified by the Rainforest Alliance is shade-grown coffee, and "the positive effect of shade coffee on biodiversity is well established." (Philpott, Bichier, Rice, & Greenberg, 2007) Nevertheless, actual data on the environmental impact that results from the required changes in land management is scarce. Even the organization's own website focuses more on outputs than outcomes.

Fairtrade

Description

The fair trade movement began in the 1960s with the goal of "improving terms of trade for small farmers by establishing direct and long-term relations between producers and purchasers, by using grants and minimum prices and by giving credit and guaranteeing the transparency of transactions." (Codron, Siriex, & Reardon, 2006) The story of the Fairtrade ecolabels is an international one. Max Havelaar led the way in Europe with the creation of an NGO fair trade label for coffee, while TransFair U.S. established its own label in North America in the 1990s. In 1997, the NGO labeling programs combined to form the Fairtrade Labelling Organizations International (FLO), which would be responsible for global standard-setting and certification. Since 1997, FLO has overseen the national standard-setting process for 17 standards. Fairtrade producer cooperatives receive a price premium, which they generally use for community development purposes.

FLO established the Fairtrade ecolabel, which enables the sustainable development and empowerment of disadvantaged producers & workers in developing countries through Fairtrade labelling. Fairtrade has over 2,700 licensees - owners of brands that source from Fairtrade producers and sell the final product with the Fairtrade Certification Mark . The standards were

established in accordance with the requirements of the ISEAL Code of Good Practice in standard-setting.

Product Information

The Fairtrade ecolabel is found on food and retail goods.

Year Established

1997

Managing Organization

Fairtrade Labelling Organizations International (FLO), a non-profit organization

Region

Asia, North America

Products or Companies Certified

5,246

Standard Details

The Fairtrade ecolabel covers environmental and social attributes with a single life cycle phase.

Duration of Certification

1 to 3 years

Verification

The Fairtrade certification program is run by a separate company called FLO-CERT, which is itself ISO 65 certified. Initial on-site inspections are required for certification. When the applicant is a producer association rather than a single farm, the certification requires an initial site inspection of the producer organization along with random checks of a sample of farmers.

Audit Requirements

Audits are conducted annually. In cases where the certified organization has exhibited excellent compliance over many years, they might receive only a "desk-top" review every three years.

Market Success

Similar to the organic label, fair trade products are "still considered a niche product; however, there is mounting evidence that they are starting to go 'mainstream'" (Codron, Siriex, & Reardon, 2006) as evidenced by the UK retail giant Marks & Spencer's announcement in 2006 that it would commit to purchasing all of its coffee and tea from fair trade sources. As with Walmart's organic purchasing decision, this announcement serves as an important signaling

device of more widespread adoption. Worldwide sales of Fairtrade goods have grown significantly over time, totaling roughly $2 billion in 2006. However, the two decades of Fairtrade existence have resulted in only limited market share growth. Although annual Fairtrade growth rates of up to 30 or 40% are still registered, the total marketed volume remains very small. Fairtrade coffee, for example, represents only 1.2% of the European market. Growth in the number of Fairtrade products, then, appears to be largely due to market growth, rather than market share growth. Further expansion "depends on involvement of large-scale retail networks and mainstreaming of key elements of the Fairtrade approach." (Ruben, Fort, & Zuniga-Arias, 2009)

From the producer's perspective, one might expect a first-mover's advantage, in which farmers that jump on the Fairtrade bandwagon early on are able to secure more favorable contract terms and prices. Early studies found that there were positive effects of early certification, but "more recent data indicate that – in the current dynamic context of quality upgrading and high coffee prices – an original comparative advantage can be seriously eroded." (Ruben, Fort, & Zuniga-Arias, 2009) In particular, there is a risk that Fairtrade certification might actually lead to overspecialization in coffee production.

Studies have found that income gains among farmers are most substantial in organic production. Income gains from Fairtrade remain modest, in part because many cooperatives are able to sell only part of their certified products on the Fairtrade market – so their costs of operation are not fully recovered by higher prices. (Ruben, Fort, & Zuniga-Arias, 2009)

Field Success

Since the Fairtrade label is largely a social attribute label, it makes sense to address its on-the-ground impact from a social, rather than environmental perspective. Although several researchers have tried to assess the impact of Fairtrade on local producers and households, "sound empirical evidence regarding the social, economic, and ecological impacts remains patchy and sometimes contradictory." (Ruben, Fort, & Zuniga-Arias, 2009) Ruben et al. found that Fairtrade producers tend to spend a larger proportion of their household income on long-term durable investments (perhaps because the guaranteed sales to the Fairtrade market make farmers more comfortable investing in new yield-enhancing technologies) which are more likely to reinforce their economic position in the long run.

Fairtrade appears to have a limited effect on traditional gender roles and improved environmental impact. Cooperative membership tends to be male-dominated, and men tend to have control over income sources related to Fairtrade products. Farming-related environmental impacts generally depend on land-attached improvements such as immobile infrastructure. The combination of large initial investment requirements and insecure property rights in many coffee and farming-based countries result in limited proof of positive environmental impact resulting from Fairtrade certification.

Emerging Best Practices and Lessons Learned

Based on my analysis of the survey results and my case studies, I have identified several emerging best practices in the area of eco-labelling that could inform the development of Walmart's Sustainability Index and other similar efforts. These preliminary recommendations should serve to enhance the value of eco-labels while clarifying consumer messaging and streamlining the certification process for manufacturers.

Governance

Although government oversight of ecolabels can reinforce the visibility of the program, its involvement can also create resistance with the movements. (Codron, Siriex, & Reardon, 2006) In the EU, government involvement with the monitoring of organic standards was a mixed blessing, as many farmers complained of inadequate enforcement, such as allowing non-organic products to be imported under the organic label. If governments are to be involved, it is important that they involve stakeholders in defining the standards, and then act to uphold them. Another important factor to keep in mind is that "there is great variation in consumer trust of governments and companies from country to country." (Codron, Siriex, & Reardon, 2006) Multinational consumer packaged goods companies will need to think carefully about their approach to certification with an eye to balancing local appeal with global growth.

Standard-setting

The case of the organic label illustrates that even ecolabels that are well-regarded by many within the industry may still come under fire for not addressing the root of the problem. As Guthman writes, "the organic label, for example, does not disallow the use of all potentially

harmful materials, much less provide assurance that supply chains are substantially different than those found in conventional agriculture." (Guthman, 2004) Similarly, the Fairtrade label attempts to reconstruct the value chain for product distribution, but it "still depends on commercial marketing networks and conventions." (Guthman, 2004)

Uniformity

Practitioners and consumers alike often agree that "clarification and convergence toward the establishment of a minimum benchmark for these signals are necessary to effectively communicate environmental and social attributes in an emerging mass market." (Codron, Siriex, & Reardon, 2006) The organic regulation system is frequently used as a model for other labels, due to its reputation as being the "mother of all ecolabels… the only one that is legally codified and broadly recognized." (Guthman, 2004)

In the case of the organic label, federal intervention provided clarity for producers, certifiers, and consumers. Until implementation of the federal organic standards rule, "enforcement was uneven and chaotic," (Guthman, 2004) with different certifiers using different procedures. As a result of federal intervention and oversight, procedures and standards were harmonized across agencies. All certifiers are now accredited by the USDA and required to make regular inspections, and all growers with revenues over $5000 must be third-party certified.

Recommendations

Based on the emerging best practices identified above, I have developed a set of recommendations for further research geared toward improving ecolabel design.

Add a Few Seats to Your Table (a.k.a. Engage your stakeholders)

Because standards tend to be "designed by those with the most to gain by them, standards create barriers to trade by penalizing firms that developed in other institutional contexts." (Guthman, 2004) To avoid negative press and charges of favoritism, ecolabels should be developed with broad stakeholder engagement.

Marketing Matters

Ecolabels that cut across product categories have the potential to achieve significant market penetration, but they must be targeted appropriately. Broad levels of interest in labels like Fairtrade "will only translate into an interest for specific fair trade products if consumers are also interested in the product categories offered." (De Pelsmacker & Janssens, 2007) It is not enough, then, to convince consumers to care about fair-trade. They must care about coffee in order to buy your fair-trade coffee, and you are unlikely to convince a tea-drinker to switch to coffee simply to support Fairtrade.

So how do you build product interest? A few avenues of approach are to:

- Focus on building prominent, reputable, high visible brands
- Pursue shelf space in large retailers rather than small specialty shops

- Increase the trialability of your products (De Pelsmacker & Janssens, 2007)

In this way, ecolabelling organizations can convert supportive consumers into loyal consumers.

Focus on Quality Over Quantity

Researchers have found that "there is a significant relationship between the perceived quality and the perceived quantity of information: the better the perceived quality of the information, the better the perception of the quantity of information." (De Pelsmacker & Janssens, 2007) If labelers can focus on providing high-quality information, consumers are likely to believe they are receiving enough of it.

Balance Rigor with Growth

Less stringent labels with sector-wide coverage, like the Rainforest Alliance label on bananas have been "able to achieve a substantial market position in a relatively short period," (Ruben, Fort, & Zuniga-Arias, 2009) while more rigorous standards like USDA Organic and FLO's Fairtrade label have a hard time moving beyond single digit market share figures.

Remember What You're Selling

Manufacturers are not in the business of selling eco-labels – they are selling the underlying product. Studies have found that "consumers whose expectations are met project positive feedback onto the other promises made by the producer, e.g., the eco-friendly claim. Consumers whose expectations are not met project negative feedback (and distrust) onto other claims made by the producer, especially unverifiable ones such as the eco-label." (Grolleau & Caswell, 2006)

The best-designed ecolabels will still fail if the products they certify aren't competitive. Even "honest environmental differentiation can fail if it does not consider the multi-dimensional character of quality perception." (Grolleau & Caswell, 2006) In other words, if the apples you sell taste good, consumers are more likely to believe your claim that they are also eco-friendly. But if they are rotten, no eco-label can save you.

Discussion

Past research has shown that despite consumers' reported willingness to pay a premium for products that are created under environmentally and socially responsible conditions, intentions rarely translate to dollars at the cash register. Most so-called "ethical" brands have a market share of less than 1%, and there remains a "substantial gap between attitudes and behavior." (De Pelsmacker & Janssens, 2007) We see this gap because "self-reported ethical attitudes and buying behavior are susceptible to social desirability bias" (De Pelsmacker & Janssens, 2007) – that is, survey responses reflect what people believe they are supposed to feel rather than what they actually feel. As it turns out, the most important decision-making factors for purchasing decisions are price, product quality, and shopping convenience. Even with respect to purchasing of ethical goods like fair trade-labelled coffee, the key decision criteria are first brand, then taste, following by the presence of the fair-trade label. (De Pelsmacker & Janssens, 2007)

Market success of ecolabels seems to require a "mix of environmental and other verifiable attributes that together signal credibility." (Grolleau & Caswell, 2006) Consumers can learn about product quality before purchase (search), after consumption (experience), or not at all

(credence). As could be expected, credence attributes cause the most problems in the market because there are difficult to define, measure, verify, or falsify. Ecolabels serve as a proxy for the environmental friendliness credence attribute, reducing transaction costs for consumers who want to evaluate products based on environmental impact. (Grolleau & Caswell, 2006)

To a large extent, overall impact in the field depends on market conditions. In Mexico and many Central American countries, for example, "market fluctuations have encouraged farmers to abandon coffee production temporarily or to turn to agricultural systems such as pasture or coca production with fewer ecological benefits." (Philpott, Bichier, Rice, & Greenberg, 2007) Even if there could be substantial positive environmental impacts from a given ecolabels, it is important to consider the permanence of those impacts. Field impacts are difficult to determine, in part because "given that each certification program has different goals, uncertainty surrounds how each contributes to ecological and economic sustainability at the farm level." (Philpott, Bichier, Rice, & Greenberg, 2007)

More research is needed to determine both the extent and causes of ecolabels market success and field success. Further analysis should focus on mapping ecolabels onto the success framework introduced earlier. This will involve:

- Establishing clear metrics for success in the marketplace (such as ability to command a price premium, number of products certified, or market penetration within a product category) and the field (such as additionality of the environmental impacts that result from achieving certification)

- Conducting further scientific field studies to determine the on-the-ground impact of ecolabels by comparing the environmental and social footprint of products with the ecolabels to comparable products of those without
- Evaluating a wide range of ecolabels on both criteria and classifying them according to the four categories established by the framework
- Conducting analyses to determine whether particular ecolabel characteristics (such as governance structure, funding source, time to certification, etc.) are related to success across the two dimensions
- Identifying nuances across industries or geographies to further refine conclusions and determine whether there is a common set of best practices in ecolabel design or whether successful design is instead wholly dependent on product and market characteristics

Conclusion

Well-designed ecolabels succeed in transforming environmental friendliness from a credence attribute to a search attribute, and they "can serve as cognitive supports that economize on the attention of consumers and on transaction costs." (Grolleau & Caswell, 2006) Easier said than done.

Ecolabelling organizations should be careful about attributing the recent rise in organic food purchases to the environmental attributes of their labels, because "studies tend to show that consumers mainly buy organic products for their own health rather than for the health of the environment." (Codron, Siriex, & Reardon, 2006) Correlation does not always imply causation, and further studies would be useful in identifying the drivers behind ecolabelled product

consumption. If the primary driver is discovered to be consumer health, it is not a death knell for ecolabels – instead, it should inform the marketing efforts of labeling organizations.

Even though the market for socially and environmentally-friendly products appears to be growing, future growth may be limited by the market for the underlying product. Many studies have found that "consumers appear, in general and on average, to be less concerned about environmental and ethical issues than they are about the price and quality of the product." (Codron, Siriex, & Reardon, 2006) In order for ecolabelled products to be successful in the marketplace, they will likely need to be comparable to other goods on the shelf in terms of both quality and price. Purchasing of ecolabelled products tends to occur "only where there are no costs to the consumer in terms of price premium, lower quality and a requirement to 'shop around'." (De Pelsmacker & Janssens, 2007) This does not mean that environmentally-friendly products must be less expensive than comparable products, but rather that "eco-certification requires minimum quality standards to command a price premium." (Grolleau & Caswell, 2006) In fact, high prices can even work in favor of environmental claims, as "consumers may distrust environmental claims on low-priced products because they perceive a dissonance between a low price and an environmental promise." (Grolleau & Caswell, 2006)The jury is still out, then, when it comes to pricing and environmental claims. Environmental and social attributes may serve as a differentiator among competing products, but they are unlikely to win consumers pocketbooks of their accord.

None of this will be easy. As the saying goes, nothing worthwhile ever is. As Codron points out, "the realization that crafting a convergence of consumer signals will be a delicate and difficult process would itself be a step forward." (Codron, Siriex, & Reardon, 2006)

Acknowledgments

I am very grateful to Deborah Gallagher, my advisor at the Nicholas School of the Environment, for her advice, support, and feedback over many months and multiple iterations. Daniel Vermeer of Duke's Center for Energy, Development, and the Global Environment served as an informal mentor and coach, helping me frame my research questions to address both academics and practitioners. I would also like to acknowledge the Sustainability Consortium for their funding support. Finally, World Resources Institute and Ecolabelling.org were instrumental in the survey design and execution, in addition to serving as research collaborators and editors.

Works Cited

Atlee, J., & Kirchain, R. (2006). Operational Sustainability Metrics: Assessing Metric Effectiveness in the Context of Electronics-Recycling Systems. *Environmental Science & Technology* , 4506-4513.

Ball, J. (2009, July 16). What "Green" Labels Can Tell Us. *The Wall Street Journal* .

Chatterji, A. K., & Levine, D. I. (2006). Breaking Down the Wall of Codes: Evaluating Non-Financial Performance Measurement. *California Management Review* .

Codron, J.-M., Siriex, L., & Reardon, T. (2006). Social and environmental attributes of food products in an emerging mass market: Challenges of signaling and consumer perception, with European illustrations. *Agriculture and Human Values* , 283 - 297.

De Pelsmacker, P., & Janssens, W. (2007). A Model for Fair Trade Buying Behaviour: The Role of Perceived Quantity and Quality of Information and of Product-specific Attitudes. *Journal of Business Ethics* , 75: 361 - 380.

Figge, F., Hahn, T., Schaltegger, S., & Wagner, M. (2002). *The Sustainability Balanced Scorecard - Theory and Application of a Tool for Value-Based Sustainability Management.* Luneburg, Germany: Center for Sustainability Management, University of Lueneburg.

Foster, C., & Green, K. B. (2006). *Environmental Impacts of Food Production and Consumption.* Manchester, England: Department for Environment, Food and Rural Affairs.

Gallastegui, I. G. (2002). The Use of Eco-labels: A Review of the Literature. *European Environment* , 316-331.

Green Biz Staff. (2005, July 21). *New Study Shows Benefits of Sustainable Forestry Certification.* Retrieved August 28, 2009, from GreenBiz Web site: http://www.greenbiz.com

Grolleau, G., & Caswell, J. A. (2006). Interaction Between Food Attributes in Markets: The Case of Environmental Labeling. *Journal of Agricultural and Resource Economics* , 31(3): 471 - 484.

Guthman, J. (2004). Back to the land: the paradox of organic food standards. *Environment and Planning A* , volume 36, pages 511 - 528.

Hansen, B., Alroe, H. F., & Kristensen, E. S. (2001). Approaches to asses the environmental impact of organic farming with particular regard to Denmark. *Agriculture, Ecosystems and Environment* , 83: 11-26.

Hart, S. L. (1997). Beyond Greening: Strategies for a Sustainable World. *Harvard Business Review* , 67-76.

Kim, W. C., & Mauborgne, R. (1999). Creating New Market Space. *Harvard Business Review* , 83-93.

Lee, J., & Geistfeld, L. V. (1998). Enhancing consumer choice: Are we making appropriate recommendations? *Journal of Consumer Affairs* , 227-251.

Marshall, P. (2010). *Perry Marshall*. Retrieved February 28, 2010, from http://www.perrymarshall.com

McGovern, G. (2009, June 14). *Information is a Task.* Retrieved August 28, 2009, from Task Management: Giraffe Forum Web site: http://giraffeforum.com/wordpress

Olsen, S., & Galimidi, B. (2008). *Catalog of Approaches to Impact Measurement: Assessing Social Impact in Private Ventures.* Social Venture Technology Group with the support of The Rockefeller Foundation.

Ottoman, J. (1992). Industry's response to green consumerism. *Journal of Business Strategy* , 3-7.

Philpott, S. M., Bichier, P., Rice, R., & Greenberg, R. (2007). Field-Testing Ecological and Economic Benefits of Coffee Certification Programs. *Conservation Biology* , 21:4, 975 - 985.

Rainforest Alliance. (2010). *Sustainable Agriculture*. Retrieved March 20, 2010, from Rainforest Alliance: http://www.rainforest-alliance.org/agriculture

Ruben, R., Fort, R., & Zuniga-Arias, G. (2009). Measuring the impact of fair trade on development. *Development in Practice* , 19: 6, 777 - 788.

Sanders, J. (2009, April 28). *The War Over Eco-Labels.* Retrieved August 28, 2009, from GreenBiz Web site: http://www.greenbiz.com

Seuring, S., & Muller, M. (2008). From a literature review to a conceptual framework for sustainable supply chain management. *Journal of Cleaner Production* , 1699-1710.

Seuring, S., & Muller, M. (2007). Integrated chain management in Germany - Identifying schools of thought based on a literature review. *Journal of Cleaner Production* , 699-710.

Srivastava, S. K. (2007). Green supply-chain management: A state-of-the-art literature review. *International Journal of Management Reviews* , 53-80.

Sustainability: The Journal of Record. (2008). Roundtable: Green Labeling - Are Products Tagged "Eco-Friendly" Really Environmentally Correct? *Sustainability* , 299-303.

Teisl, M. F. (2003). What we may have is a failure to communicate: Labeling environmentally certified forest products. *Forest Science* , 668-680.

Teisl, M. F., Rubin, J., & Noblet, C. L. (2008). Non-dirty dancing? Interactions between eco-labels and consumers. *Journal of Economic Psychology* , 140-159.

United States Department of Agriculture. (n.d.). *Grading, Certification, and Verification*. Retrieved March 1, 2010, from USDA Agricultural Marketing Service: http://www.ams.usda.gov

Vaccaro, A. (2009, April 15). *Live from the Ceres Conference: Corporate Sustainability Reporting and Beyond.* Retrieved August 28, 2009, from GreenBiz Web site: http://www.greenbiz.com

Appendix

Text of the Ecolabelling.org survey to ecolabelling organizations

1. **Name of the host organization responsible for operating the ecolabels**
2. **What is the website or link for more information about this ecolabel?**

3. Public contact information

This information is for the purposes of contact from the public (and **will** be displayed on ecolabelling.org).
E-mail address
Phone number
Include '+' and the country code. Example: +1-xxx-xxx-xxxx.
Street number and name
City
Province / State
Postal / Zip Code
Country

4. Private contact
The following details are requested in case we have questions about the survey or to contact you in the future about ecolabelling.org. Note:
This information will **not** be displayed to the public.
Your name
Job title
Your e-mail address
Your phone number
Include '+' and the country code. Example: +1-xxx-xxx-xxxx.

TRACKING INFORMATION

1. Logo of the ecolabel program
Please upload the logo of your ecolabel. This will be shown on ecolabelling.org.
Choose File no file selected

2. Please briefly describe your ecolabel - its goals, scope and main components:
This information will be used as a basis to create a profile on ecolabelling.org. Please limit yourself to 100 words or less.

3. What does your ecolabel certify?
Tick all that apply:
Buildings Companies Facilities
Farms Fisheries Forests / Land holdings
Individuals Products Processes (e.g. management systems)
Services Supply Chains (e.g. chain of custody) Organizations
Other
If other, please specify

4. Is the ecolabel constructed as pass / fail (awarded / not awarded) or tiered (e.g. platinum, gold, silver) system?
Pass / Fail
Tiered
Other
If other, please specify

5. Is the ecolabel geographically restricted in terms of where applicants may apply for it?

It is available to applicants globally.
More than one country (e.g. US and Canada, or all of Europe)
Single Country
Local Region
Other
If other, please specify

6. Do multiple standards exist within the ecolabelling program?

e.g. Energy Star has standards for dishwashers, washing machines, air conditioners, etc.
Yes No
If yes, how many are there?

ABOUT THE ECOLABEL

7. Do you have any additional standards for this ecolabel currently in development?
Yes No
If yes, how many are currently in development?
If yes, please list the standards that are in development

8. Does your ecolabel formally recognize other ecolabels or certifications as being equivalent?
Yes No
If yes, please list those ecolabels your label recognizes

9. Is your ecolabel formally recognized by other ecolabels standards, certifications or regulations as being equivalent?
Yes No
If yes, please list those ecolabels that recognize your label

CONFORMITY ASSESSMENT

1. Does your program require certification OR registration before the ecolabel is awarded?
Applicants are certified against the ecolabels's criteria before using the label
Applicants register for the ecolabel in order to use the label (but certification is not required)

2. When someone applies for recognition by your ecolabel, who verifies or certifies compliance with its criteria?
The company or organization applying for the label (first party)
Our own organization (second party)
An independent organization (third party)
N/A no verification/certification is required

If independent third-party verifiers/certifiers are used, do they need to be accredited?
Yes, and are accredited by our organization
Yes, and are accredited by another organization
No
Not applicable

3. On average, how long does it take an applicant to get certified or registered for using the ecolabel?

Please estimate the time taken on average from when an entity first initiates the certification / registration process, to the final awarding of the ecolabel.
less than 2 weeks
2 weeks to 2 months
2-3 months
3-6 months
6-12 months
12-24 months
more than 24 months
Other
If other, please comment

4. **Does your ecolabel require entities to improve their performance over time?**
Yes No Other
If other, please comment

5. **Are field / site visits included in the certification/registration process?**
Yes No Other
If other, please comment

6. **Is proving chain of custody part of the certification/registration process?**
Yes No Other
If other, please comment

7. **Are applicants for the ecolabel required to report on specific metrics or data?**
Yes No Other

If other, please comment

8. **Is time-series data collected as part of the certification/registration process?**
Yes
No
Other
If other, please comment
If time-series data is collected, how often is it required?
Monthly
Quarterly
Yearly
More then yearly
Other
If other, please comment

9. **Do auditors or certifiers issue "corrective action reports" (or similar instruments)?**
Yes No Other
If other, please comment
If corrective action reports are used, are actions mandatory or recommended before the ecolabel is awarded?
Mandatory actions
Recommended actions

10. **Once awarded the ecolabel, how long can the entity use it for?**
Less than 1 year
between 1-2 years
between 2-4 years
5 years
more than 5 years
unlimited time period
Other/ Comment
Comments

11. **Once awarded the ecolabel, are there any additional audits or surveillance before the next full assessment?**
Yes No
Comments

12. **If audits are required after being awarded the ecolabel, who performs the audit?**

The entity that was awarded the ecolabel (first party)
Our own organization (second party)
An independent organization (third party)
No follow-up audit is required

13. Once awarded the ecolabel, are subsequent audits performed randomly or are they scheduled?
Random / Surprise
Scheduled
No audits are performed

14. Are verification, certification and / or audit reports publicly available?
Yes No
If no, please comment

ECOLABEL CRITERIA AND SCOPE

1. Is the ecolabel's standard or set of criteria publicly available?
We define 'standard' as the set of criteria that an entity is evaluated against in order to be awarded the label.
Yes No
If yes, please provide a link to it

2. Is there a process in place to regularly update or revise the standard or set of criteria?
Yes No
If yes, how often is it revised?
More than once per year
Every 1 Year
Every 2 years
Every 3 years
More than 3 years
As needed
Never

3. Is the standard for the ecolabel adapted for national or regionally relevant conditions and issues?
Yes No

4. Is the ecolabel intended for applicants in specific product or service categories? If so, which ones?
Tick all that apply:
Agricultural Produce Arts, Entertainment & Media
Beverages Building Products
Carbon Offsets Cars
Cleaning products Clothing
Construction/Real Estate Cosmetics/Personal Care
Education Electricity/heat
Energy Financial Services
Fish/ Fisheries Food/Food Services
Forest Products/ Paper Health Care Services & Equipment
Household Appliances Information Technology & Software
Machinery & Equipment Pharmaceuticals
Professional, scientific and technical services Raw Materials
Retail Semiconductors & Semiconductor Equipment
Technology Hardware Telecommunications
Textiles Tourism
Transportation Waste Management & Recycling

Water Other
If other, please specify

5. **Ecolabel Applicability – Environment**
Please indicate which of the following environmental issues are addressed by your ecolabel's criteria. Tick all that apply.
Animal welfare Biodiversity
Carbon/ GHG Emissions Carbon/ GHG Offsets
Chemicals Energy - Production / Sources
Energy - Use / Efficiency Forests
GMOs Material use
Natural Resource Pesticides / Herbicides / Fungicides
Recycling Soil
Toxics Waste
Water Quality Water Use
Wastewater/Sewage Other
If other, please specify

6. **Ecolabel Applicability – Social**
Please indicate which of the following social issues are addressed by your ecolabel's criteria. Tick all that apply.
Community Services (health care, schools etc.) Cultural / Indigenous / Minority Rights
Diversity Fair Trade
Gender Housing / Living Conditions
Human Rights Labor Relations / Human Resource Policies
Philanthropy Training and Education
Worker Health Conditions Work Safety
Other
If other, please specify

7. **Ecolabel Applicability - Supply Chain**
Please indicate which of the following portions of the product's supply chain are addressed by your ecolabel's criteria. Tick all that apply.
Mining / Extraction Commodity Production
Processing / Manufacturing Transportation / Logistics
Trade / Retail End / Consumer Use
Product Recovery / Recycling Chain of custody
Other
If other, please specify

IMPACTS

1. **What are the main expected environmental and/or social benefits being created by the ecolabel program?**

2. **Does your organization formally monitor or evaluate the environmental and/or social benefits of the ecolabel program?**
Yes, regularly
Yes, we have done a study
No, but we have plans to do so
No

3. **Please describe the tools your organisation uses (if any) to determine the environmental and/or social benefits of your ecolabels program**

4. **If a monitoring/evaluation tool or program exists, is there any information on the tools or methodology publicly available?**
   Yes No
   If yes, please link to it here

5. **If such monitoring is undertaken, what data is gathered?**

6. **How is data gathered and by whom?**

7. **Do you have any other evidence that points to positive environmental and/or social impacts as a result of the ecolabel program? If so, please describe here.**

8. **Are any of the results of an environmental/social benefits study public? If so, please provide a link here**

MARKET PENETRATION

1. **Is there a list of the products, services or organisations that have been awarded the ecolabel available on your website?**
   Yes No
   If yes, please provide a link:
   If there is a list of labeled products, services or organisations available online, how often is this list updated?
   As soon as a new label is awarded
   Every 3 months
   Every year
   Every 2 years
   Ad-hoc

2. **Please select the countries where your ecolabel is currently found:**
   To select multiple countries, hold down your CTRL (PC) or OPTION (Mac) key while selecting.
   United States
   Canada
   Afghanistan
   Albania
   Algeria
   American Samoa
   Andorra
   Angola
   Anguilla
   Antarctica
   Antigua and Barbuda
   Argentina
   Armenia
   Aruba
   Australia
   Austria
   Azerbaijan

3. **Please select the countries where facilities, fisheries or land have been certified according to your ecolabel:**
United States
Canada
Afghanistan
Albania
Algeria
American Samoa
Andorra
Angola
Anguilla
Antarctica
Antigua and Barbuda
Argentina
Armenia
Aruba
Australia
Austria
Azerbaijan

4. **Who is the primary target audience of the ecolabel?**
Tick all that apply.
Individual consumers Government purchasers Corporate purchasers (excluding retail)
Specifiers and designers Retailers Other
If other, please specify:

5. **Has the market share of products / services or organizations carrying your ecolabel ever been assessed?**
Yes No
If you have undertaken or know of specific studies that provide evidence of this, please attach, link to them or cite them here.
If yes and the study is public, please provide a link:
If a market share study was undertaken, who performed the study?
Our own organization
We participated in a study
Another external organization

6. **What percentage of your target audience do you estimate recognizes the ecolabel?**

7. **How does your organization seek to encourage purchasers or consumers to prefer products that meet the label? What marketing programmes do you have in place?**

8. **How many certificates or registrations have been awarded your ecolabel per year? Please fill in what you can with any data you have available.**

pre-2002 2002 2003 2004 2005 2006 2007 2008
Buildings
Companies
Facilities
Farms
Fisheries
Forests
Invidividuals
Products

Processes
Services
Supply chains
Organizations
Other
Total

CREATION OF THE ECOLABEL

1. **What body or group in the organization is responsible for devising or revising the ecolabel's standard (set of criteria)?**
   e.g. A Technical Advisory Board

2. **In creating the ecolabel, did your organization follow any of the following standards or norms for standard-setting?**
   Tick all that apply:
   WTO Technical Barriers to Trade (TBT) Agreement, Annex 3 ISEAL Code of Good Practice for Setting Social and Environmental
   Standards
   ISO 14024 ISO Guide 59
   ANSI Essential Requirements ASTM
   NSF Other
   If other, please specify

3. **In creating the ecolabel, did your organization follow any of the following standards or norms for certification or accreditation?**
   Tick all that apply:
   ISO Guide 65 Product Certification ISO 17021 Management system certification
   ISO 19011 QMS and EMS auditing (and auditor qualifications) ISO 17011 Accreditation
   ISO/IEC 17025 Testing and Calibration Laboratories Other
   If other, please specify

5. **What stakeholders, if any, were involved in developing the standard (set of critera) for the ecolabel?**

   Tick all that apply:
   Customers Companies
   Consumer Associations Experts / Consultants
   Foundations Governmental Agencies / Representatives
   Industry Associations International Government Organizations (e.g. UN, European Commission)
   International NGOs Investors
   Local Communities Local NGOs
   National NGOs Producers
   Research & Academic Suppliers
   Workers' associations, unions Other
   If other, please specify

6. **Are the stakeholders who participated in developing the standard or criteria for the label listed publicly?**
   Yes No
   If yes, provide link

7. **Was the ecolabel's standard developed using an open, consensus based process?**
   Yes No
   If yes, provide link to background material

8. **Do you have a procedure for stakeholders to raise objections, or a dispute resolution procedure?**
   Yes No
   If yes, please link to it here

ORGANIZATION DETAILS

1. **What type of organization are you?**
   Non-Profit
   For-Profit
   Hybrid / Social Venture
   Public / Private Partnership
   Industry Association
   Government
   Other
   If other, please specify

2. **What year was the organization established?**

3. **What year was your ecolabel established?**

4. **Please list the organizations, if known, who initially funded the creation of the ecolabels**

5. **How does your organization sustain itself financially?**
   For the following sources, please give the ESTIMATED PERCENTAGE of total income of your ecolabelling program.
   Licensing Fees
   Application Fees
   Other Label Fees
   Provision of other services
   Grants or Awards
   Other, please specify

6. **Is your organization a member of, or accredited by, any of the following organizations?**
   Tick all that apply:
   GEN – Global Ecolabelling Network
   IFOAM – International Foundation for Organic Agriculture
   ISEAL – International Social and Environmental Accreditation and Labelling Alliance
   ISO – International Organization for Standardization
   Other
   If other, please specify

7. **Is the list of current board members for the ecolabel publicly available?**

   Yes No
   If yes, provide link

FINAL QUESTIONS

1. **What would help you to improve the overall effectiveness of your ecolabel program?**

2. **How can we improve this survey in the future to make the results of maximum help and use to your organization?**