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Eco-Labels as a Commitment to Responsible Production Practices

Iva Kostova*

Abstract

Corporate social responsibility (CSR) in all its diverse forms, initiatives, practices and implications, is an inseparable part of strategic planning and management of (business) organizations nowadays. As companies strive to maintain their competitive advantages on the market while aiming to increase their profitability, they now need to act in response to society's expectations and show their commitment to different stakeholders. One of the methods to inform consumers about the environmental performance of a company and the environmental impact of their purchase decisions is through eco-labels.

This paper is a theoretical analysis focused on eco-labels as a form of social responsibility and an opportunity for business organizations and producers to declare their commitment to responsible production practices. The main purpose is to perform a systematic review and classification of eco-labels and to analyze how they can help organizations in informing consumers about their environmental goals.

Key words: Corporate social responsibility, social responsibility practices, eco-labels, responsible production practices

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* PhD candidate, Department of Natural Resources Economics, University of National and World Economy – Sofia, Bulgaria

Introduction

Environmental labelling is a widely used communication tool for organizations willing to share with consumers additional information related to the environmental impact associated with the production and use of a product or service. As consequences of the long-term application of this instrument, two outcomes are expected – influencing consumption patterns, i.e. promoting responsible and environmentally friendly consumption, and encouraging producers and other market participants to increase the environmental standards of products or services (Galarraga Gallastegui, 2002).

This paper is a theoretical analysis focused on eco-labels as a form of social responsibility and an opportunity for business organizations and producers to declare their commitment to responsible production practices. The study is based on descriptive analysis and literature review. The main purpose is to perform a systematic review and classification of eco-labels and to analyze how they can help organizations in informing consumers about their environmental goals.

The paper is organized as follows. Section 2 provides a brief literature review on the purposes and reasons behind the implementation of eco-labelling. In section 3, different approaches for classification of eco-labels are introduced. Section 4 describes mandatory and voluntary eco-labelling initiatives in terms of definitions, types and results from previous studies on their implementation and market performance.

Section 5 presents the conclusions and final remarks.

Purpose of eco-labelling

One of the main reasons determining the need for manufacturers to provide information on the environmental characteristics of products and services is market failure, resulting from imperfect distribution of the information between the market participants and therefore related to Akerlof's (1970) discussion on information asymmetry. This is the notion that product information is asymmetrically distributed – consumers are typically not aware of specific product characteristics, while producers possess detailed information related to the technical, quality and environmental features of their products (Rubik and Frankl, 2017). Consequently, consumers are placed in a potential unfair situation on the market when having to choose and make a purchase decision.

Consumers' interest when it comes to product characteristics is directly related to their motivation, which in turn is determined by various interconnected (internal and external) factors. Therefore, different consumer groups are interested in different types of environmental information – e.g. some of them may be interested in health or safety aspects, while others may wish to know more about the potential environmental impact of the product or service (Rubik and Frankl, 2017). Based on the differentiation between search, experience and credence goods and attributes, introduced by Nelson (1970) and further developed by other researchers (Darby and Karni, 1973; Tietzel and Weber, 1991), most of the environmental aspects, as well as energy consumption, are assumed to be credence attributes. The consumer does not have the required knowledge and technical expertise to determine, judge or evaluate them, or the transaction costs are either not feasible or unattainable. Characteristics of credence goods cannot be assessed before or after the use of the product and information such as the environmental impact of the production process is available only to the producer.

Economic theory (information economics) proposes two main strategies to overcome information asymmetry. One of them is *signaling* (Spence, 1973; Maskin and Tirole, 1992) practiced by the market participant who has more information; the other is *screening* (Rothschild and Stiglitz, 1976) by the market participant with less information (Dosis, 2016). Consequently, signaling activities are undertaken by companies or institutions to provide consumers with information about product characteristics, while consumers' searching and verifying the product characteristics is identified as screening activities. Eco-labels therefore function as a market signal, designed to provide consumers with the necessary information in a comprehensible way and to increase trust in environmental information. For example, the introduction of an energy label certified by a third party can transform the credence attribute into a "quasi-search attribute"- it cannot be evaluated by the consumers themselves, but only through a third party (Heinzle and Wüstenhagen, 2010). Through providing information on the environmental performance of products, eco-labels can guide consumers towards more environmentally friendly purchasing behavior (Grankvist and Biel, 2007). In addition, such labels can assist manufacturers in gaining a competitive advantage by producing environmentally friendly products (Thøgersen, 2000) and thus demonstrating their commitment to responsible production practices.

Classifications of eco-labels

Eco-labelling is an interdisciplinary research topic due to its wide application

in various business sectors. Since the introduction of the first labelling scheme in 1978 in Germany (Reisch, 2001), the number of eco-labels, claims and declarations has increased to over 460 in the present day[1].

Eco-labels can be classified according to various criteria or characteristics (Appleton, 1997; Rubik and Frankl, 2017), thus a label usually falls into several categories.

1. With regard to the issuing party, environmental labelling schemes can be *third-party labels* or *self-declared labels* (Gruère, 2013). The US Environmental Protection Agency (US EPA, 1998) uses this approach, determining regulation as the most important criterion for environmental labels classification and thus differentiates them into two types (Appleton, 1997).

- first-party environmental labelling programmes (self-declared labels, private labels) are introduced by producers or a group of companies independently to promote positive product features;
- third-party programmes are awarded by an independent organization – government or non-governmental organization (NGO), based on certain pre-defined environmental criteria.

In a further step of classification of environmental labelling schemes, US EPA divides first-party labelling into product-related or corporate-related, and third-party labelling into mandatory or voluntary, followed by an additional level of differentiation for each of these groups.

2. Another approach to classification proposed by the US EPA (1998) is based on the type of information contained on the label and divides environmental labels into *positive*, *negative* or *neutral*.

- positive labels address environmentally preferable product attributes – e.g. seal-of-approval programs, single-attribute certification programs;
- negative labels warn consumers about negative product characteristics or harmful/hazardous ingredients – e.g. hazard/warning labels;
- neutral labels summarize environmental information in order to make products comparable – e.g. information disclosure programs, report cards.

3. Based on the approach used for awarding, environmental labels are divided into two types: *endorsement labels* and *comparison labels* (Winward, Schiellerup and Boardman, 1998).

- endorsement labels are awarded only to products or services which meet certain specified criteria, therefore they are usually voluntary, as the manufacturers who have made an effort for a product to be awarded with a label, would generally wish to indicate this (e.g. the EU Ecolabel);
- comparison labels consist of different categories (grades) thus all products are awarded such labels, only they are differentiated according to a certain criterion. In order to function effectively, comparison labels have to cover all goods on the market, therefore they usually are mandatory (e.g. EU Energy label).

4. Considering the extent of regulation associated with the introduction of an eco-label, they can be *mandatory* or *voluntary* (Koos, 2011; Horne, 2009). As discussed by Rubik and Frankl (2017), this is the first and principal level of differentiation of the schemes' approach. Essentially, voluntary labelling can be self-declared or issued by a third-party, but mandatory labelling is always subject to certification or assessment by an independent party. This is the most commonly used and studied classification of eco-labels, therefore it

[1] www.ecolabeindex.com, accessed on 16.11.2018

is the main focus of this paper and is discussed in further details in the next section.

Other approaches to classification of eco-labels include the following:

5. According to the geographical coverage of an environmental labelling programme, they can be divided into *international*, *regional* or *local*, and in some cases, *transnational* (introduced in a group of countries, e.g. the Nordic Swan in Finland, Iceland, Denmark, Norway and Sweden).

6. According to their market scope, eco-labelling schemes can be either *general* or *specific for a business sector*.

7. Within a company, they can be implemented on the *organization level* or on *product level*.

8. When referencing the number of criteria used for the development of the label, eco-labels are either *based on a single criterion* or *on multiple criteria*.

9. According to the type of initiative or problem that the eco-label addresses, they can be divided into *social*, *environmental*, *ethical* or *a combination of them*. Generally, an eco-label should be designed to address all dimensions of sustainable development, however in practice some of them are focused on one dimension.

10. According to the target group that the environmental labelling is designed for, labels can be *for individual consumers* or *for other stakeholders* (business, government, investors). This difference is based on the notion that each stakeholder group would need to be provided with different type of information or level of details regarding a marketed product.

Mandatory and voluntary eco-labelling schemes

Mandatory environmental labelling is defined in laws and regulations and is applied to all marketed products of a certain product group. It is in most cases related to disclosure of health and safety information. Rubik and Teichert (1997, as in Rubik and Frankl, 2017) distinguish four types of mandatory eco-labelling:

- declaration of content – e.g. a list of ingredients or composition of a product;
- usage and disposal information – e.g. data related to risks or safety;
- product labelling – e.g. the 'danger symbols' in Appendix 1 of Regulation (EO) №1272/2008 in the European Union;
- certification of conformity – e.g. the CE sign in the European Union.

Despite these types of labels being mandatory for implementation, they show the efforts and commitment of producers to responsible production practices and to providing detailed and relevant information to consumers. In response to the trends in environmental management related to effective and responsible energy and resources consumption worldwide, most countries develop programmes and policies which set a minimum of criteria for marketed products. Furthermore, they require producers to commit to providing consumers with information regarding the energy characteristics of certain types of products. These regulations are implemented usually as standardized labels showing qualitative or quantitative data for the product or allocating the products to different groups (classes) according to their energy effectiveness, in order for the consumers to be able to compare them before or at the time of purchase.

Eco-labels for energy efficient goods (or energy labels) are among the most recognized labels on the market. This is probably due to their mandatory application in most countries or to the increased consumer interest determined by the notion that energy saving leads to cost savings. These labels function

on several levels: (1) they stimulate the sales of energy-efficient electrical appliances and consequently promote energy-saving consumer behaviour; (2) they are a means for companies producing energy-efficient goods to gain competitive advantage; (3) they contribute to the environmental goals of society such as mitigating climate change.

In a research on consumers' attitude and behaviour related to energy-saving products in Malaysia, a big part of the respondents indicates as a challenge the lack of clear information for the products (Zainudin et al., 2014). Furthermore, despite the implementation of an energy efficiency programme and energy labels in 2005 by the government, as well as the Energy Star programme in 2001, the same study reports low recognition of these labels. This comes to show that the development and introduction of environmental labels is not sufficient and often does not lead to a change in consumers' attitudes. In order to improve the effectiveness of this type of information tools, marketing strategies need to focus on increasing consumers' environmental knowledge and awareness, especially in relation to the negative effects from using low energy efficiency products.

One of the widely used mandatory labelling schemes in the European Union (EU) is the EU Energy label, developed by the European Commission and implemented since 1 January 1995, covering several groups of appliances. In the context of the general objectives of environmental labelling, this type of labelling represents an approach designed to promote a change in consumers' purchasing behaviour to favour more efficient products and to shift the production patterns towards more efficient technologies. One of the main purposes of this label is to allow consumers to compare products, therefore they are classified in a scale from A (highest energy efficiency) to G (lowest energy efficiency) or from A+++ to D, depending on the product type. Since its initial introduction, with the advancement of technology and processes, the EU Energy label content and scope has been updated several times to include all newly developed products with higher energy efficiency (European Commission, 2014).

In order to demonstrate their commitment to responsible production practices and the role of energy labels as an information tool in this process, it is important for business organizations to assess the attitudes of relevant consumer groups. Many studies have been conducted in the EU to evaluate the success and effectiveness of the mandatory energy labelling programme. According to Winward, Schiellerup and Boardman (1998), in the first three years since its introduction, the EU Energy label was used by consumers and its message was understood by them. The same study shows that during this period, the label had "little effect on purchasing patterns in the southern countries and is a much greater influence in northern countries, where there is a longer history of concern about energy" (Winward, Schiellerup and Boardman, 1998). As a limiting factor for the influence of energy labelling on purchase decision the authors identified the limited number of offered models of appliances by some retailers, which restricts consumers' choice. However, as the EU Energy label is available on all products from certain categories of appliances, it should be a responsibility of manufacturers and retailers to ensure they offer energy-saving products and to encourage their purchase.

Previous literature on eco-labelling and on the EU energy label is focused on the aggregate effects on market level, while studies on the influence of this type of label on consumer preferences and purchasing decisions are scarce (Sammer and Wüstenhagen, 2006). In recent years, research is oriented towards

consumers' issues in terms of recognizing and information attributes of environmental labels and its impact on patterns of consumer behaviour.

In a study on "the relative importance of the energy label compared with other product attributes (such as brand, price, etc.) for consumers' buying decisions" (Sammer and Wüstenhagen, 2006) conducted on Swiss consumers in the process of making a buying decision, the authors identified that although consumers have a high level of awareness of the energy label, this does not necessarily influence their buying decisions. In addition, consumers demonstrate a higher willingness to pay for A-labelled products and the willingness to pay for energy label exceeds the underlying willingness to pay for energy efficiency.

Other studies on consumer attitudes identify that a significant part of EU consumers are influenced by the energy scale on the EU Energy label when making a purchase decision and they are willing to pay a price premium for a product that is more energy efficient compared to another one (Heinzle and Wüstenhagen, 2010; Waide et al., 2013). This demonstrates that when information related to energy efficiency is clearly communicated, consumer behaviour patterns can be shifted and the energy labels can be an effective market transformation tool.

Voluntary environmental labelling is implemented by manufacturers with the intent to inform consumers about certain product characteristics. Requirements for this type of labelling schemes are described and classified by the International Organization for Standardization (ISO) as a part of the ISO 14000 family of standards on environmental management. The overall goal of environmental labeling according to ISO 14020 is "…through communication of verifiable and accurate information, that is not misleading, on environmental aspects of products and services, to encourage the demand for and supply of those products and services that cause less stress on the environment, thereby stimulating the potential for market-driven continuous environmental improvement" (ISO 14020, 2000). According to Lavallée & Plouffe (2004), in order to fulfill the objectives of environmental labels and declarations, two conditions are especially important: (1) the consumer to be able to distinguish products with reduced environmental impact, and (2) products with environmental labelling to be less harmful for the environment. The effectiveness of environmental labels and declarations is determined by their ability to form a desired consumption model, or to enable customers to make an informed choice and to influence that choice. That concept is related with the degree of perception and understanding that the consumers have regarding the provided information about environmental aspects and determines the need for this information to be accessible, sufficient and clearly presented. According to ISO 14020, different approaches could be used for achieving this purpose, such as advertising, descriptive panels, toll-free numbers, training programs, and others (ISO 14020, 2000).

According to the classification developed by ISO, there are three major types of environmental labelling.

Type I environmental labelling (eco-labels) includes voluntary third-party programs developed for products or production processes based on multiple criteria and on life cycle considerations. This type of eco-labelling is defined by the International Standard *ISO 14024:2018 Environmental labels and declarations. Type I environmental labelling. Principles and procedures.* They are based on a set of environmental criteria (ISO 14024, 2018) and aim to promote environmentally friendly consumer behavior,

taking into account the environmental performance and product characteristics of other products on the market. Type I eco-labels are awarded as a result of third-party certification programs, which aim to "certify both products and production processes according to different criteria that relate to the entire life cycle of the product" (Gallaraga Gallastegui, 2002). The main benefits of Type I environmental labels are associated with their implementation based on predefined criteria (standard requirements), i.e. are not defined for a specific product, but use a simplified life cycle assessment or other method of environmental impact assessment. Since product criteria are defined through a third-party certification process, this ensures transparency, increases consumers' trust and can function as an advertisement for the product or service. Unlike the other two types of environmental labels, type I can serve as a basis for comparison with other products of the same type.

In addition, a separate category named *"Type I-like" eco-labels* or *single-issue labelling schemes* are reviewed in the literature – these are environmental labels established by independent organizations and focused on one product aspect instead of considering the whole life cycle (UNOPS, 2009; European Commission, 2000).

Type II environmental labels (self-declaration claims) are defined by the International Standard *ISO 14021: 2016 Labels and Environmental Statements. Environmental declarations made under its own responsibility (Environmental Labeling, Type II)* (ISO 14021, 2016). The standard refers to environmental claims made directly by manufacturers, importers, distributors, sellers or other stakeholders about the environmental friendliness of their products without third party certification. They address a single environmental attribute, e.g. recycled content, recyclability or biodegradability of the product, absence of substances harmful to the environment and may consist of statements, symbols or graphics on product packaging labels or be designed as a brochure, advertisement, technical bulletin or other source of product information (Bonsi, Hammett and Smith, 2008). Normally, Type II environmental claims and declarations are treated as advertising because third party certification is not required and manufacturers (or another stakeholder) declare the information they wish to communicate about the ecological characteristics of the product. The general requirements for credibility and accuracy applicable for all environmental labels in this group, are defined by a specific guidance on how manufacturers can certify their claims or declarations. Through defining the most common claims, the standard provides credibility among manufacturers and consumers in international trade.

Type III environmental labelling (environmental declarations) includes a relatively new set of environmental labels, defined in 2006 in the International Standard *ISO 14025:2006, Environmental labels and declarations. Type III environmental declarations. Principles and procedures* (ISO 14025, 2006). They provide quantified environmental data about a product or service with pre-defined categories or parameters based on the ISO 14040 series of standards and may include additional environmental information provided in a Type III environmental declaration program. In this case, a third party – certification agency or an independent organization, uses a set of environmental performance indicators, such as energy consumption, air emissions, water emissions, etc. to receive a result that serves as a template for each product group. Such templates are considered helpful for

consumers to easily compare different goods and buy the one with the best characteristics.

Type III environmental labels provide a product profile rather than a verifiable claim or assurance – they do not take into account the quality of the products and do not use criteria or scales, such as Type I, but present the information in an Environmental Product Declaration (EPD). The main disadvantage related to these labels is that if the user is not familiar with the parameters, the information would not be of any particular benefit, therefore these declarations are more appropriate for use in business communications (Bonsi, Hammett and Smith, 2008).

One of the most common and recognized in the EU voluntary Type I eco-labels is the EU Ecolabel scheme, established in 1992. The purpose of this tool is to encourage organizations to develop products and services with reduced environmental impact and to assist consumers in identifying them. The European Ecolabel is developed for a wide range of product groups in several categories, such as clothing, paper products, cleaning products or services, tourist accommodation. In order to be awarded the EU Ecolabel, they have to meet certain specific criteria developed for each category, and compliance is assessed by a third party. The criteria for the European Ecolabel scheme and the European Energy Labelling requirements for the same product groups should be applied concurrently and in a harmonized way according to the EU Ecolabel Work Plan for 2016-2018 (European Commission, 2016).

According to the European Commission, as of September 2018, 2167 licenses have been issued to 71707 products and services on the market, and in the last eight years, the number of products and services awarded the EU Ecolabel has significantly grown – from 21301 in 2010, to over 3 times this number in 2018[2].

An empirical study of the European Commission was conducted in October 2017 to evaluate the attitudes of European consumers in the 28 Member States towards the environment, and as an additional topic, to assess the knowledge and attitudes towards environmental labelling, including the EU Ecolabel and some of the national labels (Special Eurobarometer 468). The study demonstrated significant differences in the level of awareness between different countries – the highest in Denmark, France and Luxembourg, and the lowest in Romania, Bulgaria and the Czech Republic. Another finding was that for around 32% of the respondents, eco-labels play an important role in their purchasing decisions, for 25% they do not, and 39% do not notice the labels. In their attempts to demonstrate a commitment to responsible production practices, business organizations can draw some important conclusions. The responses mentioned above may signify several issues – lack of trust, information not sufficient or not clear, lack of interest in the contents of the label, or that the communication through an eco-label is not well perceived by these customers.

In addition, according to the same study, among the respondents who are aware of at least one eco-label, 30% have bought a product carrying the EU Ecolabel. This comes to show that eco-label awareness is not sufficient to ensure a purchase decision, and therefore to stimulate significant changes in consumer purchasing patterns. More efforts from business organizations are required in order to establish consumer's trust in eco-labels as an information and communication tool and to promote eco-labelling as a form of social responsibility.

[2] http://ec.europa.eu/environment/ecolabel/facts-and-figures.html, reviewed on 17.11.2018

Conclusions

Eco-labelling as an environmental policy instrument is closely related to the concept of sustainable production and consumption practices. As a result of the implementation of environmental labels, numerous benefits can be outlined (Horne, 2009; Bonsi, Hammett and Smith, 2008) for the main groups of stakeholders involved in eco-labelling application, i.e. consumers and producers.

From consumers' point of view, eco-labels are a communication tool serving to inform them about the environmental performance and features of a product or service in a visual way (Thøgersen, Haugaard and Olesen, 2010). Environmental labels can help consumers recognize and distinguish environmentally friendly or energy-efficient product features among other products in the same category and can therefore increase trust and loyalty through reducing the information asymmetry on the market (Vasileva et al., 2012; Ivanova et al., 2014). As a result, they can stimulate the demand for environmentally friendly products, thus promoting certain consumer behavior patterns (Morris, 1997).

From a business perspective, eco-labels are an eco-innovation tool, as they stimulate the development of more effective or environmentally friendly products or services, the introduction of new methods of production and green supply sources (Hellström, 2007). Therefore, through facilitating the evaluation, control and monitoring of environmental impacts, they can serve as a basis for constant improvement for companies as a part of process management principles. Environmental labelling can also be viewed as a green technology investment which provides firms with a means of product differentiation (Amacher, Koskela and Ollikainend, 2004). As a marketing communication instrument, eco-labels can help the organization gain a competitive advantage, improve its market position and reputation among consumers or other stakeholders and access new markets, clients and potential clients. The implementation of eco-labels serves to improve company image and sales and can encourage businesses to account for the environmental impact of their production (Gallaraga Gallastegui, 2002) and processes in general. Therefore, environmental labelling schemes are assumed to play an important role as a marketing transformation tool in establishing responsible production practices.

There are also some limitations related to the implementation of eco-labelling initiatives, mainly related to transparency and market effectiveness issues. For instance, when an eco-label is self-regulated, the producer one-sidedly chooses the information to be displayed on the label and, as a result, it may reflect misleading or incomplete information that the manufacturer has selected according to his interests. On the contrary, providing too much information, or mostly technical details, can confuse the consumers and complicate the process of making a purchase decision. This demonstrates that the information on eco-labels should be carefully reviewed and clearly presented in order to enhance their functionality as an information tool. Environmental labels need to be easily identifiable, so consumers are able to search for them when making a purchase decision and to recognize their perceived value. In the case of voluntary environmental labels, it is also important for manufacturers to examine and compare whether the perceived value for consumers would exceed the certification costs and investments made.

A limitation of the classification of voluntary eco-labels established by ISO is that some environmental labels present on the market do not exactly match the characteristics as defined in the standards and thus represent a mixture of the different

types – e.g., environmental declarations (Type II) which are certified by a third party. Although generally a certification procedure is a step towards an improvement of processes, after the involvement of a third party, these declarations cannot be considered Type II as per the definition (Bonsi, Hammett and Smith, 2008).

In order to better understand consumers' point of view and thus to effectively influence consumer behavior patterns, it is important to identify the factors that have an impact on purchasing decisions and whether environmental characteristics of a product or service are part of these factors. As environmental labels are one of the sources of information related to the quality of products and services, their recognition and targeted demand from consumers can serve as an indicator of consumer behavior patterns in a particular market. This could be subject of future research in order to fully understand the complex effects of eco-labelling as a process on the market.

This paper presents a review on the concept of eco-labelling as a form of social responsibility and an overview of different approaches in the classification of eco-labels on the market. Various criteria for classification of eco-labels have been selected and developed, however the most commonly used and studied approach is to distinguish them based on regulation, i.e. as mandatory or voluntary, therefore this is the main focus of the paper. Two widely used eco-labelling schemes in the EU have been reviewed – the EU Energy label, a mandatory label for certain product groups, and the EU Ecolabel scheme, a voluntary information tool used by manufacturers based on pre-defined criteria. In reviewing the relevant literature on the topic, the main approaches and topics (viewpoints) in the research of eco-labelling were discussed, as well as some of the benefits and limitations for companies and consumers as the main stakeholders related to eco-labelling were outlined. Through encouraging environmentally friendly consumption and production processes and practices, in the long-run ecolabels can help in achieving sustainable development goals of companies and society.

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