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The Role of Standards in Promoting Food System Sustainability

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THE ROLE OF STANDARDS IN PROMOTING FOOD SYSTEM SUSTAINABILITY

Consumers, firms, and governments are giving increasing attention to ensuring that production, distribution, and consumption activities are sustainable from an environmental, economic, and social standpoint. Concerns about sustainability are especially important within the food system. The food system is based upon biological processes that can have important positive and negative environmental impacts; it is critical for human health; it is a key point of interaction between humans and other living organisms; it is responsible for a significant share of economic activity in most developed and developing economies; and it is an important aspect of the culture that binds a society together.

The Dutch Ministry of Economic Affairs, Agriculture, and Innovation has identified the need to "… develop a set of instruments which can be used continuously to measure improvements in the food system and the values consumers expect from their food." The Food Monitor project is, in part, an effort to develop an appropriate system of sustainability measures in five broad areas: (1) environment, (2) fair trade, (3) food waste, (4) animal welfare, and (5) health. The project is designed to identify reliable measures of sustainability as well as the possibility for adjusting policies in order to promote greater sustainability.

The terms *sustainable* and *food system* are often used without explicit definitions. In this paper, we define a food system as an interconnected set of biological, technological, economic, and social activities and processes that nourish human populations and provide livelihood and satisfaction to the people who participate in it. A food system encompasses activities that extend from the provision of inputs for primary food production through farming, food processing and manufacturing, food distribution, food consumption, and post-consumption food waste. Modern food systems also extend spatially, since many food products are sourced globally, so it is important to consider how they impact people and environmental conditions beyond a local community. Food systems also overlap and interact, making it difficult to establish clear boundaries between the food systems for two communities. A food system is sustainable if it can maintain or improve its performance over the long term. This means that the system operates in a manner that does not degrade the fundamental environmental, human, and societal resources that support it. This also recognizes that the processes that make up a food system are evolving as technology, the economy, and the environment develop and change.[1]

Efforts to develop standards that measure and guide progress toward a more sustainable food system have been proliferating in recent years. There are concerns that the multiplicity of indicators, standards, certifications, and labels is leading to confusion for consumers and to increasing costs for suppliers who are trying to conform to or qualify for them. There is a need for diverse standards and measures, since there is great variation in the sustainability drivers associated with different food products and processes. However, there is also a need for higher level, overarching standards that serve as

[1] This definition reflect two sometimes conflicting views of sustainability discussed by Thompson (1997): *resource sufficiency* and *functional integrity*. The first refers to the capacity of existing resources to support current and projected consumption. The second refers to the ability of a complex, integrated system to operate over time while maintaining the viability of all of its elements.

meaningful measures of sustainability for an entire supply chain, for a retail outlet that sells products originating from many supply chains, or for an entire food system.

The challenge of designing sustainability standards for the food system is a "wicked problem" with no definitive formulation and no clear-cut criteria for determining when it has been solved (Rittel and Webber, 1973). Often the way such problem is defined determines the approach taken for solving it. Confusion may arise when people with different views of the problem use the same terms but assign very different meanings to them.

We believe this kind of confusion impedes discussion, development, and implementation of food system sustainability standards. In this paper we identify three possible purposes for sustainability standards: (1) assessment and monitoring, (2) informing and influencing, and (3) regulating and controlling. These three purposes are not perfectly distinct, nor do they necessarily encompass all points of view in the sustainability standards debate. Nevertheless, we believe that there are important distinctions among them and that the types of standards developed and the processes by which they are assessed, maintained, and disseminated differ considerably across purposes. Clarifying these distinctions and differences can reduce confusion in the discussion of sustainability standards. Therefore, the first overall goal of this paper is to identify important challenges and dilemmas in the development of sustainability standards and to clarify the advantages and disadvantages of standards developed for each of these purposes.

Each of these three purposes for sustainability standards is important, and standards developed for each purpose can contribute to progress toward a more sustainable food system. However, standards that serve multiple purposes may promote more rapid progress. The second goal of this paper is to present the broad features of a multipurpose food system sustainability scorecard that builds on existing standards to develop summary information that can be used for assessment and monitoring, influencing and informing, or regulation and control. This scorecard is not a definitive "solution" to the wicked problem of sustainability standards, but we believe it does help reframe the problem in a useful way.

In the sections that follow, we first discuss systems of sustainability indicators developed for assessing and monitoring food system sustainability. We then turn attention to the rapidly growing collection of labels and certifications that are used by both private and public sector organizations to inform and influence producer and consumer decisions that affect food system sustainability. We then examine the role guidelines, targets, and rules can play as tools for regulating choices made across the food system and the challenges associated with implementing such standards. In the final section we describe a multipurpose food system sustainability scorecard that can be a useful tool for promoting a sustainable food system.

Indicators: Standards for Assessment and Monitoring

As tools for monitoring and assessment, sustainability indicators can be used to characterize the current state of the food system and to measure changes in its state over time. The U.S. National Research Council (NRC) defines sustainability indicators as "… repeated observations of natural and social phenomena that represent systematic feedback. They generally provide quantitative measures of the economy, human well-being, and impacts of human activities on the natural world." (NRC, 1999, 233-234) Here the focus is generally at some community level – e.g., a city, a province or state, or a country – rather than on a particular product or company.

Two noteworthy examples of indicator systems for assessment and monitoring are: (1) that developed under the Wallace Center's "Charting Growth to Good Food" project, which focused on flexible indicators for measuring the availability of "good food" in the United States[2] and (2) the recent effort by the UK's Department for Environment, Food, and Rural Affairs (DEFRA) to develop and implement a framework for assessing food system performance.[3] The Wallace Center indicators are built around the simple, compelling food system goals of "healthy, fair, green, and affordable" (Anderson, 2009). The UK framework identifies six dimensions of food system performance: (1) enabling and encouraging people to eat a healthy sustainable diet; (2) ensuring a resilient, profitable and competitive food system; (3) increasing food production sustainably; (4) reducing the food system's green house gas emissions; (5) reducing, reusing and processing waste; and (6) increasing the impact of skills, knowledge, research and technology (DEFRA, no date). Each of these two systems of indicators uses regularly updated, publicly available data to create "scorecards" for the food system that can be monitored over time. The Wallace Center indicator graphs are accompanied by verbal assessments of *getting better*, *getting worse*, *no change*, and *mixed*. Charts and graphs in the DEFRA system are accompanied by icons that compare the current level to a baseline, with meanings that range from *clear improvement* or *clear deterioration* from baseline, to *little or no change* from baseline, to *insufficient or no comparable data available*.

Systems of food system indicators are usually maintained by government agencies or by nonprofit organizations. Reliance on publicly available data lowers costs and increases transparency. Indicator systems help the public understand the food system and how it is changing, but they do little to directly influence activities within the food system. Also, while the categories of measures included in an indicator system often refer to values that are widely held within a society, as do the categories within the two examples cited here, there can be considerable controversy over the precise indicators that are included in each category and the weights that are used in creating summary measures.

One reason for controversy over indicator systems is that, while outcomes are of ultimate concern and are the ideal focus for measurement, data on descriptive or process indicators that are believed to be linked with outcomes are often more readily available. For example, an indicator system might include the percentage of farmland in organic production or the proportion of food consumed that is certified organic not because organic production is an end in itself but because organic production is believed to be linked with favorable environmental, health, or social outcomes. However, proponents of conventional production systems may argue that these linkages are not as strong as their use implies. One approach for addressing this issue is to simply collect data on as many indicators as possible and then make them available for citizens to use as they wish. The Food Environment Atlas developed and maintained by the U.S. Department of Agriculture's Economic Research Service is an excellent example of a large database of indicators on food choices, health and well-being, and community characteristics.[4] It gives users a flexible set of tools for accessing and displaying data on food system characteristics and performance that is already publicly available.

Food system indicator systems are an important class of standards that help monitor and assess progress toward sustainability, but they do little to encourage sustainable behavior by food system participants. The next two sections discuss standards that can more significantly influence progress toward sustainability.

[2] http://wallacecenter.org/our-work/current-initiatives/sustainable-food-indicators
[3] http://www.defra.gov.uk/evidence/statistics/foodfarm/general/foodsystemindicators/documents/foodsystemindicators.pdf
[4] http://www.ers.usda.gov/foodatlas/

Labels and Certification: Standards for Informing and Influencing

As tools for informing and influencing, sustainability standards embodied in labels and certification systems are designed to efficiently communicate information about the sustainability attributes of products or of business processes. Fair trade and organic certification are familiar examples of such standards. They are visible at the point of sale and convey information that would be costly for consumers to collect or verify. They are likely to be product or process specific, and they are often backed by third party certification. In many cases such labels and certifications are developed by businesses or trade associations, but almost always there is also some involvement by nongovernmental organizations and public interest groups.

Sustainability label and certification schemes typically encourage sustainable practices in the production and distribution of food through a self-imposed enforcement mechanism. Firms voluntarily link their products to a label or certification, almost always incurring some cost in doing so. By publicly announcing their commitment to a label or certification, they provide assurances that they adhere to the standards associated with it. Failure to abide by those standards would result in sanctions that could damage the brand image of the firm's products. For example, under EU and USDA organic standards, discovery that a firm offering certified organic products had knowingly violated organic standards could result in the imposition of monetary fines, loss of organic certification, and damage to the firm's reputation.[5]

Alternatively, information about product sustainability can be provided by external organizations that use their resources to apply social pressure. For example, in the case of Greenpeace International,[6] members make voluntary donations to the organization that are used to fund the monitoring of firms' business operations and "naming and shaming" campaigns which can harm firms that do not conform to the sustainability standards that are the focus for the organization. Citizen-based organizations can also "name and praise" products. For example, Slow Food[7] creates a durable community of like-minded consumers who share values related to food production, preparation, and consumption. The organization supports farmers and artisans who produce food in a manner that is consistent with slow food values and principles by sharing information about them within the community.

Sustainability label and certification systems have proliferated in recent years. A recent compilation of sustainability labels linked with products sold to Dutch consumers identified more than 70 labels, which are displayed together in Figure 1. Firms use some of these labels and certificates to emphasize the unique characteristics of food products targeted for specific niche markets. For commodity products that are not easily differentiated, however, they may also be used to assure that minimum standards are met. In both cases, labels protect a product against negative consumer associations and improve its competitive position. Other potential benefits are market access and price premiums, but price premiums can be difficult to realize for commodity food products.

Labels and certificates can be developed at the individual product level, for a product category, for a specific cause, or for a company. Many provide information and assurance on manufacturing and/or the primary production process. Most relate to health, environment, animal welfare and/or fairness. They can be regional, national or international. Existing standards address a wide range of sustainability

[5] http://www.ams.usda.gov/AMSv1.0/nop
[6] http://www.greenpeace.org/international/en/
[7] http://www.slowfood.com/

themes. Some address only one dimension of sustainability, while others refer to several. Table 1 provides a summary of the attributes of the labels presented in Figure 1.

Shifting consumer awareness is one of the reasons for proliferation of sustainability labels and certificates. Current events may contribute to this. As summarized in Figure 2, the top-12 sustainability topics in the titles of *RetailNew*s magazine articles for the period 2006-2010 illustrates the rise and fall of media attention for specific topics. Media attention for "health" has declined markedly, while "meat", "animal welfare" and the Dutch NGO "animals awake" have received much more attention over the last few years.

Consumers find it difficult to identify sustainable food products. Individuals may value a sustainable lifestyle, but information acquisition may be too costly because consumers only have the luxury of a few seconds to make their choice while in a food store. Labels and certificates are intended to make it easy to take these concerns into account when purchasing food items. But are labels and certifications truly effective in changing consumer behavior in order to promote healthy and/or sustainable food purchases? Evidence from behavioral studies suggests that their impact may be quite limited.

Individuals have limited information processing capacity, and extra-rational food decisions are common. Food choice behavior is mainly unconscious and based on habits that influence the selection and appreciation of information that is relevant to behavioral alternatives. Having strong habits reduces consumer motivation to consider contextual information, and often encourages the use of information that supports previous choices. The habitual nature of most eating behaviors may explain why, in the food domain, although information-based strategies have met with some success (Kumanyika et al., 2000), there is also evidence to suggest that the effects of such interventions are likely to be small (Downs et al., 2009). Much of the research shows that people with strong habits are less responsive to relevant contextual information (van 't Riet et al., 2011). Another feature of information processing among people with habits is that it is characterized by confirmation bias. Even when they are able to break away from habitual behavior, consumers also may seriously misperceive or misuse information on healthiness and sustainability of food products (Just and Payne, 2009).

Grunert et al. (2010) reported that only 16.8% of shoppers in six European countries looked for nutrition information on the label. Understanding of daily requirement guidelines in front-of-pack nutrition labels seems to be more widespread than use, suggesting that lack of use is a question of not only understanding but also motivation. It may require substantial effort to encourage consumers to use label information on the health and sustainability dimensions of food products. The challenge is greater for environmental labels than for health labels, since it is reasonable to assume that interest in healthy consumption is higher than in environmentally-friendly consumption.

The proliferation of standards and labels for organic, fair-trade, regional, and healthy food products risks creating confusion and information overload among consumers. The Green Claims Guidance, recently drawn up by the UK Department for the Environment, Farming and Rural Affairs (DEFRA), aims to help businesses and customers make more informed decisions about what they buy and prevent misleading claims in the marketplace. This effort aims to reduce the number of claims that may be misleading – so that environmental claims can be seen as more than greenwash – while protecting consumers and businesses from unfair marketing.[8] Karl and Orwat (1999) suggest that increasing competition between

[8] http://www.guardian.co.uk/sustainable-business/blog/government-defra-green-claims-guidance-branding

labels may increase the overall credibility of the labels, as competition will encourage tighter environmental criteria. But competition might also create confusion among consumers, working against one of the main motives behind the creation of sustainability labels.

Food labels and certificates are developed in a market setting with significant information asymmetries and a great distance between production and consumption choices. Sustainability labels can be developed in the private sector by for-profit firms or non-profit organizations. Alternatively, they can be established by public sector organizations. The development and adoption of private sector labels and certificates supports the governance of a food system, where flexibility, efficiency and rapid responsiveness are keys to success. However, private interests may shift the design emphasis from informing to influencing behavior through selective display of sustainability attributes. This may inhibit the development and marketing of food products that are genuinely sustainable. Cialdini (2007) explains why people say "yes" and how to apply these understandings. The principles of reciprocation, commitment and consistency, social proof, authority and scarcity can persuade people to change their behavior, even when such changes are not warranted. In other words, the way a choice is framed can have profound impacts on the outcome, and firms may not be wholly transparent in their motivation for using labels to frame consumer choices. Making use of choice farming principles at the cost of the well-being of individuals may be considered inappropriate and inconsistent with corporate social responsibility. Therefore, there may be a need for some public oversight over private sector sustainability labels and certificates. An approach that preserves freedom of choice but that authorizes both private and public institutions to steer people in directions that will promote their welfare is likely to be preferred (Thaler and Sunstein, 2003). If people make systematic mistakes, policies that shaping the framing of choices in order to help consumers make better decisions may be appropriate.

Finally, there is a strategic dimension to the development of sustainability labels and certificates. Proprietary labels developed by for-profit firms can be competitive weapons in the "standards wars" that Shapiro and Varian (1999) describe. However, not all technologies generate standards wars, and competing firms often cooperate when compatibility is crucial for market growth. Also, in the sustainability arena, for-profit firms often involve non-profit organizations in standards development and maintenance (Ingenbleek and Immink, 2010).

Non-profit and public sector organizations also face strategic decisions in developing labels and certifications. For example, Ingenbleek and Meulenberg (2006) identify strategic differences between certification organizations that emphasize principles over size and those that emphasize size over principles. "The former put a measuring rule in the market, and enable producers to differentiate themselves from mainstream production. The latter set lower requirements, but target mainstream production and involve large retailers and processing firms." (Ingenbleek and Meulenberg, 2006, p. 451).

Labels and certificates are a second important class of standards that promote sustainable consumption. They provide information and assurance that sustainability concerns are being addressed and that self-regulation is being imposed (Baron, 2010). In this way they help internalize externalities in the food system. The effectiveness of sustainability labels and certificates in actually influencing behavior can be questioned, however. This stems not only from fundamental features of consumer behavior but also from concerns about the motives and methods of organizations that develop labels and certificates. Finally, because they are usually linked to specific products of processes, sustainability labels and certificates are often not well suited for measuring overall food system sustainability and so are not necessarily effective complements to sustainability indicators used for assessment and monitoring.

Rules, Taxes, and Targets: Standards for Regulating and Controlling

While sustainability indicators help governments and citizens assess and monitor progress toward sustainability of the overall food system and labels and certification schemes inform and influence production and purchasing behavior, neither type of sustainability standard directly regulates behavior. By establishing clearly defined standards with penalties for noncompliance, however, a government or a business firm can more directly regulate or control behavior.

The challenge facing citizens, firms, and governments in trying to promote increased food system sustainability is that many of the associated costs and benefits are externalities that are not priced in the marketplace.[9] Experience with environmental regulations designed to address externalities points to several types of mechanisms by which standards for regulating and controlling can be implemented.[10]

At the most basic and direct level, simple rules may mandate or prohibit certain types of behavior and specify penalties for not complying with the rules. A system of rules is, in effect a command and control system. For example, there are many rules that prohibit the use of pesticides which are known to have harmful effects on the environment or on human health, with clearly established fines for failure to comply with them. Similarly, private business firms may establish operating practices that promote sustainability, and these firms may signal to employees that failure to follow these practices will be grounds for dismissal. Rules are simple and effective, but the cost of implementing them can be high. It is difficult to reach agreement on activities that should be banned or required, since rules often focus on processes or activities believed to affect sustainability performance rather than on actual outcomes like health or a clean environment. Also, as the number of rules proliferates, it may be difficult to consider tradeoffs and potential conflicts among rules, especially when there are several dimensions of sustainability performance. Poorly designed systems of rules can create perverse incentives and can motivate unintended adverse consequences.

One alternative to a rule-based, command and control system for regulation is the imposition of taxes (or subsidies) on activities or products that lessen (or promote) the sustainability of the food system. A tax on carbon emissions is an obvious example.[11] Such a tax could be imposed at either the retail or wholesale level and could include tax credits or offsets for activities that sequester carbon. If reduction of carbon emissions is an agreed upon sustainability goal, putting a price on those emissions will penalize behavior that lessens sustainability and encourage the adoption of behaviors that promote sustainability. The challenges of implementing a carbon tax are many, however. First, there is the challenge of measuring carbon emissions and sequestration. Measurements can be costly and imprecise. This raises questions about who bears the cost of making necessary measurements, about how inequities due to measurement errors can be redressed, and about whether the benefits of promoting sustainability are large enough to offset the cost of measurement of emissions and administration of the tax. Second, while the impact of a tax imposed at one level of the supply chain can be transmitted to actors in other levels, price transmission may depend on market power and/or

[9] Müller-Riemenschneider (2008) estimated obesity-related costs to range from 0.09 to 0.61% of total annual gross domestic income in Western European countries. Reports on the costs of environmental externalities do not provide as clear a picture, but it is evident that the costs of measures to protect, improve or restore the quality of soil, air, and water are significant in relation to gross domestic product.

[10] See Baumol and Oates (1988) and Hanley, Shogren, and White (2007) for good discussions of alternative incentives for regulation and control.

[11] Other examples linked to the human health dimension of sustainability include a tax on snack foods (Kuchler, Tegene, and Harris, 2005) and a tax on sugar sweetened beverages (Brownell, et al., 2009).

technology, and firms that bear the greatest responsibility for emissions may not bear a proportionate share of the costs imposed by the tax. Inequities due to both measurement errors and disproportionate incidence of the tax can be corrected through redistribution of revenue generated by the tax, but this, too, is costly to administer. Finally, since sustainability has many performance dimensions. It may be necessary to establish and administer taxes on many kinds of activities and/or outcomes, and many of the problems encountered when the number of rules proliferates also begin to plague this approach.

While taxes and subsidies are often considered to be tools reserved for governments, it is also important to recognize that equivalent mechanisms can also be used within vertically integrated firms. Transfer prices can be, to some degree, administratively determined, and the configuration of transfer prices can provide strong internal incentives for changing behavior. For example, in an integrated distribution-retail company, charges for transportation fuel use can be borne by distribution centers or by stores. Shifting the incidence of these costs to stores may motivate them to modify ordering practices in order to economize on fuel use

A second alternative to a rule-based, command and control system for regulation is the establishment of a system of targets for key sustainability performance measures. Baseline performance levels are determined for each firm or individual to be regulated, often based either on past performance, and penalties are imposed when targets are not met. This type of sustainability standard system differs from a system of rules in that the target measures are more likely to focus on outputs than on processes and practices, and often the standards are designed to become more stringent relative to baseline levels over time. Target-based standards differ from taxes in several ways. First, they are generally not designed to be mechanisms for collecting revenue. The expectation is generally that firms will meet their targets and will not be required to pay fines. Second, target-based standard systems may include the possibility for firms to trade allowances. This increases the efficiency of efforts to achieve sustainability targets. Third, target-based standards can be, and often are, used by private sector organizations as internal drivers for more sustainable operations and as signals to customers and society of their commitment to sustainability.

A cap-and-trade system for regulating carbon emissions is a familiar example of a governmentally administered target-based standard system. Under such a system, firms are given maximum emission levels that are typically based on baseline emission levels. In the early phase of such a program, allowable emissions may be set close to historical levels but then may ratchet down successively in subsequent years. Alternatively, allowable emission levels can be purchased in an auction, with the overall level of emissions falling annually according to a predetermined schedule. In each period firms may participate in a market for emission allowances, purchasing allowances to permit emissions greater than their allotment or selling allowances if they could lower emissions below their allotment. Such a system can achieve outcomes similar to those associated with a carbon tax.[12] It also can be plagued by many of the same problems, including the costs of measuring and the decision about where in the supply chain to impose the target-based standards. The allocation of emission allowances and pressure to recognize emission offsets for sequestration activities can also lead to difficult political conflicts. In addition, because firms and consumers are often motivated to meet but not surpass targets, a target-based system can actually slow progress toward sustainability.

[12] See Metcalf (2009) for a good comparison of carbon tax and cap-and-trade systems.

As already noted, target-based standard systems can also be used by private sector organizations. Corporate social responsibility reports of many companies identify targets for sustainability performance that become increasingly stringent over time. For example, Royal Ahold's 2009 Corporate Responsibility Report identifies a target of reducing "… CO_2 emissions by 20 percent per square meter of sales area by 2015 against the baseline published in the 2008 corporate responsibility report."[13] The report also provides annual information on emissions for each of the company's five major store groups.[14] While this target is not legally binding, it is a public commitment, and the company may have internal incentives and/or sanctions in place to ensure that it will be met.

Rules, taxes, and targets are established through a political process. When instituted by a government in a democratic society, they reflect the will of voting citizens as filtered through the legislative and/or rule-making process. When there are conflicting interests or when there are sharp disagreements on the problems to be addressed and their underlying causes, it can be very difficult to establish new regulatory standards or to change existing ones. When instituted by private sector organizations, internal rules, taxes, and targets are the product of the corporate governance process that takes stakeholder interests into account. In some cases, they may be instituted in order to preempt the imposition of regulatory standards by government or to position the organization for compliance with anticipated governmental regulations.

Whether they originate from government or within private sector organizations, sustainability standards that regulate and control add utility by directing behavior toward what is believed to be a higher level of sustainability. They also add to costs associated with measurement and enforcement, and conflicting incentives. Sustainability standards that regulate are also subject to some of the limitations of standards developed for other purposes. Most notably, they may not be well suited for aggregation or disaggregation, be it over geographic areas or organizational levels. Also, they may become complex and contradictory and, when implemented within private firms they may not be transparent.

A Multipurpose Food System Sustainability Scorecard

This concluding section offers a general description of a standards system designed to address some of the challenges and shortcomings of the standards discussed in the preceding sections. The multipurpose scorecard introduced here serves multiple objectives. It draws on features of certification and label systems, and it can be the basis for a system that assesses and monitors food system sustainability and that could include sanctions for regulation and control.

Several comprehensive sustainability scorecard initiatives are already underway. The FTSE4Good Index[15] and Dow Jones Sustainability Index[16] are widely recognized indices that rate the comprehensive sustainability performance of large, publicly traded companies. However, these are designed primarily for investors and do not provide product-level information for the companies they rank. The Global Reporting Initiative (GRI) offers a more comprehensive set of sustainability reporting guidelines designed to stimulate both the demand for and supply of sustainability information through standardization.[17] Again, however, this system focuses on sustainability at the company level and does not lend itself well to disaggregation to the product level or to aggregation to the community level.

[13] http://www.crreport2009.ahold.com/our_priorities/climate_action/objectives_and_goals.htm
[14] http://www.crreport2009.ahold.com/our_priorities/climate_action/quantitative_data.htm
[15] http://www.ftse.com/Indices/FTSE4Good_Index_Series/index.jsp
[16] http://www.sustainability-index.com/
[17] http://www.globalreporting.org/Home

The sustainability index being developed and implemented by Walmart is a supplier level assessment tool that is based on responses to a series of 15 questions regarding energy and climate, material efficiency, natural resources, and people and community combined with product lifecycle assessments based on a standard database.[18] This index is the basis for much of the reporting in Walmart's Global Sustainability Reports, and it is likely to grow in importance in the future. However, the link between supplier assessments and aggregate performance at the retail level is not straightforward, and other retailers may be reluctant to adopt Walmart's standards

Another especially noteworthy initiative is the People 4 Earth Standard for Sustainable Products (People 4 Earth, 2010; White, 2010). This is a comprehensive product sustainability standard based on four "pillars": PURE, with dimensions of health and safety, authenticity, and transparency; FAIR, with dimensions of worker rights, education and professional development, and fair trading practices; LIVE, with dimensions of biodiversity, animal welfare, and natural resources conservation; and RENEW, with dimensions of energy and greenhouse gas emissions reduction, waste reduction, and clear air, water and soil. (People 4 Earth, 2010, pp. 45-48) The measurement framework identifies nine criteria for each of the three dimensions within each of the four pillars – a total of 108 criteria. The framework also includes an overall sustainability index, with four possible levels based on the number of criteria met in each pillar. It is designed to complement existing labels and certifications, and there is explicit recognition that existing third-party standards can map directly to sustainability scores in the People 4 Earth system (White, 2010, p. 16). The People 4 Earth system is rich and nuanced, and it provides well developed guidelines on how product sustainability can be assessed. However, this system is also complex and is not amenable to aggregation across products in order to assess overall sustainability performance at the retail or consumer level.

The multipurpose scorecard system presented here builds on ideas embodied in these and other initiatives for developing more comprehensive sustainability standards. Key design objectives for the scorecard system are fourfold. First, it should support monitoring and assessment of progress toward sustainability at the firm, community, regional, or national level. This implies that it should be possible to aggregate or disaggregate sustainability measures on an enterprise or geographic basis. Second, the scorecard should be modular and adaptable with the capability to add new sustainability measures or replace existing measures. Third, the scorecard should be open and transparent, allowing firms to develop standards that borrow from or build upon others. Finally, the scorecard should mitigate the information overload that has been the result of the proliferation of sustainability labels and certifications but should also be a tool for informing and influencing consumers.

As described here, this scorecard would be implemented at food retail outlets and would be based on the scanner systems that have, over the past three or four decades, revolutionized food retailing. Information on the sustainability attributes of products sold would be captured at the point of sale and aggregated to provide information on the percentage of sales that meet or surpass established sustainability standards. The scorecard is predicated on the existence of a collective organization that sets criteria for sustainability designations. As discussed later, establishing such an organization poses a significant challenge.

[18] http://walmartstores.com/Sustainability/9292.aspx

A simple example will illustrate the basic set-up for the scorecard. Consider the case where there are three dimensions of sustainability: environment, fair trade, and health.[19] There is also a registry of labels and certifications that are collectively recognized as being applicable for these sustainability dimensions, and there are agreed upon threshold levels for certifications or labels that are required for a product to be "sustainable" for each dimension.[20] Some labels or certifications apply only for a single dimension, but others may apply for more than one. Each product sold by a retailer can be designated as having met or not met the collectively recognized threshold standard for each sustainability dimension, and this designation is stored in an electronic file linked with the price lookup file for all the products in the store. In table 2, for example, there are six products, including two brands of coffee. Check marks in the sustainability dimension columns indicate whether or not a product meets an established threshold for that dimension. Note that Brand A of coffee does not satisfy any sustainability criteria, while Brand B meets standards for both environment and fair trade. The price per unit is from the scanner lookup table, and the units sold figures represent total sales over some period of time. Multiplying price by units sold yields total sales volume measured in monetary units. Sales volume can easily be summed across products. Sales volume for products that meet each sustainability threshold can also be readily calculated, as can be the percentage of sales that meet each threshold. These are shown in the last two rows of the table. In this hypothetical example, 72 percent of total sales come from products that meet the environment standard, 19 percent of total sales come from products that meet the fair trade standard, and 41 percent of total sales come from products that meet the health standard.

This system can readily be scaled up to accommodate many products and large sales volumes, since it is implemented through existing store information systems. Sustainability scores for each dimension would be expected to vary considerably with store format and product assortment, and scores would also be sensitive to demographic profile of the store's customers. However, an initial sustainability scorecard could serve as a baseline for assessing progress toward sustainability.

This system supports disaggregation by product category or department within a store. Retailers with multiple outlets could also aggregate the information to the company level. Similarly, through existing market research data companies that offer access to scanner data from multiple companies, this information could be aggregated across all retail outlets within a specified geographic region. Also, when linked to loyalty card data, the information could also be used to better understand relationships between consumer characteristics and sustainable shopping behavior. Finally, this system can easily provide feedback to consumers on the sustainability of their purchases. A score for each sustainability dimension could be printed on the receipt generated at checkout.

In this example, the retailer could take several actions that would affect sustainability scores. Changes in product merchandising for the two coffee brands – e.g., more favorable shelf placement for Brand B or a change in point of purchase signage – could affect the mix of sales and total category sales without necessitating changes in prices or product margins. A change in relative prices for the two coffee brands would likely have a more dramatic effect on the mix of sales and would also impact margins and category sales. Dropping Brand A from the store offerings could have still larger effects. Finally, the provision of sustainability information on the checkout receipt could also have an effect on sales.

[19] These are chosen simply for the sake of illustration. The number of sustainability dimensions could be larger or smaller, and the set of sustainability dimensions could include other objectives, such as animal welfare and fair trade.

[20] No such registry currently exists, but the DEFRA Green Claims Guidance site and the People 4 Earth initiative are examples of efforts to move toward establishment of such a registry.

Ultimately, the decision about what steps to take would rest with the retailer, who would already understand how merchandising and pricing decisions affect sales in a particular store.

The system could also be extended and adapted to compute sustainability scorecards for wholesale distributors, food manufacturers, and agricultural producers. With the product-based determination of sustainability for each dimension, the percentage of sales meeting the threshold for each sustainability dimension can readily be calculated from accounting data if certifications are known.

Collectively recognized thresholds for a "sustainability" designation are an essential precondition for implementation of this system. We posit here that this would be the responsibility of a registry organization formed through a partnership of food companies, consumer organizations, and environmental NGOs. Such an organization would play two roles. First, it would establish basic guidelines for sustainability labels and certifications and would maintain a list of labels and certifications that conform to those guidelines. Members of the registry would evaluate applications for new additions to the approved list and would periodically review labels and certifications on the list. Second, the registry would establish thresholds for each sustainability dimension, normally defined in terms of labels and certifications. This would most likely be done by product category committees. For example, fluid milk products might be designated as "sustainable" in sustainability categories 1 and 3 if they had certifications A and B, or certification C, or label Z, with all these certifications and labels being on the registry. For another set of products, however, existing government rules and regulations for production practices might ensure that thresholds for some sustainability dimensions are met by all producers who comply with the law, and no added label or certification would be required for a "sustainable" designation. Sustainability standards could be updated over time, with new certifications and labels being added to the registry, and with thresholds for a product to be judged "sustainable" being adjusted to reflect changes in expectations and norms regarding sustainability. In the early phase of implementation of this system, there may be few certifications and labels for some sustainability dimensions, but these could increase over time.

This registry organization would ensure transparency in that all approved labels and certifications, as well as sustainability threshold definitions, would be available to the public. It could also work with food manufacturers to maintain a database of sustainability indicators for products identified by their UPC codes. This would make it easy to merge sustainability data into store information systems. Finally, the system would also allow for auditing of the sustainability scores of retailers. Products could be chosen at random from a store's price lookup table. The sustainability indicators for each dimension could be checked, and the product's certifications and labels could be verified.

Label and certification information underlying the sustainability designations could be presented to consumers on product packaging, but it would not need to be. This could mitigate the information overload currently caused by the proliferation of labels and certifications. In many cases, retail decisions about merchandising and marketing have more impact on consumer decisions that do labels and certifications. In addition, retailers could use simple icons with check marks on shelf tags to identify products that meet sustainability standards. Retailers could also use their own sustainability scores to communicate general messages about the sustainability of their store offerings and operations.

This system could be strictly voluntary, or it could be the foundation for regulating improvements in sustainability. If voluntary, food retailers could choose how to share information about their sustainability scores and could set their own internal targets, as many companies already do. On the

other hand, if improvements in sustainability were mandated by society, the government could establish targets for stores or companies, most likely based on baseline performance with the requirement that performance improve over time. If such a system created strong incentives for increased sustainability at the retail level, these incentives would be transmitted upstream to suppliers and producers and downstream to customers through shifts in demand and/or prices. In the near term, however, adoption of mandatory standards seems unlikely.

Implementation of this system would pose some very difficult challenges. The first would be in establishing an effectively functioning registry organization. Even if a critical mass of firms, NGOs and government agencies could be brought together, conflicts over sustainability definitions and thresholds for sustainability designations would be difficult to resolve. Nevertheless, a functioning registry organization could emerge from NGO efforts like those of People 4 Earth. Alternatively, the sustainability standards of a major retailer like Walmart or Ahold, if they are not proprietary, could be adopted by other companies and become a more nearly global standard.

Ongoing examples in the Dutch marketplace serve as examples of how this could happen. In 2005 Albert Heijn introduced a health label, “Klavertje Vier” (Four-Leaf Clover), used to designate products that are low in saturated fat, sugar, and slat and/or high in dietary fiber. One year later Campina, Friesland Foods, Unilever and the Veneca organization of Dutch catering companies introduced an alternative label for healthy food products, the “Ik Kies Bewust” (I-Choose Conscious) label. In March 2011, standards were harmonized and the two labels were merged under a new healthy food choice label. There are now 6,600 products that meet the standards for this logo, and other companies can join the I-Choose-Conscious Foundation and have their products certified.

Albert Heijn’s “Puur & Eerlijk” (Pure & Honest) designation serves as a second example.[21] This newly introduced corporate brand is designed to facilitate sustainable purchasing decisions for products in five sustainability categories: organic, fair trade, sustainable catch (fish), free-range meat, and ecological cleaning products. The Pure & Honest designation for any product is guaranteed by a label or certification that is supported by an external, independent organization. More than one label or certification can qualify products for Pure & Honest designation, but not all sustainability labels are recognized. Therefore, this system can be viewed as a nascent proprietary analog to the registry proposed here. Over time, however, the Pure & Honest designation may evolve into a collaborative system as has the Four-Leaf Clover health label.

A second major implementation challenge stems from the fact that, by inducing increased reliance on certification, a system like that proposed here could add costs throughout the food supply chain and ultimately raise food prices for consumers. If there were broad agreement on sustainability goals, however, this may be acceptable. In that case, the challenge would be to design a standards system that can achieve the desired level of sustainability at the lowest possible cost. Furthermore, if the system was not mandatory, consumers could shop at less sustainable, lower priced stores if they did not support the sustainability initiatives.

A multipurpose system like that proposed here could also have unwanted impacts on industry structure and competitiveness. Systems that require certification and third party verification often have high fixed costs and low variable costs associated with increasing volume. This can put small firms at a

[21] http://www.ahold.com/node/3260 viewed on March 25, 2011.

disadvantage and so could encourage retailers to rely on larger suppliers. A system like this could also lead to cross-country competitiveness problems in a highly integrated economy like Europe's if sustainability standards were not uniform from country to country. However, cross-border competition at the retail level is often less intense than for agricultural production and food processing, so this may not be a serious problem.

The challenge of designing standards to promote sustainability of the food system is, indeed, a "wicked problem" that has no definitive formulation and no clear-cut criteria for determining when it has been solved. Nevertheless, it is one that needs to be addressed. All three types of standards discussed in this paper can contribute to progress toward sustainability. We believe that the multipurpose scorecard system presented in this concluding section is a step toward a more unified set of standards that can further promote more a more sustainable food system. It provides a framework for monitoring and assessing progress toward sustainability. It builds on existing labels and certifications to provide information that can help shape consumer buying decisions. Finally, it could serve as the basis for a privately of publicly established set of sustainability targets that could provide stronger incentives for food system companies to promote sustainability.

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Table 1. Attributes of Food Labels and Certificates in the Netherlands, 2010

Label or Certificate Attributes	Number of Labels or Certificates
Aggregation Level	
• Individual product	32
• Product category	25
• Company	3
Chain Segment	
• Primary Production	44
• Manufacturing	29
• Wholesale and Retail	7
Geographic Area	
• Regional	11
• National	28
• International	21
Sustainability Theme	
• Health	21
• Environment	17
• Animal Welfare	24
• Justice/Fair	14
• Food Waste	2

Table 2. Retail Sustainability Scorecard

Product	Sustainability Dimension			Price	Units Sold	Sales Volume
	Environment	Fair Trade	Health			
Milk	✓		✓	0.50	5,000	2,500
Coffee A				6.50	300	1,950
Coffee B	✓	✓		8.00	150	1,200
Apples	✓		✓	2.00	500	1,000
Pork Chops	✓			7.00	200	1,400
Chocolate		✓		10.00	40	400
Total Sales	6,100	1,600	3,500			8,450
Score	72	19	41			

Figure 1. Sustainability Labels in the Dutch Marketplace, November 2010

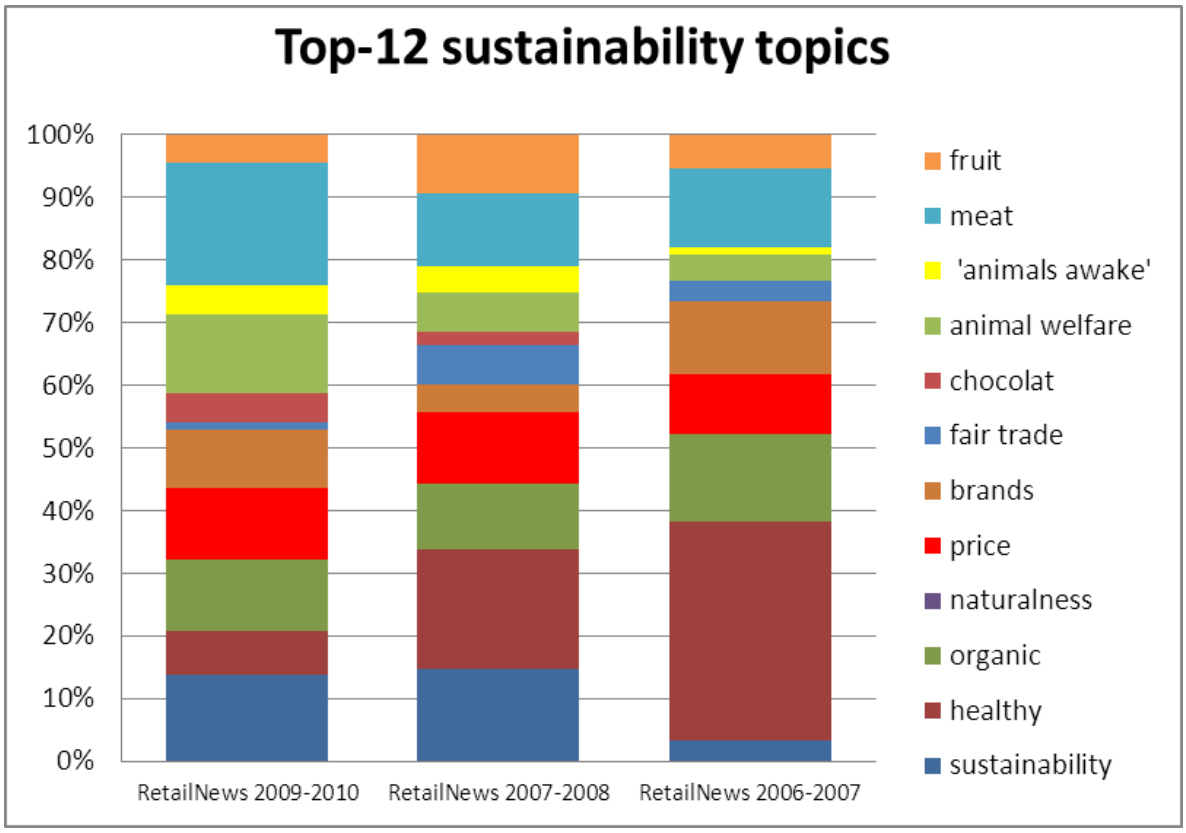

Figure 2. Changes in Media Coverage of Sustainability Topics, 2006-07 to 2009-10