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The Eco-Sustainable Initiative: A Case Study in and Evaluation of Eco-labeling

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**THE ECO-SUSTAINABLE INITIATIVE: A CASE STUDY IN AND
EVALUATION OF ECO-LABELING**

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Readers:
Dr. Char Miller
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ABSTRACT

This paper reviews the significance of eco-labeling as a green consumption practice, and more broadly as a form of everyday environmentalism. It uses a random sample of 50 eco-labelers from an online database to analyze the current eco-labeling landscape and evaluate the business model of an emerging eco-labeling startup called the Eco-Sustainable Initiative (ESI). Conclusions include recommendations for ESI before its launch, and implications of ESI's merits and shortcomings for the eco-labeling landscape at large.

ACKNOWLEDGEMENTS

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Thank you to Char Booth at Honnold-Mudd Library, whose wealth of knowledge about research and realist's perspective helped me re-envision the structure and content of this thesis several times.

Thank you to my collaborators (including my always-supportive father) at the Eco-Sustainable Initiative (ESI), Francesco Dorigo and Mike Nasim. This thesis would not have been possible without your enthusiasm for and faith in ESI's genesis.

Thank you to my mother, Teresa Dorigo, and to my sister, Antonella Dorigo, who were unafraid to serve up the tough love when they sensed my drive faltering.

Finally, thank you to my friends for keeping up my energy during my writing and for continuously demonstrating interest in my ideas and progress. I hope to return the favor when you all complete your theses next semester.

PREFACE

I come from a family of entertainers. Not of the variety who can pick up a microphone or banjo and bring a crowd to its feet—Lord knows it is best if none of us ever tries that—but rather the kind that likes to spend its weekends scouring the floors, cooking enough for everyone and their mothers, and getting ready to do it all over again the next week. Probably because I am the least culinarily gifted member of my family and the most likely to leave conspicuous holes in my parents' perfectly arranged platters (palate and patience are not necessarily coincident virtues, as I have learned), my mother often charges me with the task of making last-minute trips to the grocery store for these occasions. So off I go, list in hand, with an internal dialogue that goes something like this:

Let's see, I need salmon. "Wild-caught." "Sustainably farmed." Wait, is there a difference? Tomatoes. These claim to be local, but those are labeled organic. Do I want local and non-organic, or imported and organic? Dish soap. Candidate #1 is stamped with an "environmentally friendly" symbol. Candidate #2 claims to contain less plastic and fewer harsh chemicals. Candidate #3 claims none of the above, but apparently helps save the lives of oil-slicked ducklings. Does that mean it works better? Do these prices tell me anything?¹

And on it goes. I am rather indecisive, but cannot imagine I am the only one who struggles with these decisions while I shop. In a store—and by extension, in a world—full of competing claims and countless eco-labels, how is a consumer to choose before checkout? My father thought he had the answer.

An environmentalist by tradition and a serial entrepreneur by trade, my father came to me in April 2014 with an idea: he wanted to launch an e-commerce

¹ I realize that while this type of situation can be confusing, it is a privilege to have this array of options available in the first place. Unfortunately, an extensive discussion of eco-labeled product access is outside the scope of this paper, but it is an extremely important consideration for green consumerism moving forward.

site for eco-friendly products—one that would streamline conscious consumption by ranking and listing sustainably-produced goods of all kinds in one place. And he enlisted my help to do it. Over the course of the summer, my father, his business partner, and I sketched our vision of this (still evolving) company. We met on average three times a week to do so. Sometimes it was in the hushed pockets of the teeming Qualcomm food court or a downtown taqueria during lunch hour. Sometimes it was in the tiled echo of our dining room, or in the suited-up and name-tagged chill of an “Escort Required” conference room at Janssen Pharmaceuticals.² From an outside perspective, we may have looked like a three-strong green collar conspiracy, hunching over laptops and notebook sketches in odd corners of town, but really it was just the three of us agreeing and disagreeing upon business model minutiae for hours at a time.

By the end of the summer, we had a rough plan for a new eco-labeler called the Eco-Sustainable Initiative (ESI). However, because of the piecemeal nature of our brainstorming process and the startup momentum pushing us to deliver digestible but not necessarily entirely worked-out proposals to potential partners, we entered autumn without having completed a full-fledged investigation of the eco-labeler’s features and their viability. The purpose of this thesis, then, is to describe the ESI model as it currently stands, critically evaluate its features in

² For most of the summer, we believed we would be partnering with the San Diego Regional Sustainability Partnership (SDRSP) to launch this project. Since neither ESI nor SDRSP had a brick-and-mortar facility to call its own, one of the Partnership’s board members, who worked at Janssen, graciously reserved a conference room for us whenever necessary. Our partnership with SDRSP and lack of office space were also the reasons behind our meetings all over town.

comparison to other eco-labelers in the market, and consider the implications of its merits and shortcomings for the eco-labeling landscape.

INTRODUCTION

Eco-Labeling: Defined

Eco-labeling is a form of sustainability measurement wherein certifying bodies assess the environmental footprint of a product or service (collectively, “product”), and upon its fulfillment of the relevant criteria, grant it certified status (Horne, 2009). For consumers, eco-labels serve as informational devices: they provide otherwise-opaque details about a product’s life cycle, which customers can use to inform their daily purchases (Koos, 2011). For producers, eco-labels serve as a means of distinguishing products from their non-eco-friendly counterparts in the market, accounting for and reducing the impact of their operations on the environment, improving their reputations as competitive firms, and reporting their performance to stakeholders. For governments, eco-labels serve as a tool for increasing awareness about environmental impact and changing behavior among consumers (Gallastegui, 2002). Given this variety of interested parties and motivations, eco-labels have, over time, emerged in a variety of forms.

Geographically, eco-labeling schemes may operate at regional, national, transnational, or global scales.³ They may be public and either federally- or state-managed, or private and either for- or non-profit. They may also be either voluntary or mandatory (Koos, 2011; Horne, 2009). At the intersections of these multiple

³ Transnational labels operate in groups of proximate countries. E.g. The Nordic Swan label operates in the five Nordic countries: Finland, Iceland, Denmark, Norway, and Sweden. By contrast, global labels have a wider international, transcontinental reach. E.g. Audubon International operates in North America, the Caribbean, Southeast Asia, Africa, the Middle East, etc.

characteristics, there are three primary varieties of eco-label recognized by the International Standardization Organization (ISO).

The Type I eco-label is the most common. With it, an independent, third party labeler selects criteria for earning its approval, assesses products that producers wish to have certified for a fee, and grants all products that meet its standards the right to use its eco-label for a designated period of time (Gallastegui, 2002). This type of label removes the guesswork from product comparison by reducing the complexities of a product's life cycle to a dichotomous "meets" or "does not meet" standard (Koos, 2011). With Type II labels, manufacturers, importers, or distributors (collectively, "producers") make one-sided environmental claims about the attributes of their products, e.g. by claiming their hairspray to be "CFC free" or their milk to be "antibiotic free." With Type III labels, independent, third party certifiers quantify a product's environmental footprint using a pre-set index, and publish this information in a format similar to a nutritional label (Gallastegui, 2002; Horne, 2009). This kind of label does not make assumptions about a product's environmental merits (or lack thereof), but rather makes information about a product transparent to consumers and leaves it to their discretion to evaluate.

In attempting to fill the aforementioned gaps in product transparency, producer responsibility and credibility, and consumer demand, eco-labelers have spawned a significant volume of eco-labeling schemes since the 1990s. Because of their proliferation and ever more frequent appearance in the consumer goods market, eco-labels merit careful consideration as informational instruments (2013: Proliferation, 2013).

Why Discuss Eco-Labels?

According to a 2010 estimate, over 400 distinct eco-labelers occupy the green market sector (Bogdan, 2010 as cited in Golden, Vermeer, Clemen, Michalko, Nguyen *et al.*, 2010). The number of products in two of the largest labeling categories, organic foods and forest products, has “grown at 20-30% per year since the late 1990s and early 2000s [USDA, 2007]. [Furthermore, a] 2009 Mintel study showed that the green market outperformed the US economy as a whole in 2009 and grew by over 40% from 2004 to 2009” (Bowden, Malthouse, O’Rourke, & Rodgers, 2010). Based on these trends, it seems that eco-labels are well on their way to becoming retail mainstays. However, before we place our blind faith in them and allow them to gain a greater foothold in the market, it is important for us to exercise a bit of the precautionary principle and consider what implications eco-labels might have for society at large. If they fulfill their stated goals of environmental impact reduction and consumer awareness promotion, then they may be worth increased investment. By contrast, if they act as flimsy environmental claims, our resources may be better allocated to other measures of environmental stewardship.

An Evaluation of Eco-Labeling

The literature abounds with arguments in favor of and in opposition to eco-labeling as a practice. Proponents hold that in making product information more transparent and accessible, eco-labels help increase consumers’ awareness about their environmental footprints. This in turn helps guide consumers’ everyday purchasing decisions and heightens public awareness with regard to environmental despoliation (Cooper, Ludlow, & Clift, 2007; Bowden *et al.*, 2010; Loureiro & Lotade,

2004; Williams, 2007). Information about products' differential environmental impacts thus better equips consumers to "vote" with their purchases wallets—i.e. to increase the demand for environmentally conscious goods and pressure producers into making changes to retain their market shares (Cooper *et al.*, 2007; Bonsi, Hammett, & Smith, 2008; Atanasoaie, 2013).

Proponents of eco-labeling also enumerate several production-side benefits of the practice. Eco-labels validate producers' claims of environmental stewardship, thereby distinguishing eco-friendly products from their conventional counterparts on the shelves, securing the support of and distribution by eco-sympathetic retailers, and encouraging competing firms to strive for higher standards of product sustainability (Ottman, 1996; Bowden *et al.*, 2010; Cooper *et al.*, 2007; Golden *et al.*, 2010). Lastly, in requiring producers to measure their environmental performance, eco-labeling provides a means for reporting this performance to leverage-wielding stakeholders and for learning how to further reduce their overall environmental impact (Ottman, 1996; Cooper *et al.*, 2007; Golden *et al.*, 2010).

Opponents of eco-labeling have about as many arguments against the practice as there are for it. Some claim that labeling—even when it holds products to a very high standard—yields negligible improvements in environmental impact. Until there is significant, industry-wide environmental performance overhaul, the cumulative impacts of industrial production will dwarf any improvements by ecologically minded firms (Pew Environment Group, 2011). Among the

inefficiencies of the emerging⁴ eco-labeling sector are the redundancy of the labels—which have proliferated to the point of 43% overlap⁵—the lack of uniformity in labeling standards, and poor label design and promotion. Together, these factors have rendered the eco-labeling landscape confusing for consumers and limited firms' market penetration (Bowden *et al.*, 2010; Golden *et al.*, 2010; Bonsi *et al.*, 2008; Ottman, 1996; van Amstel, Driessen, & Glasbergen *et al.*, 2008). Even in cases where the labels do not confuse consumers, they may encourage greater rather than less consumption, defeating the ultimate goal of environmental impact reduction (Williams, 2007).

While the rigor of certification is positively correlated with a label's success in the market, so too are the labeling process's costs and duration. Thus, despite compromises between the extensiveness and feasibility of environmental assessment, the costs of certification are still higher than some firms are willing or able to pay (Lavallee & Plouffe, 2004; Cooper *et al.*, 2007). Because of the nature of our industrial production system, eco-labeling also often requires environmental tradeoffs: for example, an apparel manufacturer looking to use natural rather than petroleum-based fibers in its textiles may opt to use cotton, but cotton is a thirsty and pesticide-intensive crop.

⁴ Eco-labeling is not necessarily new. It started in earnest with the Federal Trade Commission's adoption of Title 16 CFR Part 260: Guides for Use of Environmental Marketing Claims in 1992, but may arguably date as far back as the passage of the Pure Food and Drug Act in 1906 (Williams, 2007). However, since most of the sector's growth has taken place since the late 1990s and early 2000s, it still suffers from many of the inefficiencies of a fledgling market.

⁵ Overlap describes the phenomenon in which two or more eco-labelers label the same products, assessing them for the same criteria. This renders overlapping eco-labeling schemes redundant.

The practice of eco-labeling also raises questions of justice for other critics. Among the reasons for this is that labeling standards tend to prioritize environmental over related social or ethical metrics (Golden *et al.*, 2010), likely because the latter are more difficult to quantify. Also, the price premium on eco-labeled products is often enough to deter even individuals who *can* afford them—as evidenced by a gap between test subjects’ stated and actual willingness to pay for certified products (Rubik & Frankl, 2005)—but it can completely bar individuals who *cannot* afford them from participation in the green market (Mintie, N., Gifford, R., and Carrillo, C., personal communication, September 2013; B. Sarathy, personal communication, November 2014).⁶ Finally, because high environmental performance standards require significant financial and technological capital, eco-labeling can rob low-income countries of their competitive advantage in production, pushing those countries’ business elsewhere (Bonsi *et al.*, 2008). The aforementioned arguments for and against eco-labeling are synthesized (although not necessarily elaborated upon) in Appendix I.

The Role of Eco-Labeling in the Environmental Movement

As evidenced above, there is no clear consensus about how well eco-labeling measures up to its promise of environmental impact reduction. However, the question remains: Given its constellation of merits and shortcomings, is eco-labeling worth pursuing? Critics hold that at best, labeling and purchasing “eco-friendly” products is a form of institutionalized, “light green” environmentalism in which

⁶ N. Mintie, R. Gifford, and C. Carrillo were my supervisors during my internship with Uncommon Good’s urban agriculture initiative last year. According to them, low-income families’ limited access to organic-labeled foods was one of the primary motives for launching their project.

individuals can participate without making the significant sacrifices required of a genuinely low-footprint lifestyle (Williams, 2007; McKenzie, 2014; Mitchell *et al.*, 1992 as cited in Rootes, 2004; Castels, 1997 as cited in Rootes, 2004). As a market-based instrument, the practice operates within the confines of the capitalist system, and overemphasizes economic benefit over environmental and social goals (Harris & Symons, 2010; McKenzie, 2014). At worst, critics denounce this kind of free-market environmentalism as a strategic neoliberal tactic (Schuppert, 2011). To them, the idea of a “green economy” signifies the emergence of an environmental-industrial complex, with private and even public sector hegemony leveraging the growing fear of environmental demise to extract money from an unsuspecting populace (Zaruk, 2009).

Proponents of eco-labeling have much more faith in the economic reasoning behind the practice. By their logic, the “do-gooder rationale” of protecting the environment for its own sake is “morally sound but politically vulnerable” (Greider, 1981). In the face of non-sympathizers who do not believe in the actuality of environmental degradation or who do not wish to reverse it, economic incentives hold much more potential for compelling them to change than do appeals to ecological or social imperatives. There seems to be an especially compelling argument for *private sector* labeling schemes in the literature, in the form of support for businesses’ involvement in the environmental movement. Because business and industry have inflicted the most damage upon the biosphere, they have the most potential for repairing that damage (Anderson, 2010; Hawken, 1992; Visser, 2007). Businesses are better equipped with the power, resources, and expertise needed to

drive innovation and to achieve a high standard of environmental remediation than are other participants in the environmental movement—namely government agencies, non-governmental organizations, and citizen advocacy groups (Forbes, 2010; Beeton, Buckley, Jones, Morgan, Reichelt *et al.*, 2006). Businesses are thus in a privileged position to dictate the course of development, to give way to a new “restorative economy” (Hect, 2007; Hawken, 1992).

Commerce cannot continue along its current trajectory without hurtling us toward ecological collapse, but its reinvention as a more sustainable system will not happen of its own accord (Anderson, 2010). The rise of a “restorative” or “green” economy is contingent on consumers’ willingness to change their purchasing habits: the variety of products they buy, their methods for buying, and the companies from which they buy (Hawken, 1992). This is the particular niche eco-labeling is poised to fill. In providing consumers with information about a product’s environmental footprint, businesses can transition from their widely perceived roles as predators to one as educators. Labelers honor consumers so that consumers can honor products and the resources required to make them (Hawken, 1992). Lastly, the advancement of environmental causes will require participation by as many people as possible; as Bethge (2012) puts it, sustainability should not be considered the “domain of tree huggers” alone. Not everyone can participate in the movement by putting their bodies on the front line as McKenzie (2014) would have it, so promoting more conscious consumption through eco-labeling can effectively capture a wider pool of ecological sympathizers.

Although there are strong cases for and against eco-labeling, I ultimately believe in its potential to reform business operations and awaken a greater proportion of consumers to the need for such reform. The rest of this paper will thus assume that eco-labeling has a valuable role as an educational instrument in the larger environmental movement, and will aim to investigate the particular role of the Eco-Sustainable Initiative (ESI) in the same.

ESI FRAMEWORK AT A GLANCE

Significance of This Study

The previous section concluded with the claim that eco-labeling has a valuable role in the environmental movement as a consumer-educating and market-influencing tool. Even under this optimistic assumption scenario, a prudent launch of ESI would benefit from a more formalized assessment of the eco-labeling landscape and the space that ESI hopes to occupy within it. This is especially true because an estimated 75% of startups fail within their first five years of operation (Clark, 2014). Thus, in a sort of two-way exchange between academics and business, this kind of analysis could inform ESI's practices and provide it with an opportunity to refine its model before entering a highly competitive market. By the same token, this case study could help supply the literature with updated insight into the eco-labeling sphere in 2014.

The first step toward an assessment of the eco-labeling landscape and ESI's place in it is an explanation of the startup's business model. It is important to note, however, that startup models are moving targets, constantly evolving depending on

a company's needs, goals, membership, and resources (Yang, 2014). The following will describe ESI's model at its most basic level (with especial attention to its consumer-side features, since the labeler- and retailer-side features are less relevant and more technical than is necessary for this analysis) as it stood at the end of August 2014. Unless indicated otherwise, this information comes from a collection of documents (both complete and incomplete) which we collaboratively prepared over the summer.

Business Model: The Eco-Sustainable Initiative⁷

Mission

The inspiration for ESI originated with the observation of a few key gaps in the green online market, among them:

- The absence of streamlined resources for finding green products;
- The lack of transparency with respect to product sustainability; and
- The lack of knowledge about personal environmental footprints.

We felt that these were three powerful deterrents for participation in conscious consumption, the keys as well to forcing a paradigmatic shift in industrial production. To address the aforementioned, we envisioned a platform that could:

- Create a one-stop web marketplace for green products and services;
- Assure products' environmental and ethical soundness through the verification and assignment of easily comprehensible grades; and
- Facilitate personal footprint monitoring. (Dorigo, Dorigo, & Nasim, 2014d)

We hoped for this suite of features (elaborated in later sections) to simplify the process of buying green, empower consumers with greater options for and knowledge of green consumption, and propel sustainable lifestyles from the

⁷ Proprietary.

periphery to the core of American living (Dorigo, Dorigo, & Nasim, 2014e). From this motive was born ESI's mission statement:

The Eco Sustainable Initiative (ESI) leverages the power of an online storefront to make eco-friendly lifestyles more accessible, desirable, and holistic. By building networks of environmentally conscious producers and consumers, qualifying products and services according to its Green Grade standard, and actively engaging customers as they make everyday decisions, ESI aims to revolutionize sustainable living. (Dorigo *et al.*, 2014d)

Feature #1: Online Interface

ESI aims to develop an e-commerce and m-commerce (online and mobile, respectively) marketplace for products from all major areas of sustainable living (Appendix I; Dorigo *et al.*, 2014d), towards the goal of making the process of green shopping more streamlined for consumers. It was inspired by what we observed to be a disjointed array of green vendor websites: some well-organized sites offering only a narrow range of products (e.g. only furniture, only apparel), and other poorly organized sites offering a wide range of products. By our logic, the poor navigability of the green online sector would deter consumers from exercising their leverage on industrial production through the purchase of eco-friendly goods. Dingli and Cassar (2014) corroborate this, citing site-usability as one of the most important determinants of a customer's visit duration.

The idea behind using an online and mobile platform for ESI (which most eco-labelers do not do, as will be discussed later on) is to unite the activities of eco-labeling and retailing under one virtual "roof," and to extend the reach of green consumption to a wider audience. More specifically, ESI hopes to make it easier for young people—the most environmentally concerned (Kheiry & Nakhaei, 2012) and technologically savvy age demographic—to engage in this facet of the

environmental movement. Furthermore, online retail centers provide “an expanded opportunity for companies to create a cognitively and esthetically rich shopping environment in ways not readily imitable in the nonelectric shopping world” (Childers, Carr, Peck, & Carson, 2001).

Feature #2: Eco-Labeling Scheme

Another one of ESI’s primary goals is to increase the transparency of business operation and product sustainability so that consumers can make more informed choices before checkout. One of the ways that ESI hopes to promote this is by establishing an eco-labeling standard—called a “Green Grade”—for all products listed on its website (Dorigo *et al.*, 2014d). While ESI would be conducting the kind of extensive and scientifically based product analyses characteristic of a Type I labeler, it will be making second party environmental claims about its member organizations’ products, categorizing ESI as a Type II labeler.

ESI’s Green Grade standard would take the form of what is often referred to as a “life cycle analysis” (LCA): a quantitative assessment of a product’s energy and material inputs and outputs at every stage of its lifespan (Philander, 2012). While the particular methodology of LCAs varies with product type and labeling firm, one of the models for assessment that we have proposed for ESI can be found in Appendix II. No matter its ultimate host of assessment criteria (since these may need to be customized according to product variety), the goal for the Green Grade would be to assign to each product listed on ESI’s site a transparent, easily comprehensible, and cross-comparable score to help consumers learn about the ecological footprints of their everyday purchases. Importantly, ESI’s Green Grade

framework could also act as an advisory system for vendors. After a vendor's product is assigned a Green Grade, ESI's team could provide the vendor with feedback and concrete suggestions for improving its product, receiving a higher grade, and increasing its online sales (assuming that consumers will prefer higher-scoring over lower-scoring products) (Dorigo *et al.*, 2014d).

Feature #3: Personal Environmental Footprint Monitoring

The third and final of ESI's principal goals here discussed is to increase consumers' awareness of the impact that their everyday choices have on the environment, and to help them improve their environmental track records. Toward this goal, ESI hopes to design a monitoring function⁸ to help consumers set monthly targets for reducing their footprints through eco-friendly purchases, and track their progress toward those monthly reductions as compared to their pre-ESI footprints and/or to the national average footprint (Dorigo, Dorigo, & Nasim, 2014c).

The idea behind this monitoring feature is two-fold: to tap into individuals' motivation for continual self-improvement—a powerful promoter of healthy lifestyle change, as demonstrated by the success of the Bluetooth-powered physical activity tracker, the Fitbit (Tarachiu, 2014)—and to encourage more mindful consumption habits (Dorigo *et al.*, 2014d). Important to note is that this kind of monitoring is distinct from another environmental measure called “personal ecological space.” The latter similarly quantifies the environmental footprints associated with particular lifestyles, but is more of a macro-level policy instrument for taxing per capita use of “biologically productive land” than it is an individual-

⁸ Moniker to be determined.

level tracker and motivator (Wackernagel & Rees, 1996 as cited in Schuppert, 2011; Vanderheiden, 2009 as cited in Schuppert, 2011).

DATA ANALYSIS

To evaluate the model just described, I took a random sample of eco-labelers from an online database, recorded relevant data about them, and produced a number of figures summarizing the eco-labeling landscape into which ESI would be entering upon its launch. This process and its results are detailed below.

Methods

Data Source and Significance

The Ecolabel Index is the “largest global directory of ecolabels” currently available, profiling and tracking 458 labelers in 197 countries and 25 industries (Ecolabel Index, 2014). Basic information⁹ about each labeler is freely and publicly available on its website, the culminating product of Bowden *et al.*’s (2010) comprehensive, quantitative survey of the eco-labeling landscape. This incredibly informative survey—the first and possibly only of its kind, sponsored by the World Resources Institute (WRI) and Big Room, Inc.¹⁰—served as a model for my own analysis, but differs from it in a few key ways.

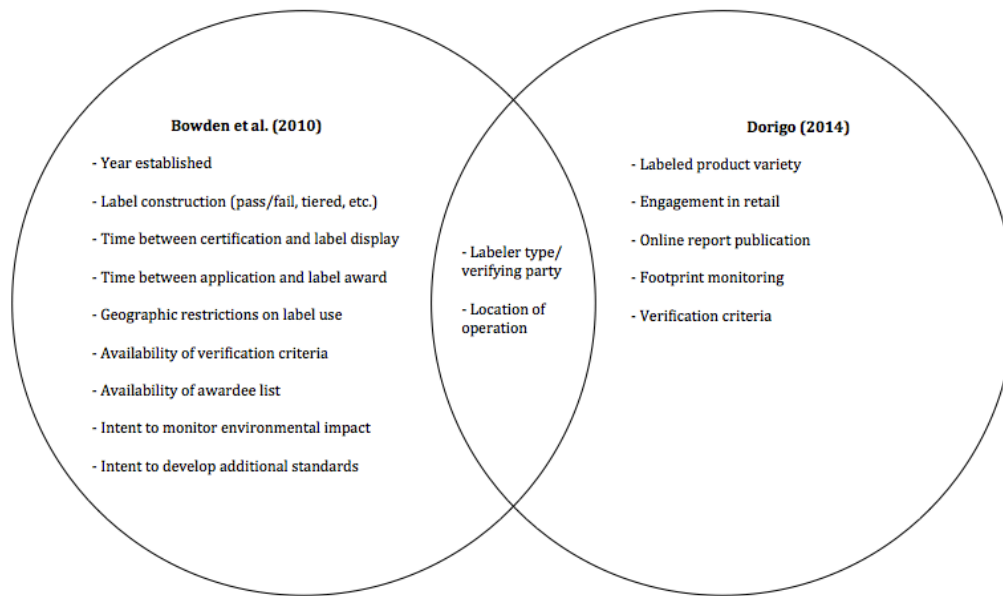
⁹ The Ecolabel Index provides an option for subscribing to its database for a fee of \$80 per month, which allows for the viewing of more detailed labeler profiles. I did not subscribe for this service, and so do not know what kind of additional information appears on the labelers’ full profiles.

¹⁰ The World Resources Institute is a “global research organization that turns big ideas into action at the nexus of environment, economic opportunity and human well-being” (“Making Big Ideas Happen,” n.d.). Big Room, Inc. is a certified B Corporation that “works with stakeholders to create transparency tools that improve environmental performance” (“The .ECO Domain,” n.d.).

Firstly, Bowden *et al.*'s analysis was based on information provided by 113 eco-labelers, self-selected by virtue of their being the only respondents to the research survey. While this self-selection yielded high-quality information for the WRI and Big Room researchers, it may have also biased the data toward labelers with better communication capabilities (e.g. those in English-speaking and/or developed countries), more established labeling systems (which could have made them more comfortable with disclosing proprietary information), etc. In contrast, I chose organizations for my sample as randomly as possible.

Secondly, if only because the pool of eco-labelers registered on the Ecolabel Index has grown from 340 to 458 labelers and from 42 to 197 countries since Bowden *et al.* started collecting data in 2009, my analysis is an update of their original survey. Because the eco-labeling landscape has expanded so significantly even over the course of the past 4-5 years, an update of the current and periodic reevaluation of the future landscape would help labelers, vendors, and others better understand and implement best practices in the eco-labeling sector.

Lastly, to suit the purposes of my analysis and make use of the limited information available to non-subscribing users of the Ecolabel Index, I collected data about a slightly different set of eco-labeler characteristics from those that appeared in Bowden *et al.*'s original study. The similarities and differences between these characteristics of interest are as follows:



Data Selection and Analysis

The list of eco-labelers on WRI's and Big Room's Ecolabel Index served as the primary source of information for my market analysis. To ensure the randomness of my sample (and thereby minimize the bias therein), I selected the first labeler on the Index's comprehensive list and every tenth labeler after it. Upon reaching the bottom of the Index list (which arrived in the middle of my interval of 10 labelers), I looped back to the beginning of the list and continued with the pattern until I reached a total of 50 eco-labelers (~11% of the total Index pool).¹¹

Using information provided by the Index's profiles for the selected labelers and/or by publicly available scripts on the labelers' websites, I populated a series of fields in an Excel spreadsheet to generate customized profiles for each member of

¹¹ According to basic statistics, the rule of thumb is that $n=30$ events (i.e. sample members) is a large enough number for achieving a normal distribution in data (G. Chandler, personal communication, May 2014). If this is true, then a sample of $n=50$ should sufficiently control for any skew in my distributions, i.e. remove sample bias.

my sample (Appendix IV). Then, for purposes of cross-comparability and tabulation, I recoded (i.e. consolidated into a handful of easily recognizable categories) the information I listed under “Labeled Product Variety” and “Criteria for Verification” to build a standard vocabulary for product types and labeling criteria.

To summarize the proportions of eco-labelers by type, engagement in retail, and publication of product reports online, I generated a trio of pie graphs using Excel. For product variety and verification criteria, I generated a pair of bar graphs; I selected this format because each labeler generally certifies more than one variety of product with more than one variety of verification criteria. For location of operation, I generated a basic map using the 10.2 ArcGIS software suite to represent the number of eco-labeling schemes per country. My hope in summarizing the results of my analysis with a series of graphs was to echo the nature of the eco-labels with which this study is concerned, as eco-labels are generally simple, colorful, informative visual representations of data as well.

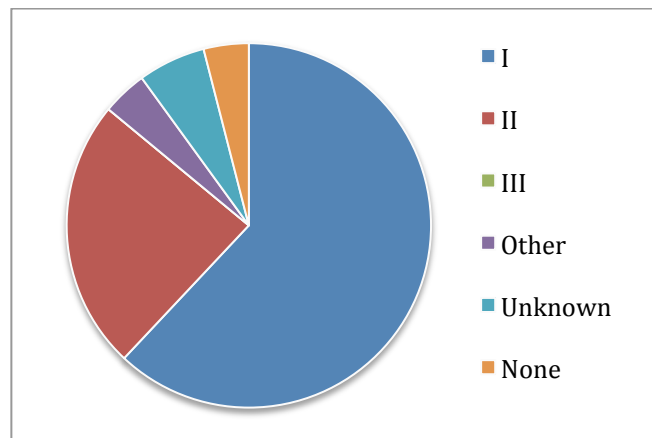
Results

Labeler Type

In my sample of eco-labelers, the breakdown of labelers by type (and incidentally, by verifying party) was as follows:

Table 1. Eco-Labelers by Type

Type	Verifying Party	Number of Labelers	Percentage of Labelers
I	3 rd Party	31	62%
II	2 nd Party	12	24%
III	Any	0	0%
Other	1 st Party	2	4%
Unknown	Unknown	3	6%
None	None	2	4%

Figure 1. Proportion of Eco-Labelers by Type

Meanwhile, Bowden *et al.*'s results for the same metric were as follows:

Figure 2. "Verification/Certification" (Bowden *et al.*, 2010)

Product Variety

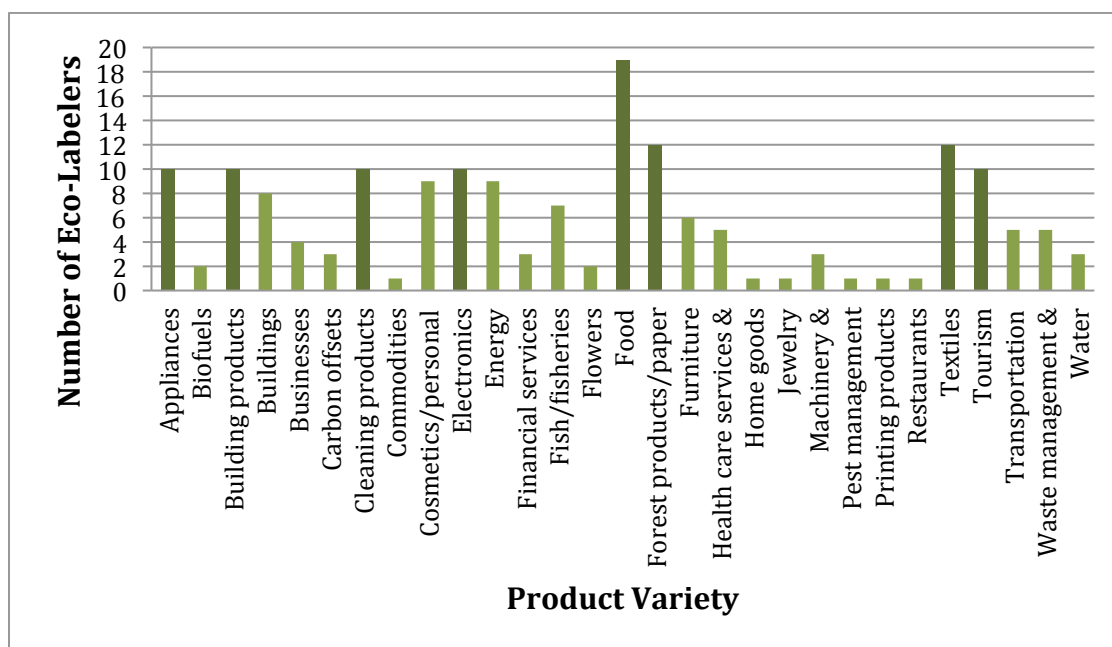
The breakdown of product variety in my analysis was as follows:

Table 2. Eco-labelers by Product Variety

Product Variety	Number of Orgs. Labeling This Variety
Appliances	10
Biofuels	2
Building products	10
Buildings	8
Businesses	4
Carbon offsets	3
Cleaning products	10
Commodities	1
Cosmetics/personal care	9
Electronics	10
Energy	9
Financial services	3
Fish/fisheries	7

Flowers	2
Food	19
Forest products/paper	12
Furniture	6
Health care services & equipment	5
Home goods	1
Jewelry	1
Machinery & equipment	3
Pest management	1
Printing products	1
Restaurants	1
Textiles	12
Tourism	10
Transportation	5
Waste management & recycling	5
Water	3

Figure 3. Number of Eco-Labelers by Product Variety



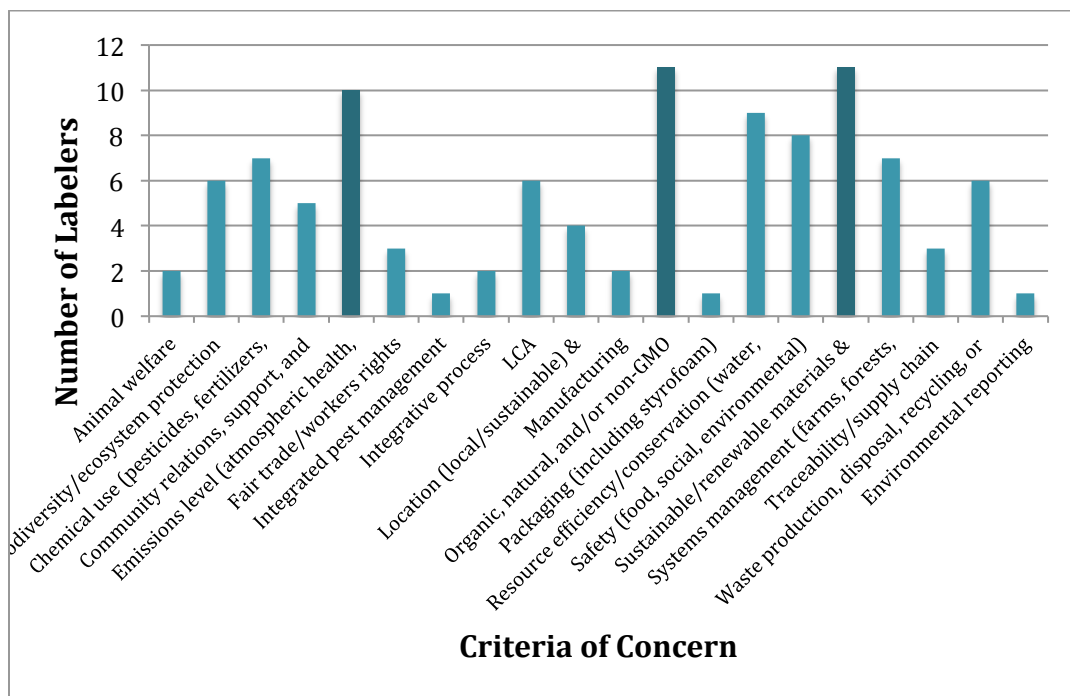
Labeling Criteria

The breakdown of labeling criteria among the 50 eco-labelers was as follows:

Table 3. Eco-Labelers by Labeling Criteria

Labeling Criteria	Number of Labelers Concerned with these Criteria
Animal welfare	2
Biodiversity/ecosystem protection	6
Chemical use (pesticides, fertilizer, chlorine)	7
Community relations, support, and education	5
Emissions level (atmospheric health, indoor air quality)	10
Fair trade/workers rights	3
Integrated pest management	1
Integrative process	2
Life cycle analysis (LCA)	6
Location (local/sustainable) & transportation	4
Manufacturing	2
Organic, natural, and/or non-GMO	11
Packaging (including Styrofoam)	1
Resource efficiency/conservation (water, energy)	9
Safety (food, social, environmental)	8
Sustainable/renewable materials & resources	11
Systems management (farms, forests, fisheries)	7
Traceability/supply chain	3
Waste production, disposal, recycling, or biodegradation	6
Environmental reporting	1

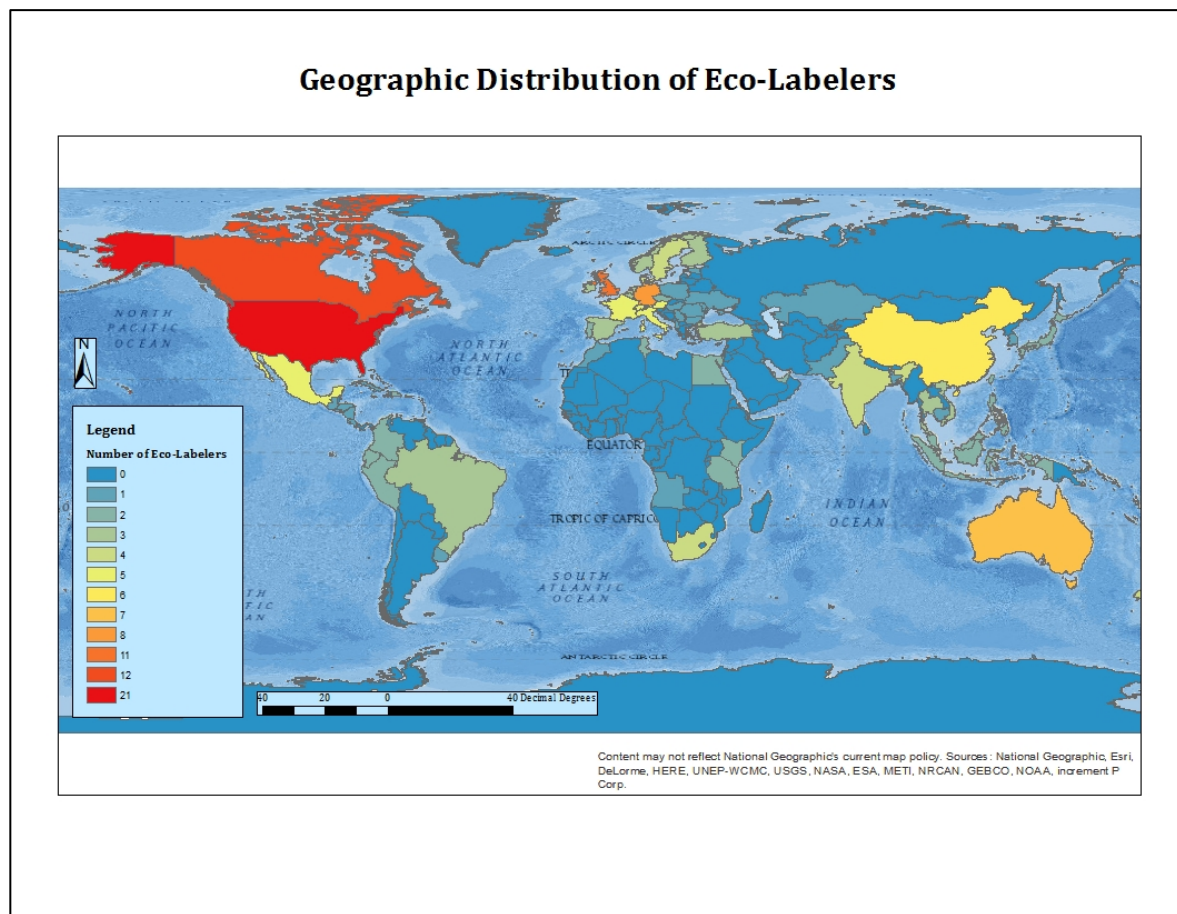
Figure 4. Number of Eco-Labelers by Criteria of Concern



Location of Operation

The breakdown of location of operation—here defined as the country in which a vendor can apply for and use an eco-label—is summarized in Figure 5. The darkest blue (on the coolest end of the spectrum) indicates 0 labelers from this sample operating in the similarly colored countries. The warmth of the colors in the map increases as a function of the number of eco-labelers from my sample operating in a particular country. The table and pie graph below the map illustrate this breakdown on a global regional level. Region titles were adopted from Bowden *et al.*'s documentation of the same, with Africa added.

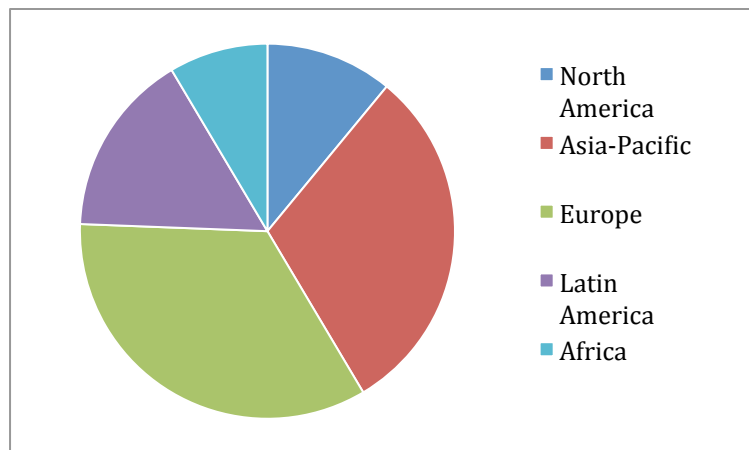
Figure 5. Distribution of Eco-Labelers by Location of Operation¹²



¹² World borders dataset is courtesy of Sandvik (2008).

Table 4. Eco-Labelers by Global Region

Global Region	Number of Labelers in Region	Percentage of Labelers in Region
North America ¹³	9	11%
Asia-Pacific ¹⁴	25	30%
Europe	28	34%
Latin America	13	16%
Africa	7	9%

Figure 6. Proportion of Eco-Labelers by Global Region

My findings for geographic distribution of labelers contrast significantly with those of Bowden *et al.*'s. Theirs were as follows:

Table 5. Bowden *et al.*'s Eco-Labelers by Global Region in 2010

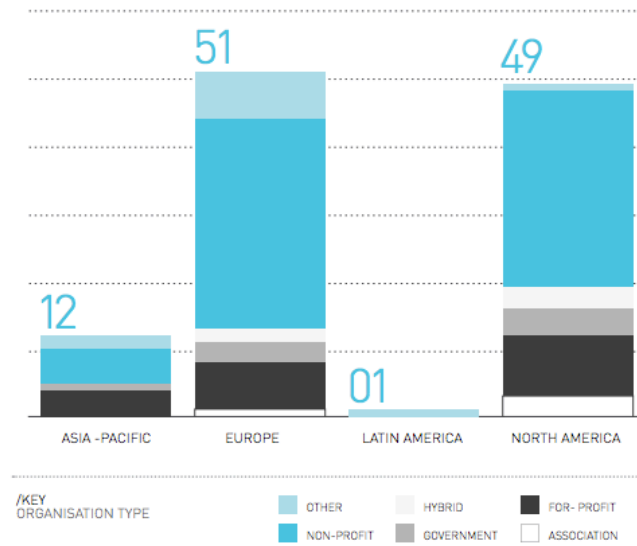
Global Region	Number of Labelers in Region	Percentage of Labelers in Region
North America	49	43%
Asia-Pacific	12	11%
Europe	51	45%
Latin America	1	1%
Africa ¹⁵	0	0%

¹³ Not including countries categorized as members of Latin America.

¹⁴ Including Oceania and the Middle East.

¹⁵ Bowden *et al.* did not include Africa in their survey of geographic distribution. Their publication does not indicate the reason for this omission, but my hypothesis is that they either did not receive responses from eco-labelers in the region, or that there were no eco-labelers in the region at the time they conducted their study.

Figure 7. “Number, Type and Location of Organisations Completing the Global Ecolabel Survey” (Bowden *et al.*, 2010)



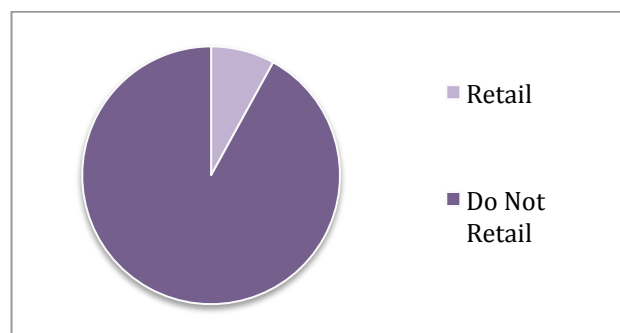
Engagement in Retail

In my pool of raw data, responses for “engagement in retail,” “online report publication,” and “footprint monitoring” were dichotomous rather than plural, as responses have been for all of the labeler characteristics discussed so far. The results of the first of these were as follows:

Table 6. Eco-Labelers by Engagement in Retail

	Number of Eco-Labelers	Percentage of Eco-Labelers
Retail	4	8%
Do Not Retail	46	92%

Figure 8. Proportion of Eco-Labelers That Retail Products



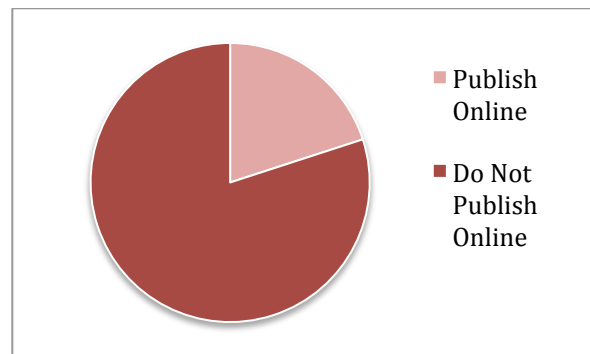
Online Report Publication

The proportions of eco-labelers that do and do not publish the environmental reports for their labeled products online were as follows:

Table 7. Eco-labelers by Publication of Product Info Online

	Number of Eco-Labelers	Percentage of Eco-Labelers
Publish Online	10	20%
Do Not Publish Online	40	80%

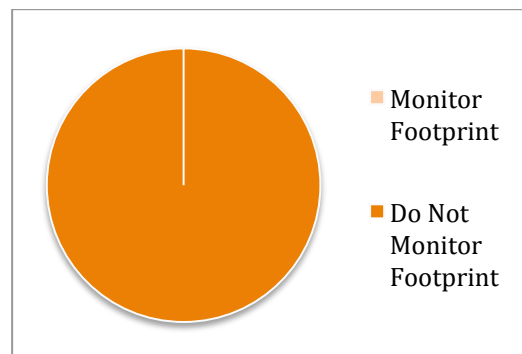
Figure 9. Proportion of Eco-Labelers That Publish Product Info Online



Footprint Monitoring

Of the 50 eco-labelers investigated in this study, none featured environmental footprint monitoring capabilities:¹⁶

Figure 10. Proportion of Eco-Labelers That Monitor Environmental Footprints



¹⁶ I have included a pie graph to represent the statistic for footprint monitoring for the sake of consistency with the other metrics in my analysis, but did not think a table was necessary for illustrating the information contained therein.

DISCUSSION

Table 1 and Figures 1-2 show that the distribution in labeler type has not changed significantly since 2010. However, the persistence of Type I labeling at a nearly two-thirds majority suggests that this model is the most effective for labelers—a trend that is consistent with consumers' expressed faith in third party certified products (Bowden *et al.*, 2010). Because it intends to certify environmental claims on behalf of producers, ESI qualifies as a Type II (second party) labeler. However, the demonstrated market domination by Type I labelers may make it worth revising the ESI model to outsource the certification process to a third party institution (e.g. private or university laboratory) or consortium of institutions. In addition to enhancing the label's credibility in the public eye, such business-academic bridging could significantly reduce the capital costs associated with scientific verification for ESI, and thereby reduce the pass-through costs for producers and consumers.

Table 2 and Figure 3 show that food has by far the highest frequency of attendance of any product variety in my sample. This result could be interpreted in two ways: 1) Attendance by many eco-labelers suggests high demand for labeled food products and thus an attractive focus for ESI's activity; or 2) There are already so many competing claims in the food sector, that adding to the noise would detract from the effectiveness of food eco-labeling rather than capitalize on its potential. The literature seems to support the latter ("Food eco-labels to proliferate," 2013), making the pursuit of the most popular product varieties less wise than popular belief might have it. By this logic, it may be beneficial for ESI to direct its attention

instead to product varieties with relatively few existing labeling schemes, e.g. biofuels, home goods, printing products, restaurants, etc.

Table 3 and Figure 4 show the most common eco-labeling criteria in my sample to be emission levels, organic-ness, and sustainability of materials and resources. While the LCA methodology that ESI intends to adopt encompasses these criteria, they may be worth especial attention during the environmental verification process. Viewed differently, because so many labelers already dedicate themselves to verifying these criteria, it may benefit ESI to allow existing labels to fulfill relevant sections of the Green Grade assessment. For example, if a producer would like to obtain an ESI label for its eco-friendly jeans but already uses certified organic cotton as its primary material, ESI could grant the producer full points for its organic-ness, and direct its resources to verifying the producer's supply chain, water use, workers rights, etc. instead.

Figures 5-6 and Tables 4-5 suggest that there has been a shift in the geographic distribution of eco-labelers since 2010. According to my analysis, the proportions of eco-labelers have increased from 11% to 30% in the Asia-Pacific region, from 1% to 16% in Latin America, and from 0% to 9% in Africa. This suggests an expansion of the eco-labeling market in the global South, possibly due to increased faith in the potential of market-based solutions to environmental problems therein. While ESI plans to begin its operations within the US, the growing

global embrace of eco-labeling may provide opportunities for vendors and labelers abroad to sell their products through ESI to reach the American market.¹⁷

Table 6 and Figure 8 show rather indisputably that it is rare for labelers and retailers to be one and the same, since there are relatively few second party labelers in the market. Given the strength of the first party labeling model, this may be another indication that second party verification can undermine the credibility of a label. Speaking more optimistically, this could also potentially mean that the second party labeling model is an untapped promoter of efficiency and accessibility. I came to this latter conclusion after visiting the websites of each of the labelers in my sample. While information about each organization's labeling scheme usually abounded on its website, there was little to no information about where to find that labeler's product in the real world. This informational disconnect could deter some consumers from putting in the effort to seek out eco-friendly products, making a consolidated labeler-retailer complex a more efficient model for eco-labeling.

Similarly, I could not find many environmental reports about specific products on their respective labelers' websites, as reflected in Table 7 and Figure 9. Curious and environmentally invested consumers may want to read more in-depth information about a product than is provided by the stamp on its packaging, making ESI's intent to bring detailed reports to the online marketplace an effective means for achieving its goal of increased consumer education.

Finally, Figure 10 shows that the concept of personal environmental footprint monitoring has yet to emerge on the eco-labeling scene. While

¹⁷ The global eco-labeling landscape may benefit from further research into the tradeoffs between long-distance transport and production under conditions of comparative environmental advantage.

accompanied by several logistical barriers, this feature may be worth the greatest investment by ESI's developers, especially its verifying scientists and software engineers. Furthermore, this personal monitoring feature may potentially serve as a platform for turning green consumerism social. As with Fitbit and other viral applications, personal monitoring could encourage friendly (and in this case, impact-reducing) inter-consumer competition, and thus a more personalized sense of environmental consciousness.

CONCLUSION

Eco-labeling is a useful instrument for promoting change in consumption and production practices, and for bringing about a corresponding reduction in environmental impact. However, like most solutions to environmental problems, it is only one tool in the remediation "box." While ESI and its competitors in the eco-labeling market address *kind* and *method* of consumption, they do not necessarily address *volume* of consumption—high levels of which are arguably one of developed countries' most destructive lifestyle habits. Thus, eco-labeling may well be employed in tandem with policies for reducing everyday consumption. Among those proposed are an attack on the "work-and-spend" model through a reduction of weekly work hours (Sanne, 2002), and the development of a large-scale "sharing economy" (Hamari, Sjoklint, & Okkonen, 2013).

Another implication of this analysis concerns the role of technology in the environmental movement. While critics often demonize technology for its destructive capabilities, this analysis suggests that ESI's environmental footprint

monitoring feature could effectively increase awareness of personal consumption habits. Extrapolating from this, innovative technologies like ESI's online network could start playing a larger role in the movement. Important to note, however, is that "technological innovation requires more than just technology alone;" it requires corresponding structural changes like the readjustment of labor skills and functions, the reorganization of supply chains, and the restructuring of producer-consumer relationships (Cramer & Zegveld, 1991).

Finally, this study leaves room for further inquiry into methods for addressing the race and class issues implicated in the largely white and middle-to-upper class green consumerism movement (McKenzie, 2014).¹⁸ It is a priority of ESI's to extend the accessibility of eco-friendly products to all consumers, but at its current developmental stage, it is significantly hindered by such policies as the subsidization of industrially produced consumer goods and their consequent price discounts. Moving forward, however, the success of eco-labeling and the larger environmental movement within which it is situated will be contingent not only on their environmental and economic performance, but also on their social inclusivity.

¹⁸ Unfortunately, because of the nature of my dataset (i.e. it did not include information about customer demographics, etc.), this question of justice was outside the scope of my paper.

APPENDIX I: PROS AND CONS OF ECO-LABELING SCHEMES

Pros	Cons
<p>Increase environmental awareness among consumers by communicating product characteristics, then encouraging them to buy lower-impact options (Cooper <i>et al.</i>, 2007; Bowden <i>et al.</i>, 2010; Loureiro & Lotade, 2004)</p> <p>Heighten the profile of environmental issues by making them more visible in everyday places (Williams, 2007)</p> <p>Pressure organizations to change their production practices; changes demand for and supply of green goods; gives rise to new specialized markets (Cooper <i>et al.</i>, 2007; Bonsi <i>et al.</i>, 2008; Atanasoae, 2013)</p> <p>Help producers validate their green claims, project credibility, and secure distribution from sympathetic retailers (Ottman, 1996; Bowden <i>et al.</i>, 2010)</p> <p>Lend producers a competitive advantage in the consumer goods market; raise the bar for environmental performance among competing green producers (Cooper <i>et al.</i>, 2007; Golden <i>et al.</i>, 2010)</p> <p>Provide producers an opportunity to learn about the footprints of their products and improve their environmental and social performance (Ottman, 1996; Cooper <i>et al.</i>, 2007)</p> <p>Allow producers a means for reporting environmental performance to stakeholders, who can then use leverage to guide direction of firm operations (Golden <i>et al.</i>, 2010)</p>	<p>May render single firms' environmental impact reductions negligible compared to cumulative impacts of whole production industries (Pew Environment Group, 2011)</p> <p>Confuse consumers because of competing claims, redundancy (up to 43%) of labels, and non-uniformity in labeling (Bowden <i>et al.</i>, 2010; Golden <i>et al.</i>, 2010; Bonsi <i>et al.</i>, 2008)</p> <p>May not penetrate market as well as traditional products because of insufficient label promotion; may not significantly improve sales (Bowden <i>et al.</i>, 2010; Ottman, 1996)</p> <p>May not diminish information gap between producers and consumers because of poor label design (van Amstel <i>et al.</i>, 2008)</p> <p>May mislead consumers into passive participation in environmentalism, or encourage greater rather than less consumption among them (Williams, 2007)</p> <p>Compromise between feasibility and rigor of evaluation methods; set arbitrary standards for certification; may entail tradeoffs in environmental harm and in time and costs of labeling (Lavallee & Plouffe, 2004; Cooper <i>et al.</i>, 2007)</p> <p>Prioritize environmental over social metrics of performance (Golden <i>et al.</i>, 2010)</p> <p>Bar lower-income individuals from participation in conscious consumption because of price premiums (Mintie, N.; Gifford, R.; and Carrillo, C., personal communication, September 2013)</p> <p>May rob developing countries of competitive advantage in production because of high environmental standards (Bonsi <i>et al.</i>, 2008)</p>

APPENDIX II: POTENTIAL PRODUCT CATEGORIES**Food**

Restaurants
 Bars
 Caterers
 Groceries
 Breweries
 Butchers
 Cheesemakers
 Farms
 CSAs
 Food Trucks
 Juice Bars
 Online Food Markets
 Farmers Markets
 Wine Shops

Water

Utility
 Quality
 Conservation

Energy

Utility
 Conservation
 Solar Installation
 Research

Interiors

Kitchen & Dining
 Bed & Bath
 Lighting
 Décor
 Flooring
 Windows
 Cleaning
 Air Quality
 Laundry
 Heating & Cooling

Transportation

Public
 Private

Apparel

Men
 Women
 Children & Infants

Exteriors

Landscaping
 Lighting
 Furniture
 Decking & Fencing
 Roofing & Siding
 Weatherization
 Paints & Finishes
 Adhesives
 Doors

Personal

Cosmetics
 Supplements
 Hygiene
 Electronics
 School & Office
 Pet Supplies

Services

Cleaning
 Recycling
 Health
 Consulting
 Contracting
 Plumbing
 Extermination
 Landscaping
 Moving
 Waste Disposal

Travel & Recreation

Spas
 Museums
 Aquariums
 Gardens
 Lodges

APPENDIX III: POTENTIAL CRITERIA DIVISIONS FOR ESI'S LCA

Reduce	Reuse	Recycle	Return
Renewable source	Upcycled source	Recyclable	Benefits philanthropy
Sustainable source	Reusable	Recycled source	Supports marginalized communities
Organic	Secondhand	Recycled packaging	Humane and cruelty-free
Natural	Refurbished	Recycling technology	Fair trade/wage
Non-GMO	Salvaged	Compostable	Vegan
Low-energy production	Repurposed	Aids in composting	Free range
Low-chemical production	Uses byproducts	Biodegradable	Grass-fed
Small-scale production			Support small business
Resource-saving			Educational
Resource-monitoring			Facilitates eco-friendly practices
Sustainably-run facilities			Research-promoting
Low-impact distribution or transportation			Native habitat-friendly
Handmade			Promotes biodiversity
Low-emission			Resource- or habitat-restoring
Seasonal resource			Carbon-offsetting
Local source			
Local production			
Reduces pollution			
Reduces waste output			

APPENDIX IV: LABELER PROFILES

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Allergy UK	British Allergy Foundation Seal of Approval	http://www.allergyuk.org/	
Label(er) Profile			
Endorsement scheme for a wide range of products (from air conditioners and bedding to cars and cleaning products) which specifically restrict or remove high levels of named allergens from the environment.			
Criteria for Verification		Location of Operation	
Safety (food, social, environmental)		United Kingdom	
Verifying Party		Labeled Product Variety	
Own organization (second party)		Appliances, building products, cleaning products, furniture	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
II	Yes	Yes	No

Eco-Labeling Organization	Labeling Scheme(s)		Website Link
AMA Marketing Gmb	AMA Biozeichen	http://www.ama.at/	
Label(er) Profile			
Established by the Ministry of Agriculture as a unique label for the different organic food producers' associations. It is only given for food produced by organic farming. There are two versions of the label, one without specification of the origin (black label) and one with specification of the origin (red label).			
Criteria for Verification		Location of Operation	
Organic, natural, and/or non-GMO		Austria	
Verifying Party		Labeled Product Variety	
Unknown		Food	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
Unknown	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)		Website Link
American Home Furnishings Alliance	Eco3Home		http://www.eco3home.com/
Label(er) Profile			
Eco3Home is a label for home furnishings in the USA. Products are manufactured by companies that commit to all three initiatives (health, safety, and environment) to achieve the label. This means they are working to incorporate eco-friendly business practices into: 1) core manufacturing operations; 2) global operations; and 3) product design and development.			
Criteria for Verification		Location of Operation	
Safety (food, social, environmental)		United States	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Furniture	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	Yes	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Asocolflores	Florverde Sustainable Flowers	http://www.florverde.org/	
Label(er) Profile			
Ensures all flowers grown and harvested in Colombia meet specific social and environmental standards. This program is designed to establish a common level of best practices that would improve the lives and living standards of all floral farm workers and their families. In addition to establishing social benchmarks, Florverde standards are meant to preserve and protect the soil and resources for the industry's farmers for generations to come and satisfy global demand and desire for high-quality, affordable flowers year round.			
Criteria for Verification		Location of Operation	
Fair trade/workers rights; organic, natural, and/or non-GMO; chemical use (pesticides, fertilizers, chlorine); systems management (farms, forests, fisheries)		Colombia, United Kingdom, United States	
Verifying Party		Labeled Product Variety	
Independent organization (third party): SGS, Icontec, NaturaCert		Flowers	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Associazione Italiana per l'Agricoltura Biologica (AIAB)	AIAB Organic	http://www.aiab.it/	
Label(er) Profile			
Italian Association for Organic Agriculture's certification. They certify organic products and companies in a broad range of categories, including: food, detergents, farms, cosmetics, stores, and bio-fibres.			
Criteria for Verification		Location of Operation	
Organic, natural, and/or non-GMO		Italy	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Cleaning products, cosmetics/personal care, food	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Audubon International	Audubon International	http://www.auduboninternational.org/	
Label(er) Profile			
Audubon International's environmental and sustainability education and certification programs require individuals responsible for the membership type to meet specific environmental or sustainability performance requirements. Standards currently exist for communities, neighborhoods, new land developments, land development renovations, schools, businesses, golf courses, and lodging facilities.			
Criteria for Verification		Location of Operation	
Biodiversity/ecosystem protection; resource efficiency/conservation (water, energy)		Angola, Antigua and Barbuda, Aruba, Australia, Bahamas, Barbados, Belgium, Bermuda, British Indian Ocean Territory, Cambodia, Canada, China, Costa Rica, Dominican Republic, Ecuador, Egypt, Germany, Guam, Hong Kong, Indonesia, Ireland, Jamaica, Japan, Kenya, Republic of Korea, Malaysia, Mexico, New Zealand, Peru, Philippines, Portugal, Qatar, Singapore, South Africa, Spain, Sweden, Switzerland, Thailand, Trinidad and Tobago, United Arab Emirates, United Kingdom, United States, Uruguay, Vietnam	
Verifying Party		Labeled Product Variety	
Own organization (second party)		Buildings, tourism, waste management and recycling	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
II	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Australian Forestry Standard Limited	Australian Forest Certification Scheme	http://www.forestrystandard.org.au/	
Label(er) Profile			
Enables users and consumers of timber and wood-based products to be assured that the origin of timber or wood-based products are derived from sources that have been independently, third-party certified from sustainably managed forests. The Australian Forest Certification Scheme covers both forest management (FM) and chain of custody (CC) certification.			
Criteria for Verification		Location of Operation	
Systems management (farms, forests, fisheries)		Australia	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Forest products/paper	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Australian government agencies (ACT, NSW, SA, QLD, VIC, WA)	Green Power Australia	http://www.greenpower.gov.au/home.aspx	
Label(er) Profile			
GreenPower is a national accreditation program that sets stringent environmental and reporting standards for renewable electricity products offered by energy suppliers to households and businesses in Australia. GreenPower is the only voluntary government accredited program that enables your electricity provider to purchase renewable energy on your household's or business' behalf. We independently audit the renewable energy sector to ensure that when you buy GreenPower, the energy you are buying is helping to develop new infrastructure in the renewable energy sector. This means that all the renewable energy purchased for GreenPower must come from generators built since 1997.			
Criteria for Verification		Location of Operation	
Sustainable/renewable materials & resources		Australia	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Energy	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Bio Suisse	Bio Suisse	http://www.bio-suisse.ch/en/consumer/bud/index.php	
Label(er) Profile			
Indicates fully organic, produced in Switzerland. More than 90% of the raw materials come from Switzerland.			
Criteria for Verification		Location of Operation	
Organic, natural, and/or non-GMO		Liechtenstein, Switzerland	
Verifying Party		Labeled Product Variety	
Independent organization (third party) following ISO/IEC Guide 65		Fish/fisheries, food	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
BRE Global	BREEAM	http://www.breeam.org/	
Label(er) Profile			
BREEAM (BRE Environmental Assessment Method) is an environmental assessment method for buildings around the world. BREEAM provides clients, developers, designers and others with: market recognition for low environmental impact buildings; assurance that best environmental practice is incorporated into a building; inspiration to find innovative solutions that minimize environmental impact; a benchmark that is higher than regulation; a tool to help reduce running costs and improve working and living environments; and a standard that demonstrates progress toward corporate and organizational environmental objectives.			
Criteria for Verification		Location of Operation	
Chemical use (pesticides, fertilizers, chlorine); emissions level (atmospheric health, indoor air quality); integrative process; resource efficiency/conservation (water, energy); safety (food, social, environmental); sustainable/renewable materials & resources		Czech Republic, Denmark, France, Netherlands, United Kingdom, United States	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Buildings	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Canadian Standards Association	CSA Sustainable Forest Management	http://www.csagroup.org/us/en/home	
Label(er) Profile			
The CAN/CSA-Z809 SFM chain-of-custody label demonstrates that forest products have originated from a forest certified to CAN/CSA-Z809 SFM and have been verified to the Canadian Standards Association (CSA) Chain-of-Custody requirements through an independent third party audit.			
Criteria for Verification		Location of Operation	
Systems management (farms, forests, fisheries)		Canada, France, United Kingdom, United States	
Verifying Party		Labeled Product Variety	
Independent organization (third party) following ISO 17021 Management System certification		Forest products/paper	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
CCOF, Inc.	California Certified Organic Farmers	http://www.ccof.org/	
Label(er) Profile			
CCOF promotes and supports organic food and agriculture through a premier organic certification program, trade support, producer and consumer education, and political advocacy. CCOF offers an expedited organic certification program for farmers and growers that need certification in less than 12 weeks.			
Criteria for Verification		Location of Operation	
Organic, natural, and/or non-GMO		United States	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Food	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Chlorine Free Products	Totally Chlorine Free	http://www.chlorinefreeproducts.org/	
Label(er) Profile			
We believe that no matter where a product is being manufactured that we can measure the impacts on the environment using: Sustainability Index = Environmental Policy + Environmental Management + Mill Process + Forestry Certification + Environmental Risk Management + Product Stewardship + Public Information + Environmental Compliance + Employee Recognition. We also know that by eliminating chlorine chemistry we can reduce water consumption, and the process cannot create known toxic chlorinated carcinogenic compounds like Dioxins, Furans, PCB's, etc.			
Criteria for Verification		Location of Operation	
Chemical use (pesticides, fertilizers, chlorine)		Belgium, Canada, China, Denmark, Finland, Germany, India, Mexico, Peru, Spain, United States	
Verifying Party		Labeled Product Variety	
Independent organization (third party) following ISO 17011, 17021, 19011, ISO/IEC 65		Textiles, food, forest products/paper, health care services & equipment, waste management & recycling	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Composite Panel Association	Environmentally Preferable Product (EPP) Downstream	http://www.compositepanel.org/index.asp?bid=1142	
Label(er) Profile			
The Composite Panel Association's (CPA) Environmentally Preferable Panel (EPP) Downstream Program is an easy way for consumers to identify environmentally responsible composite wood products. Products carrying the EPP Downstream logo were manufactured by a company that has demonstrated their environmental commitment by purchasing at least 50% CPA EPP certified composite wood products. These are composite wood panels that are certified as meeting the requirements of a CPA EPP environmental certification program, the most widely-specified environmental certification program for composite wood products in North America.			
Criteria for Verification		Location of Operation	
LCA		Canada, Mexico, United States	
Verifying Party		Labeled Product Variety	
Own organization (second party)		Building products, forest products/paper	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
II	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Conseil des appellations reservees et des termes valorisants	Bio Quebec	http://www.cartv.gouv.qc.ca/en/logo-bio-quebec	
Label(er) Profile			
The presence of the BIO Quebec logo on products ensures that these products have been certified according to the Quebec Organic Reference Standards, a set of requirements developed for Quebec businesses, and guarantees that the products contain at least 95% ingredients of organic origin.			
Criteria for Verification		Location of Operation	
Organic, natural, and/or non-GMO		Canada	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Food	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Deutsche Landwirtschafts-Gesellschaft (DLG)	Deutsches Guteband Wein (DLG)	http://www.wein.de/332.0.html	
Label(er) Profile			
The DLG quality label German Ribbon of Quality for Wine (Deutsches Guteband Wein) sets quality standards for wine that go beyond the statutory requirements. In addition to sensory demands made of the wine, the label also covers requirements regarding wine growing and further processing of the wine. Wine growing must be pursued in an environmentally sound manner, with restricted use of pesticides, herbicides, or fertilizers. This ensures long-term preservation of the vineyard habitat. This label offers consumers good orientation in selecting high quality wines that are cultivated in environmentally sound conditions.			
Criteria for Verification		Location of Operation	
Chemical use (pesticides, fertilizers, chlorine)		Germany	
Verifying Party		Labeled Product Variety	
Own organization (second party)		Wine	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
II	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
EcoMark Africa (EMA)	EcoMark Africa (EMA)	http://www.ecomarkafrika.com/	
Label(er) Profile			
The EcoMark Africa ecolabel is currently in development. It will consist of threshold criteria and indicators suitable for the African continent. The standard will be designed in such a way that existing standard systems may be benchmarked against it and accredited certifiers may use it to certify companies against it. In both cases, operations that fulfill the requirements of the EMA standard may use the EMA ecolabel. With its certifiable standard, EMA will provide one continent-wide and cross-sectoral label to mark sustainably produced African products. EMA will encourage African producers to access markets with sustainably produced goods and services. EMA will support in particular Small and Medium sized Enterprises (SMEs) to get certified and gain access to niche markets.			
Criteria for Verification		Location of Operation	
Manufacturing; sustainable/renewable materials & resources; systems management (farms, forests, fisheries); organic, natural, and/or non-GMO		South Africa	
Verifying Party		Labeled Product Variety	
Unknown		Commodities, fish/fisheries, food, forest products/paper, tourism	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
Unknown	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Ecova, Inc.	80 Plus	http://www.ecova.com/	
Label(er) Profile			
The original premise of the 80 Plus program was to enlist utilities and computer manufacturers to participate in an innovative upstream buy-down program to integrate more energy-efficient power supplies into desktop computers. The program has now evolved into the Ecos Plug Load Solutions program, which promotes and incentivizes a broad array of highly energy-efficient commercial and retail technologies.			
Criteria for Verification		Location of Operation	
Resource efficiency/conservation (water, energy)		United States	
Verifying Party		Labeled Product Variety	
Independent organization (third party) following IEEE standard		Electronics	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Energy Commission of Taiwan	Energy Label, Taiwan, ROC	http://www.energylabel.org.tw/index_en.asp	
Label(er) Profile			
To promote deployment of energy efficiency technologies and application of market incentive mechanisms, as well as to encourage manufacturers to invest in research and development of high energy efficiency products.			
Criteria for Verification		Location of Operation	
Resource efficiency/conservation (water, energy)		China, Taiwan	
Verifying Party		Labeled Product Variety	
Unknown		Electronics, energy	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
Unknown	No	Yes	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Estonian Ecotourism Association	Estonian Ecotourism Quality Label	http://www.maaturism.ee/index.php/?id=ehe-en	
Label(er) Profile			
EHE-mark is a quality mark to label tourism products in compliance with the principles of eco tourism. The objective of the EHE-mark is to promote the principles of eco tourism among tourism enterprises, consumers, and the public. By applying the EHE-mark to its products, the entrepreneur obliges to follow the principles of eco tourism and fulfill the requirements set to the products.			
Criteria for Verification		Location of Operation	
Community relations, support, and education		Estonia	
Verifying Party		Labeled Product Variety	
Own organization (second party)		Tourism	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
II	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Federal Ministry of Agriculture, Forestry, Environment and Water Management (Division: Environmental Management and Technology)	Austrian Ecolabel	http://www.umweltzeichen.at/cms/de/home/content.html	
Label(er) Profile			
The Austrian Ecolabel addresses itself primarily to consumers but also to manufacturers and public procurement. The ecolabel provides consumers with guidance in order to choose products or services with least hazard to the environment or health. The ecolabel draws the consumer's attention to aspects of environment, health and quality (fitness for use). Branch of the EU Ecolabel.			
Criteria for Verification		Location of Operation	
LCA		Austria	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Cleaning products, forest products/paper, appliances, cosmetics/personal care, textiles	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Finland Ministry of Agriculture and Forests	Luomu Sun Sign	http://www.ruokatieto.fi/ruokakasvatus?id=1068705	
Label(er) Profile			
Denotes controlled organic production. The official label of the Finnish inspection authorities; owned by the Ministry of Agriculture and Forestry.			
Criteria for Verification		Location of Operation	
Organic, natural, and/or non-GMO		Finland	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Food	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Global Aquaculture Alliance	Best Aquaculture Practices	http://www.aquaculturecertification.org/	
Label(er) Profile			
The Best Aquaculture Practices Certified (BAP Certified) mark on retail packaging tells consumers that seafood came from BAP certified aquaculture facilities. The BAP standards, developed by the Global Aquaculture Alliance, form the basis for BAP certification. The standards specifically protect biodiversity and worker rights within a program that addresses environmental, social, food safety and traceability issues throughout producers' operations. BAP certification is implemented through the Aquaculture Certification Council, an independent certifying agency that employs an international team of accredited evaluators to inspect facilities to the BAP standards through site inspection, sampling, and record reviews. BAP certification is currently available for shrimp farms and hatcheries, and seafood processing plants.			
Criteria for Verification		Location of Operation	
Biodiversity/ecosystem protection; fair trade/workers rights; safety (food, social, environmental); traceability/supply chain		Bangladesh, China, Ecuador, El Salvador, Guatemala, Honduras, India, Indonesia, Italy, Malaysia, Nicaragua, Thailand, United Kingdom, United States, Vietnam, Canada	
Verifying Party		Labeled Product Variety	
Independent organization (third party): Aquaculture Certification Council		Fish/fisheries, food	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Green Restaurant Association	Certified Green Restaurant	http://www.dinegreen.com/	
Label(er) Profile			
Green Restaurant Association Seal is an ecolabel for restaurants that have committed to sustainability.			
Criteria for Verification		Location of Operation	
Resource efficiency/conservation (water, energy); waste production, disposal, recycling, or biodegradation; chemical use (pesticides, fertilizers, chlorine); safety (food, social, environmental); packaging (including Styrofoam); community relations, support, and education		Canada, United States	
Verifying Party		Labeled Product Variety	
Own organization (second party)		Restaurants	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
II	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Green Tick Certification Limited	Green Tick	http://sustainablesue.wix.com/greentick	
Label(er) Profile			
Independent sustainability certification of products, services, and corporations based on a life-cycle audit of performance against the Green Tick Sustainability Standards. GreenTick also certifies for Climate-Friendly, Natural, GE-Free, Organic, and Fair Trade brands.			
Criteria for Verification		Location of Operation	
LCA		Australia, New Zealand, United States	
Verifying Party		Labeled Product Variety	
Independent organization (third party) following ISO 17011, 17021, 17025, 19011, Guide 65		Appliances, building products, buildings, carbon offsets, cleaning products, cosmetics/personal care, electronics, energy, financial services, fish/fisheries, food, forest products/paper, health care services & equipment, machinery & equipment, textiles, tourism, transportation, waste management & recycling, water	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
IPM Institute of North America, Inc.	IPM Star	http://www.ipminstitute.org/ipmstar.htm	
Label(er) Profile			
The Integrated Pest Management (IPM) Star Certification Program recognizes IPM practitioners who meet a high standard for IPM in schools, childcare centers and school-age programs. IPM STAR certification is a voluntary step that clearly establishes your IPM competence in a way that is readily recognized by others both in and outside of your community.			
Criteria for Verification		Location of Operation	
Integrated pest management		United States	
Verifying Party		Labeled Product Variety	
Own organization (second party)		Pest management	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
II	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
<u>KvVM Környezetbarát Termék Nonprofit Kft.</u>	Hungarian Ecolabel	http://www.kornyezetbarat-termek.hu/	
Label(er) Profile			
Hungarian national ecolabel developed by the Ministry of Environment in 1994. Goals and procedures meet the requirements of ISO 14024 standard.			
Criteria for Verification		Location of Operation	
Safety (food, social, environmental); resource efficiency/conservation (water, energy); emissions level (atmospheric health, indoor air quality); waste production, disposal, recycling, or biodegradation; biodiversity/ecosystem protection		Hungary, Romania	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Building products, cleaning products, cosmetics/personal care, forest products/paper, appliances, machinery & equipment, tourism, transportation, waste management & recycling	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Living Planet	Green Crane: Ukraine	http://www.ecolabel.org.ua/	
Label(er) Profile			
Green Crane is a voluntary, multiple specifications based environmental labelling program that operates to international standards and principles. It is awarded to products with relatively less environmental impact compared to similar products, during their entire life cycle, from extracting and collecting the product materials, to the manufacturing, distribution, use and consumption, disposal, and recycling. Founded in 2002, Green Crane is the only Ukrainian environmental standard and certification mark. The Green Crane Program has been successfully audited by the Global EcoLabelling Network (GEN) as meeting ISO 14024 standards for eco-labelling in 2004.			
Criteria for Verification		Location of Operation	
LCA		Ukraine	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Appliances, building products, cleaning products, cosmetics/personal care, food, forest products/paper, textiles, tourism	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Minergie Association	Minergie	http://www.minergie.ch/home_en.html	
Label(er) Profile			
MINERGIE is a label for new and refurbished low-energy-consumption buildings indicating comfort made possible by high-grade building envelopes and the continuous renewal of air. In general, energy consumption must not be higher than 75% of average buildings, and fossil fuel consumption must not be higher than 50% of the consumption of such buildings. The MINERGIE-P and MINERGIE-A Standards have higher requirements. The MINERGIE ECO Standard adds ecological and social requirements.			
Criteria for Verification		Location of Operation	
Resource efficiency/conservation (water, energy)		France, Liechtenstein, Switzerland	
Verifying Party		Labeled Product Variety	
Own organization (second party)		Buildings	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
II	No	Yes	No

Eco-Labeling Organization	Labeling Scheme(s)		Website Link
Nike	Nike Considered Design	http://www.nike.com/us/en_us/	
Label(er) Profile			
Nike Considered Design is a sustainable line of shoes introduced by Nike, Inc. The line utilizes materials found primarily within 200 miles (320 km) of the Nike factory which reduces the energy used for transportation, diminishing the resulting climate change impact. The manufacturing process reduces solvent use by more than 80% compared with Nike’s typical products. The leather comes from a tannery that recycles wastewater to ensure toxins are kept out of the environment, and it is colored using vegetable-based dyes. Hemp and polyester are used to make the shoe's woven upper and shoelaces. The mid-sole is cut to lock into the outer sole, reducing the need for toxic adhesives. The shoe's outer sole includes rubber made from recycled factory rubber waste.			
Criteria for Verification		Location of Operation	
Location (local/sustainable) & transportation; chemical use (pesticides, fertilizers, chlorine); sustainable/renewable materials & resources		United States	
Verifying Party		Labeled Product Variety	
No certification required		Textiles	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
None	Yes	Yes	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Occupational Knowledge International	Better Environmental Sustainability Targets (BEST) Standard 1001	http://www.okinternational.org/lead-batteries/Background	
Label(er) Profile			
The Better Environmental Sustainability Targets (BEST) certification provides recognition for lead battery manufacturers that meet minimum emission standards and agree to take back used batteries for environmentally sound recycling. The objective is to reduce emissions from lead battery plants and recyclers, and prevent lead poisoning through an incentive program for these companies.			
Criteria for Verification		Location of Operation	
Emissions level (atmospheric health, indoor air quality); waste production, disposal, recycling, or biodegradation		India	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Electronics, energy, waste management & recycling	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
ÖkoControl Gesellschaft für Qualitätsstandards ökologischer Einrichtungshäuser mbH	OkoControl	http://www.oekocontrol.com/	
Label(er) Profile			
The OkoControl Label is given to furniture, bedding, or mattresses made of natural, sustainable materials after strict tests made by independent and accredited test laboratories. It's a label guaranteeing the low output of dangerous emissions.			
Criteria for Verification		Location of Operation	
Sustainable/renewable materials & resources		Germany, Austria	
Verifying Party		Labeled Product Variety	
Independent organization (third party) following ISO 17025		Furniture, textiles	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Otto GmbH & CO KG	Umweltbaum: The Environment Tree (including EcoBio, EcoRecycling, EcoResource, EcoEngagement, EcoEnergie, EcoVital)	https://www.otto.de/	
Label(er) Profile			
Otto is an eCommerce site selling a variety of consumer products. It boasts a host of eco-labeling schemes, assigned depending on the characteristics of a particular product.			
Criteria for Verification		Location of Operation	
Organic, natural, and/or non-GMO; sustainable/renewable materials & resources; waste production, disposal, recycling, or biodegradation; community relations, support, and education		Germany	
Verifying Party		Labeled Product Variety	
Independent organization (third party): Organic Content Standard, Forest Stewardship Council, Global Recycle Standard, bluesign, etc.		Textiles, appliances, furniture, electronics, home goods	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	Yes	Yes	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Proctor & Gamble	Future Friendly	http://www.pg.com/en_UK/sustainability/environmental-sustainability/pg-future-friendly.shtml	
Label(er) Profile			
Future Friendly is a partnership between trusted P&G brands and leading sustainability experts aimed at inspiring us to reduce waste in our lives. The goal is to show consumers - in a very achievable way - how to save water, waste and energy at home with trusted brands like Pampers, Ariel, Flash, Fairy, Duracell and Iams. Each brand in the partnership is designed to use at least 15% less energy, water or packaging – whether it's in the way they're manufactured or used. Nearly 80% of the energy used in a typical load of laundry comes from heating water, for example, but by using cold water and Ariel Excel Gel, consumers can reduce energy consumption and their utility bills.			
Criteria for Verification		Location of Operation	
LCA		United Kingdom, Ireland	
Verifying Party		Labeled Product Variety	
Own organization (second party)		Cleaning products	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
II	Yes	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Re-energy Foundation	100% Energia Verde	http://www.100energiaverde.it/	
Label(er) Profile			
The certification in Italy is issued for energy produced from wind, PV, solar thermal, geothermal, sustainable hydro, tidal and waves, biogas, and sustainable biomass and biofuel plants. The certification does not cover energy from fossil fuels, nuclear, or thermal transformation of solid urban wastes. Nevertheless it is admitted to yield 20% of the energy production from water pumping and non-sustainable hydro.			
Criteria for Verification		Location of Operation	
Sustainable/renewable materials & resources		Italy	
Verifying Party		Labeled Product Variety	
Own organization (second party)		Energy	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
II	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Round Table on Responsible Soy Association	RTRS Certified Soy	http://www.responsiblesoy.org/	
Label(er) Profile			
RTRS Certified Soy is an ecolabel that certifies soy, soy derivatives, and soy products along the supply chain, including flows of material and associated claims. RTRS is a global platform made up of the main stakeholders of the soy value chain with the common objective of promoting the production of responsible soy through cooperation and open dialogue with the parties involved for making it economically feasible, socially beneficial and environmentally appropriate.			
Criteria for Verification		Location of Operation	
Fair trade/workers rights; community relations, support, and education; systems management (farms, forests, fisheries)		Brazil	
Verifying Party		Labeled Product Variety	
Independent organization (third party) following ISO/IEC Guide 65		Food, biofuels	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
SCS Global Services	Fair Labor Practices and Community Benefits, FloorScore, Indoor Advantage, Certified Biodegradable, Recycled Content, Sustainable Choice, Certified Pesticide Residue Free	http://www.scsglobalservices.com/fair-trade-certification?scscertified=1	
Label(er) Profile			
Scientific Certification Systems, Inc., now doing business as SCS Global Services, is a trusted leader in third-party environmental, sustainability and food quality certification, auditing, testing and standards development. We partner with companies, government agencies, and stakeholders worldwide to identify and drive practices, policies and processes that advance the goals of sustainable development and give innovators a competitive advantage. Working with capable leaders across the forestry, green building, energy, agricultural, fisheries, and consumer products sectors, we proudly provide services in every corner of the earth. These services are enabling policy-makers, procurement officers, company decision-makers, and consumers to make informed decisions based on the highest level of environmental, ethical, and quality accountability. We also are playing a leading role in driving the development of national and international leadership standards to create a framework for continuous improvement.			
Criteria for Verification		Location of Operation	
Fair trade/workers rights; LCA; emissions level (atmospheric health, indoor air quality); safety (food, social, environmental); organic, natural, and/or non-GMO; chemical use (pesticides, fertilizers, chlorine)		United States	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Forest products/paper, carbon offsets, food, biofuels, flowers, buildings, textiles, jewelry, fish/fisheries	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Sourcemap	Sourcemap	http://sourcemap.com/	
Label(er) Profile			
Sourcemap.com supports sustainable decision-making through our platform for supply chain transparency, where producers share detailed information about their processes with their buyers and their buyers’ buyers, all the way to the end consumer. A Sourcemap ecolabel points to information on a product's components and their origins, as well as optional environmental and social footprints. The information is provided and self-certified by suppliers, manufacturers, and the general public; sourcemaps can also bear third-party certifications. A suite of supply chain management and traceability solutions is also available to paying users. Scanning a Sourcemap ecolabel on a product directs consumers to an interactive map of the product’s supply chain, often providing information on environmental footprint and social impact.			
Criteria for Verification		Location of Operation	
Traceability/supply chain		Unknown	
Verifying Party		Labeled Product Variety	
Company/organization applying for the label (first party); independent organization (third party); consumers		Appliances, building products, buildings, cosmetics/personal care, electronics, fish/fisheries, food, forest products/paper, furniture, machinery & equipment, textiles, transportation	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
Other	No	Yes	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
SureHarvest	Protected Harvest	http://www.protectedharvest.org/	
Label(er) Profile			
Protected Harvest is an eco-label with the stated mission of helping farmers meet environmental standards that yield high quality products and preserve healthy land for future generations. The Protected Harvest parent company, SureHarvest, provides technical support and collaborates with qualified organizations to develop region- and crop- specific verifiable environmental performance standards, which are peer reviewed before being presented to the Protected Harvest Advisory Board for adoption. Each Protected Harvest production standard is written to reflect the unique growing requirements and environmental considerations of the crop and the specific bioregion in which it is grown. A “typical” standard is divided into four major sections: whole farm management, soil management, water management, and air quality management.			
Criteria for Verification		Location of Operation	
Systems management (farms, forests, fisheries)		United States	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Food	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Sustainable Green Printing Partnership	Sustainable Green Printing Partnership	http://sgpppartnership.org/	
Label(er) Profile			
The mission of the Sustainable Green Printing Partnership is to encourage and promote participation in the worldwide movement to reduce environmental impact and increase social responsibility of the printing industry through certification and continuous improvement of sustainability and best practices within manufacturing operations.			
Criteria for Verification		Location of Operation	
Sustainable/renewable materials & resources; traceability/supply chain		Australia, Canada, United States	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Printing products	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
The Carbon Trust Standard Company Ltd.	Carbon Trust Standard	http://www.carbontrust.com/client-services/footprinting/footprint-certification	
Label(er) Profile			
The Carbon Trust Standard is a certification mark of excellence, designed to recognize organizations for real carbon reduction. To qualify, organizations must measure, manage and genuinely reduce their carbon footprint and commit to reducing it year on year. Benefits of achieving the standard include: independently validating environmental credentials; meeting increasing consumer demand for environmental credentials and accountability; increasing ability to meet environmental procurement requirements; improving investors' view of an organization's future; retaining and attracting an increasingly environmentally-aware workforce; and meeting legislative requirements. Certification is valid for two years, after which organizations must undergo recertification.			
Criteria for Verification		Location of Operation	
Emissions level (atmospheric health, indoor air quality)		United Kingdom	
Verifying Party		Labeled Product Variety	
Independent organization (third party) following ISO 14064 and GHG protocol		Carbon offsets, energy	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
The Climate Registry	Climate Registered	http://www.theclimateregistry.org/	
Label(er) Profile			
The Climate Registry is a non-profit organization that sets consistent and transparent standards to calculate, verify, and publicly report greenhouse gas (GHG) emissions into a single registry. The Registry offers different levels of certification, supports both voluntary and mandatory reporting programs, and provides comprehensive data to reduce GHG emissions. The Registry's accounting infrastructure supports a wide variety of programs that reduce GHG emissions, including voluntary, regulatory, and market-based programs. The goal of the Climate Registry is to highlight and recognize companies that are taking initiative to voluntarily measure and reduce their emissions in a credible way.			
Criteria for Verification		Location of Operation	
Emissions level (atmospheric health, indoor air quality)		Canada, Colombia, Mexico, United States	
Verifying Party		Labeled Product Variety	
Independent organization (third party) following ISO 14065		Businesses	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
The Ethical Company Organization	Good Shopping Guide Ethical Award	http://ethical-company-organisation.org/	
Label(er) Profile			
The aim of the Ethical Company Organisation is to set an independent benchmark for corporate social responsibility. The Ethical Accreditation scheme enables companies and brands to display an independently-verified bill of health across the fields of people, animal welfare, and the environment.			
Criteria for Verification		Location of Operation	
Animal welfare; community relations, support, and education; environmental reporting; organic, natural, and/or non-GMO; sustainable/renewable materials & resources; systems management (farms, forests, fisheries); biodiversity/ecosystem protection; emissions level (atmospheric health, indoor air quality)		Norway, Sweden, United Kingdom	
Verifying Party		Labeled Product Variety	
Own organization (second party)		Appliances, cleaning products, cosmetics/personal care, electronics, energy, financial services, food, furniture, health care services & equipment, textiles, tourism, transportation, water	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
II	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
The International Natural and Organic Cosmetic Association	Natrue-Label	http://www.natrue.org/our-label/	
Label(er) Profile			
The Natrue-Label is a guarantee for cosmetic products. Their goal is to promote and protect natural beauty and skin care products. Any product with the Natrue-Label is intended to be as natural as possible, using natural and organic ingredients, soft manufacturing processes, and environmentally friendly practices.			
Criteria for Verification		Location of Operation	
Manufacturing; organic, natural, and/or non-GMO		Albania, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, China, Cuba, Denmark, Dominican Republic, Egypt, France, Germany, India, Italy, Kazakhstan, Kenya, Lebanon, Luxembourg, Moldova, Morocco, Netherlands, Norway, Romania, Serbia, South Africa, Sweden, Switzerland, Tanzania, Tunisia, Turkey, United Kingdom, United States	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Cosmetics/personal care	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	Yes	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
UL Environment	Greenguard, ECOLOGO	http://www.greenguard.org/en/index.aspx	
Label(er) Profile			
Acquired in 2011, GREENGUARD Certification is now part of UL Environment, a business unit of UL (Underwriters Laboratories). GREENGUARD Certification helps manufacturers create -- and helps buyers identify -- interior products and materials that have low chemical emissions, improving the quality of the air in which the products are used. All certified products must meet stringent emissions standards based on established chemical exposure criteria. Products that earn GREENGUARD Certification have been scientifically proven to meet some of the world's most rigorous, third-party chemical emissions standards, helping to reduce indoor air pollution and the potential health risks of chemical exposure.			
Criteria for Verification		Location of Operation	
Emissions level (atmospheric health, indoor air quality)		Australia, Austria, Brazil, Canada, China, Czech Republic, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Kuwait, Mexico, Netherlands, New Zealand, Norway, Pakistan, Philippines, Poland, Portugal, Qatar, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, United Kingdom, United States, Vietnam	
Verifying Party		Labeled Product Variety	
Independent organization (third party) following ISO 17025, ISO/IEC Guide 65 Product Certification		Appliances, building products, buildings, cleaning products, textiles, health care services & equipment, electronics	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
US Green Building Council	LEED Green Building Rating Systems	http://www.usgbc.org/leed#rating	
Label(er) Profile			
The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ encourages and accelerates global adoption of sustainable green building and development practices through the creation and implementation of universally understood and accepted tools and performance criteria.			
Criteria for Verification		Location of Operation	
Integrative process; location (local/sustainable) & transportation; sustainable/renewable materials & resources; resource efficiency/conservation (water, energy); emissions level (atmospheric health, indoor air quality); location (local/sustainable) & transportation		United States	
Verifying Party		Labeled Product Variety	
Independent organization (third party)		Buildings	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Vancouver Aquarium	Ocean Wise	http://www.oceanwise.ca/	
Label(er) Profile			
Ocean Wise works directly with restaurants and markets, ensuring that they have the most current scientific information regarding seafood and helping them make ocean-friendly buying decisions. The Ocean Wise symbol appears on menus, display cases, and products, making it easier for consumers to make environmentally friendly seafood choices.			
Criteria for Verification		Location of Operation	
Systems management (farms, forests, fisheries); waste production, disposal, recycling, or biodegradation; chemical use (pesticides, fertilizers, chlorine); biodiversity/ecosystem protection; safety (food, social, environmental); animal welfare		Canada	
Verifying Party		Labeled Product Variety	
Recommendation, not certification scheme		Fish/fisheries, food	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
None	No	Yes	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Viabono	Viabono	http://www.viabono.de/	
Label(er) Profile			
Certifies accommodation businesses, destinations, and other tourism businesses in Germany. Viabono's prerequisite for "natural enjoyment" is an intact environment and natural world, plus a high-quality tourist product.			
Criteria for Verification		Location of Operation	
Emissions level (atmospheric health, indoor air quality)		Germany	
Verifying Party		Labeled Product Variety	
Own organization (second party)		Tourism	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
II	No	Yes	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Warranty Standards Limited	Eco Warranty	http://www.warrantystandards.com/	
Label(er) Profile			
Eco Warranty is an Environmental Management Standard (EMS) designed as an alternative to ISO 14001. Eco Warranty: 2010 is an Environmental Management Standard (EMS) that organizations around the globe are choosing to demonstrate their commitment to the environment. All types of organizations can achieve certification to this standard from primary producers, packing sheds, transport companies, fruit and produce agents, manufacturing companies, through to professional service providers and retailers.			
Criteria for Verification		Location of Operation	
Waste production, disposal, recycling, or biodegradation; resource efficiency/conservation (water, energy); sustainable/renewable materials & resources; location (local/sustainable) & transportation		New Zealand	
Verifying Party		Labeled Product Variety	
Independent organization (third party) following ISO 14001		Businesses	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
I	No	No	No

Eco-Labeling Organization	Labeling Scheme(s)	Website Link	
Wildlife Habitat Council	Wildlife at Work	http://www.wildlifehc.org/programs/wildlife-at-work/	
Label(er) Profile			
The Wildlife Habitat Council’s Wildlife at Work program provides a structure for corporate-driven cooperative efforts between management, employees and community members to create, conserve and restore wildlife habitats on corporate lands.			
Criteria for Verification		Location of Operation	
Biodiversity/ecosystem protection		United States	
Verifying Party		Labeled Product Variety	
Company/organization applying for the label (first party)		Businesses	
Labeler Type	Engage in Retail?	Reports Online?	Monitor Footprint?
Other	No	No	No

REFERENCES

- 2013: Proliferation of food eco-labels to continue. (2013, Jan 8). *CSRwire*,
- Anderson, R. C. (2010, Business as the cause, business as the solution. *The Wall Street Journal*.
- Atanasoaie, G. S. (2013). Eco-label and its role in the development of organic products market. *Economy Transdisciplinarity Cognition*, 16(1), 122.
- Beeton, R. J. S., Buckley, K., Jones, G. J., Morgan, D., Reichelt, R. E., & Trewin, D. (2006). *Environmental governance: Role of the business sector in environmental stewardship*. Australian State of the Environment Committee.
- Bethge, P. (2012, Don't complain, do something! it's time for business to take lead on environment. *Spiegel Online*.
- Bonsi, R., Hammett, A. L., & Smith, B. (2008). Eco-labels and international trade: Problems and solutions. *Journal of World Trade*, 42(3), 407-432.
- Bowden, T., Malthouse, J., O'Rourke, A., & Rodgers, J. (2010). *2010 Global Ecolabel Monitor*. World Resources Institute, Big Room.
- Childers, T. L., Carr, C. L., Peck, J., & Carson, S. (2001). Hedonic and utilitarian motivations for online retail shopping behavior. *Journal of Retailing*, 77(4), 511.
- Clark, M. (2014). Startup success stories have common link: Failure. *New Orleans CityBusiness*, n/a.
- Cooper, T., Ludlow, M., & Clift, T. (2007). Examining the role of eco-labels in changing the approach to sustainability in the commercial fisheries. *Greener Management International*, (57), 27-42.
- Cramer, J., & Zegveld, W.C.L. (1991). The future role of technology in environmental management. *Futures*, 23(5), 451-468.
- Dingli, A., & Cassar, S. (2014). An intelligent framework for website usability. *Advances in Human-Computer Interaction*, 2014.
- Dorigo, F., Dorigo, C., & Nasim, M. (2014a). *4Rs of Green Grade*.
- Dorigo, F., Dorigo, C., & Nasim, M. (2014b). *Eco-Sustainable Initiative_v4*.
- Dorigo, F., Dorigo, C., & Nasim, M. (2014c). *ESI_Business_Plan_new_8_17_14*.
- Dorigo, F., Dorigo, C., & Nasim, M. (2014d). *ESI Business Plan_v4*.

- Dorigo, F., Dorigo, C., & Nasim, M. (2014e). *ESI Overview*.
- Dorsey, M. K. (2007). Climate knowledge and power: Tales of skeptic tanks, weather gods, and sagas for climate (in)justice. *Capitalism Nature Socialism*, 18(2), 7-21.
- Ecolabel Index: Who's deciding what's green? (2014, January 1). Retrieved November 24, 2014, from <http://www.ecolabelindex.com/>
- Food eco-labels to proliferate in 2013. (2013). *Environmental Leader*.
<http://www.environmentalleader.com/2013/01/17/food-eco-labels-to-proliferate-in-2013/>
- Forbes, L. C., & Jermier, J. M. (2010). The new corporate environmentalism and the ecology of commerce. *Organization & Environment*, 23(4), 465-481.
- Gallastegui, I.G. (2002). The use of eco-labels: A review of the literature. *European Environment*, 12(6), 316-331.
- Golden, J. S., Vermeer, D., Clemen, B., Michalko, A., Nguyen, D., Noyes, C., et al. (2010). *An overview of ecolabels and sustainability certifications in the global marketplace* (Interim Report No. #2010-10-1). Durham, NC: Nicholas Institute for Environmental Policy Solutions at Duke University.
- Greider, W. (1981). The rise of corporate environmentalism. *The Washington Post*.
- Hamari, J., Sjöklint, M., & Ukkonen, A. (2013). The Sharing Economy: Why People Participate in Collaborative Consumption. *Social Science Research Network*.
- Harris, P. G., & Symons, J. (2010). Justice in adaptation to climate change: Cosmopolitan implications for international institutions. *Environmental Politics*, 19(4), 617-636.
- Hawken, P. (1992). Ecology of commerce. *Executive Excellence*, 3.
- Hect, A. D. (2007). The next level of environmental protection: Business strategies and government policies converging on sustainability. *Sustainable Development Law & Policy*, 8(1), 19-25, 79-80.
- Horne, R. E. (2009). Limits to labels: The role of eco-labels in the assessment of product sustainability and routes to sustainable consumption. *International Journal of Consumer Studies*, 33(2), 175-182.
- Kheiry, B., & Nakhaei, A. (2012). Consumers' green purchase decision: An examination of environmental beliefs, environmental literacy and

- demographics. *International Journal of Marketing and Technology*, 2(9), 171-183.
- Koos, S. (2011). Varieties of environmental labelling, market structures, and sustainable consumption across Europe: A comparative analysis of organizational and market supply determinants of environmental-labelled goods. *Journal of Consumer Policy*, 34(1), 127-151.
- Lavallee, S., & Plouffe, S. (2004). The ecolabel and sustainable development. *The International Journal of Life Cycle Assessment*, 9(6), 349-354.
- Loureiro, M. L., & Lotade, J. (2005). Do fair trade and eco-labels in coffee wake up the consumer conscience? *Ecological Economics*, 53(1), 129-138.
- MacLean, R. (2008). Corporate environmentalism. *Environmental Quality Management*, 17(3), 109-112.
- Making Big Ideas Happen. (n.d.). Retrieved November, 2014, from <http://www.wri.org/>
- McKenzie, T. R. (2014). *Why the mainstream environmental movement should die*. Pitzer College.
- Ottman, J. (1996). Consider eco-labels. *Marketing News*, 30(24), 14.
- Pew Environment Group. (2011). New study puts eco-labels to the test. *Ecology, Environment & Conservation*.
- Philander, S. G. (2012). Life cycle analysis. *Encyclopedia of global warming & climate change*. Thousand Oaks, Calif: SAGE Publications.
- Rootes, C. (2004; 2007). Environmental movements. *The Blackwell companion to social movements* (pp. 608-640). Blackwell Publishing Ltd.
- Rubik, F., & Frankl, P. (2005). *Future of eco-labelling: Making environmental product information systems effective*. Greenleaf Publishing.
- Sanchez, K. E. (2009). *Green movement in business*. New York: Nova Science.
- Sandvik, B. (2008). World Borders Dataset [TM_WORLD_BORDERS-0.2.zip]. Retrieved from http://thematicmapping.org/downloads/world_borders.php
- Sanne, C. (2002). Willing consumers—or locked in? Policies for a sustainable consumption. *Ecological Economics*, 42(1-2), 273-287.
- Schuppert, F. (2011). Climate change mitigation and intergenerational justice. *Environmental Politics*, 20(3), 303-321.

- Tarachiu, V. (2014). Mindfulness and wearing a Fitbit activity monitor increases levels of physical activity. (M.S., Arizona State University). *ProQuest Dissertations and Theses*.
- The .ECO Domain. (n.d.). Retrieved November, 2014, from <http://bigroom.ca/>
- van Amstel, M., Driessen, P., & Glasbergen, P. (2008). Eco-labeling and information asymmetry: A comparison of five eco-labels in the netherlands. *Journal of Cleaner Production*, 16(3), 263-276.
- Visser, W. (2007). *The A to Z of corporate social responsibility : A complete reference guide to concepts, codes and organisations*. Chichester, England: John Wiley & Sons.
- Williams, A. (2007). Buying into the green movement. *The New York Times*.
- Yang, A. (2014). *Smart people should build things: How to restore our culture of achievement, build a path for entrepreneurs, and create new jobs in America*. New York: HarperCollins.
- Zaruk, D. (2009). Beware the environmental-industrial complex. *New Europe*.