Labeling and Certification*

Introduction

Labeling and certification are two tools that government officials may employ, in conjunction with other tools, to effectively manage pollution. These two instruments provide consumers with information that was previously unknown to them and that may alter their choices when they balance their environmental preferences with costs. Effective labeling and certification mechanisms may shift consumption and production towards socially responsible and sustainable patterns. In the long term, through the demand-side response to labels and certifications, business practices will adapt to reflect the ethical demands of their consumers.

Description and Application of Labeling and Certification

Environmental labeling. Labeling gives information about the environmental impacts associated with the production or use of a product. They are typically voluntary but may be mandatory in certain instances, for example, requiring certain toxic ingredients to be indicated on the product or mandatory energy labels for domestic appliances. While there are many different environmental labeling programs, there are three basic types of environmental labels (see box 1). Effective labeling allows a government to address a

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Box 1. Types of Environmental Labels

Type I labels are labels that give consumers an indication of the overall environmental performance of a specific product compared with others within the same product category. Type I labels can address a single criterion, but are typically based on some form of Life Cycle Analysis (LCA). Because of the lack of adequate scientific knowledge, the high cost of some testing procedures, and the perception that some environmental issues deserve priority, the criteria for type I labels often involve weighted judgments. Type I labels are typically voluntary labels. (For more information, see World Bank *Guidance Note on Life Cycle Analysis*.)

Type II labels are any kind of declaration made by manufacturers, importers, distributors, or anyone else who is likely to benefit from a product's environmental claim. They generally address single issues without considering the environmental impacts throughout a product's entire life cycle. Type II labels are typically mandatory labels.

Type III labels are comprehensive data lists that give environmental information on a product throughout its life cycle.

Source: ISO 2000.

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specific environmental concern. "Ecomark" is a type I labeling program used in India. Initially launched by the government of India as a voluntary labeling program with criteria based on a cradle-to-grave approach, "Ecomark" has become mandatory for some products such as refrigerators and air conditioners. Energy labels, such the EU energy label and China energy label, are type II labels used to reduce reliance on oil imports and to reduce greenhouse gases. These labels allow consumers to compare the energy efficiency of appliances before purchasing a device. In this case, consumers may compare the energy efficiency of the appliance with its cost.

labels on household appliances, cars, and buildings. Voluntary labels and specifically multi-criteria type I labels should be promoted when governments want to change behavioral patterns of consumption.

For policy makers, environmental labeling may also represent a short-term solution to a difficult regulatory problem. Labeling can become a compromise that is particularly attractive to policy makers because of its market-based character. In the long term, labeling can become one of the first steps in a government strategy of steering the behavior of producers and consumers in a sustainable direction (Golan and others 2001). Box 2 illustrates the effective implementation of labeling.

Box 2. Effective Implementation of Labeling

In the early 1990s, environmental labels became non-tariff barriers to certain products in China such as silk, which, due to the lack of an environmental label, failed to get an import quota in France. In addition, export to some European countries of refrigerators dropped 60% because they lacked an environmental label (and the refrigerators contained chlorofluorocarbons). In 1993, the State Environmental Protection Administration (SEPA) announced the establishment of an environmental labeling program. Because an important objective was to promote Chinese exports, the certifying organization CCELP selected silk cloth and refrigerators to be among the first seven types of products that could display environmental labels. In order for exports to benefit from such labels, the labeling requirements had to be consistent with those of other countries. CCELP referred to Canadian labeling requirements when it formulated criteria for water-based paints, and it considered German criteria when it developed criteria for silk cloth.

Source: Zhao and Xia 1999.

Most environmental labeling programs are developed nationally. Consequently, they address national preferences relating to environmental quality. Promotion of environmental labels by governments should demonstrate the priorities of a country. For example, countries with high per capita energy consumption could introduce mandatory energy

Environmental certification programs assess the overall environmental policy and management of a company. Such programs give information on the environmental impacts of a company's processing and production methods, for instance, resource use, production techniques, and emissions. Unlike environmental labels, which give information on the

impacts associated with a particular product, environmental certification programs give information on the impacts of a company's entire activity.

In principle, an environmental certification approach can be applied to any business enterprise, public administration, or government department. Currently there are two internationally accepted and third party certified generic environmental certification schemes: the International Standards Organization (ISO) 14.001 Environmental Management System (EMS; see ISO 2004) standard and the Eco-Management and Auditing Scheme (EMAS). These generic schemes provide overarching comparisons between industries and outline fundamental environmental codes for industry. Additionally, there are sector-specific environmental certification schemes that can provide more specialized and detailed guidance to companies within the same industry. This approach gives greater assurance that a certified company is managing its environmental impacts responsibly. See World Bank *Guidance Note on Environmental Management Systems in Multinationals, Private Sector, and SMEs part* for more information.

Similar to mandatory environmental labeling, environmental certification can also address a particular issue within a specific target group or industry. Public certification schemes are devised by a public authority or international agency that develops voluntary codes, guidelines, and standards. Companies are subsequently invited to comply with those criteria. An example is the Better Environmental

Sustainability Targets (BEST) certification program, which provides recognition for lead battery manufacturers that meet minimum emission standards and agree to take back used batteries for environmental recycling.

Environmental certification may be encouraged by governments for industries that are difficult to regulate due to complex processes and regulations, or have an irregular or bad compliance history, or that pose a particular threat to environment and health. Furthermore, environmental certification, especially when certified by an accredited internationally recognized third party, can modernize industries by improving the way they manage risks, whether those are related to quality, environment, and/or health.

Labeling and certification process   Environmental certification is considered a unilateral commitment to improving environmental performance. The company independently determines when and how goals will be reached. For the implementation of environmental certification programs, government may provide incentives (or implement sanctions) and promote the diffusion of environmental certification into companies. Companies frequently visited by regulators and companies with an irregular compliance history are more likely to adopt environmental certification programs. Companies that are not regularly visited, or that are at either end of the compliance continuum (that is, not in compliance, or in full compliance) are the least likely to adopt environmental certification schemes (Potoski and Prakash 2005).

For implementing an environmental label, the responsible government agency (or other establishing body) has to consider several steps (see table 1).

growth has made both tools attractive for governments to promote similar programs in their country in order to comply with their own

Table 1. Steps for the Labeling and Certification Process

Phases	Steps	Issues to consider
Preparation & Launching Phase	Assignment of responsibilities	Clear assignment of who is responsible for defining criteria, certifying products, and generally administering the program
	Selection and determination of product categories	Selection of product categories and determination of certification criteria for these categories. Gathering of proposals for certification criteria and categories from industry, science, trade, consumers, environmental, and other public organizations (stakeholder process)
Negotiation Phase	Development of criteria, standards, or guidelines	Once product categories are selected, the next step is the establishment of requirements that an applicant must meet to be approved by the eco-labeling program. For example, if a labeling program is developed to overcome trade barriers, then the country's labeling requirements should be consistent with labeling requirements in other countries. Criteria for granting an eco-label to a product or service can be limited, or without limits, as to the number of products that will qualify for the label. The group responsible for setting the criteria may include scientific and technical experts from both government and the private sector. Feedback and comments from interested stakeholders should be included before finalizing the list of criteria. This list should be periodically reassessed.
Implementation Phase	Certification and licensing	Producers, service providers, suppliers, retailers, distributors, importers, and legitimated institutions may apply for certification. The awarding process includes testing and compliance verification, applicant licensing, and monitoring (with periodic reexamination every 2 to 5 years). Applicants usually have to pay an application fee, the cost of verification, and an annual fee for use of the eco-label; these fees depend on annual product turnover.

Source: Porrini 2005.

Role of government. In the last 10 years, the implementation of environmental labeling and certification has seen a rapid rise worldwide. This

commitment to develop an environmentally sustainable society (GEN 2007; ISO 2010).

The potential role of the national government in establishing environmental labeling programs has multiple facets. Government organizations can be involved in the selection of product categories, definition of certification criteria, certification of products, and administration of the program. In some countries, as is the case for China and Japan, the government provides all technical research and administrative support. However, in other countries, such as Germany and Austria, government officials and certification authorities share these duties. In Austria a consumer organization and a private certification authority are in charge of the labeling program.

Prerequisite Factors for Labeling and Certification

Establishing environmental labeling and promoting environmental certification programs require a clear understanding of the environmental (and non-environmental) concerns that the tool will focus on. In order to establish such an understanding, it is necessary to involve relevant stakeholders in a consultation process. Stakeholders should be industry experts, the scientific and engineering community,

consumer organizations and other NGOs, retailers, and private organizations (for example, certifying organizations). Involving a wide range of stakeholders through all steps of program development and implementation brings about societal support for the program.

Governments should insure transparency throughout the program's development and operation. Although governments can choose to award certification themselves, credibility increases significantly when it is awarded after successful independent third-party certification without conflict of interest (GEN 2004). Other government roles can be in developing programs to lower the entry barriers by, for example, supporting small and medium-size enterprises (SMEs) in the certification process. National governments can facilitate the development of a third-party certifying body and consulting companies that will reduce the costs for companies. Government should stimulate private sector support, because industry and commercial awareness, interest, and direct involvement are essential to program success (see box 3).

> ## Box 3. Effective Implementation of Labeling
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> Organizational Structure of China's Environmental Labeling Program
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> *State Environmental Protection Administration (SEPA)*
> Functions: to offer policy support for environmental labeling products and technology development, to issue guidelines and requirements for accrediting environmental labeling products, to conduct research on technology and policies related to environmental labeling, and to supervise management and certification.
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> *China Certification Committee for Environmental Labeling (CCEL)*
> Functions: to investigate developments and trends in environmental labeling both domestically and overseas; to propose the nature of, and direction for, the certification system for environmental labeling products; to publicize China's environmental labeling program and promote its products; to honor the outstanding units and individuals in the field of environmental labeling; and to advocate for related international communication.
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> *China Environmental United Certification Center Co., Ltd (CEC)*
> Functions: to enforce the requirement for improving the technique and quality of certification issued by SEPA; to make sure the label is honored, managed, and supervised properly; and to cooperate with CCEL in publicizing and honoring the environmental labeling program.
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> *Source:* SEPA CEC web site.

Advantages and Limitations of Labeling and Certification

Most national environmental labeling programs are new, and efforts made to measure their effectiveness are incomplete. Additionally, it is difficult to separate the impact of environmental labeling from other economic, environmental, and social policies. Therefore, few programs have claimed direct environmental benefits from environmental labeling.

Nonetheless, positive responses from industry and consumers suggest that such labels are perceived as good marketing tools and generally accepted symbols of environmentally sound choices. Other success indicators of an environmental labeling program are increased numbers of certified products and increased industry involvement in the selection and development of category criteria. Strengths and weaknesses of this tool are shown in Table 2.

Table 2. Strengths and Weaknesses of Labeling and Certification

Strengths	*Weaknesses*
Stakeholder participation Negotiating detailed award criteria takes places between public and private experts and a number of other stakeholders.	Many different labels Increased number of environmental product labels with different guiding standards can lead to consumer confusion.

Reward leadership Eco-labeling programs reward environmentally ambitious companies with public recognition, thus encouraging companies to take a pro-active approach towards the environment.	Potential trade effects Eco-labels can raise trade concerns when criteria include ones that discriminate against imported products. Transparency in development of criteria and consultation with importers is critical to avoid potential barriers.
Increased environmental awareness Through their public visibility, eco-labels are likely to raise awareness among consumers about environmental issues.	No continuous innovation incentive When criteria are not continuously evaluated and updated, no incentive exists for companies to improve performance beyond the specifications of the current criteria.
Diffusion of best available techniques Ambitious eco-labels can help to make the best available techniques clearly recognizable and widely applied.	Effectiveness is difficult to assess Efforts to measure effectiveness are incomplete, for example, there are difficulties in assessing the impact of eco-labels on the overall performance of companies.
Provision of economic incentives For manufacturers, labels provide benchmarking information and information on the marketplace, help to green the corporate image, and serve as a communication tool.	Not always clear preferences Labels mainly address domestic economic and environmental priorities; therefore, selected criteria may not be relevant to broader environmental and social issues.
Provide greater flexibility than regulations Environmental certification can offer more ambitious goals than compliance with regulations, while lowering administrative costs and enabling faster implementation.	Appropriate framework conditions Testing procedures require adapted technologies, infrastructure, and expertise that are not always easily accessible, especially not for producers in developing countries.
Encourage proactive and precautionary attitudes in industry Environmental certification can shift businesses' mindsets from reactionary to proactive, cleaner production.	Difficult to apply in areas with little business self-interest Environmental certifications are limited to areas where industries have financial motivation to change their behavior.
Improve dialogue and trust between industry and government Implementing environmental certification programs will improve industry compliance and build relationships that are more cooperative.	Criteria depend on public perception Environmental issues mirrored by the criteria might be more reflective of the public's sometimes irrational concerns, rather than reflective of sound scientific evaluations.
Demand-driven policy instrument As consumers have the ultimate voice through purchasing decisions, eco-label criteria are likely to reflect consumers' preferences and concerns.	Size matters Environmental certification programs focus on management structure, and the required changes may not be compatible with the management styles of small and medium enterprises.
Can improve trade Environmental certification programs, when third party certified, can be seen as a commitment by the company to improve environmental performance, reduce risks, and comply with customer requirements.	Environment impacts may not be the driving force When market demand, instead of environmental impacts, is the driving force, going beyond compliance and continuous improvement may not be wholeheartedly pursued.

Sources: GEN 2004; Gerstenfeld and Roberts 2000; OECD 2003; and UNEP DTIE 1998.

In some cases, costs hamper the implementation of environmental certification because a company is too small to afford the certification process (Khan 2008). See box 4.

identification of environment friendly products. Any product made, used, or disposed of in a way that significantly reduces the harm it would otherwise cause the environment could be considered an

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Box 4. Example of Certification Costs

Costs for obtaining an eco-label certificate differ by country. In China, the total fee for obtaining an eco-label certificate ranges from US$ 1,800 to US$ 6,000 (Zhao and Xia 1999). In the Netherlands, acquiring an eco-label certificate has two cost components: a onetime certification fee of US$ 800 and an annual fee between US$ 600 and US$ 39,000 (2008 figures; SMK web site). The EU charges an application fee of 200 to 1,200 euros and an annual fee of 1,500 euros (EU web site).

Interaction with other Tools and Possible Substitutes

Labeling and certification work in conjunction with a number of other policy tools. These include audit programs; environmental information disclosure (EID); environmental management systems (EMS); environmental licensing; life cycle analysis (LCA); regulations and standards, monitoring, inspection, compliance, and enforcement programs; and voluntary agreements. For more information, see World Bank *Guidance Note* series on tools for pollution management, including the reports on EID, EMS,

environmental licensing, LCA, regulations and standards, and the other guidance notes in this series.

Practical Examples of Labeling and Certification, and Lessons Learned

Ecomark   In 1991, the government of India launched the eco-labeling scheme known as Ecomark for easy

environment friendly product. The criteria follow a "cradle to grave" approach, meaning that the entire production process is evaluated, from raw material extraction to disposal. The Ecomark label is awarded to consumer goods that meet the specified environmental criteria and the quality requirements of Indian standards. The program has become mandatory for certain products including refrigerators, air conditioners, distribution transformers, and florescent lamps. Ecomark labeling is scheduled to become mandatory for color televisions, liquid propane gas stoves, and electric motors.

Eco-Watch. In the Philippines, the local environment agency designed a rating or labeling program called Eco-Watch to rate firms and label them with one of five colors according to their environmental performance. Black indicates the least compliant, followed by red, blue, green, and ending with gold, which represents the best practices. In the first evaluation, 92% (48 out of 52) of the companies involved in the program were found to be non-

compliant, and given either "Black" or "Red" ratings. The program led to improved environmental performance, and the number of compliant companies with "Blue" ratings increased from 8% to 58% within 18 months.

Energy Star.   Energy Star is a voluntary labeling program operated jointly by the United States Department of Energy (US DOE) and the United States Environmental Protection Agency (US EPA) in an attempt to reduce energy consumption and greenhouse gas emissions by power plants. The US DOE and the US EPA enter into partnerships with manufacturers and key stakeholders to promote products that meet energy efficiency and performance criteria established by the agencies. The program was intended to be part of a series of voluntary programs, such as Green Lights and the Methane Program, to demonstrate the potential for profitable reduction of greenhouse gases and facilitate further steps to reduce global warming gases.

Initiated as a voluntary labeling program designed to allow consumers to identify and purchase energy efficient products, Energy Star began with labels for computer products. In 1995, the program was significantly expanded, introducing labels for residential heating and cooling systems and new homes. As of 2006, more than 40,000 Energy Star products were available in a wide range of items including major appliances, office equipment, lighting, and home electronics. In addition, the label can be found on new homes, and on commercial and industrial buildings. In 2009, nearly 21 percent of new

housing in the United States was labeled Energy Star (US EPA and US DOE 2010).

It has been estimated that the US Energy Star program will save approximately US$ 90 billion (a billion is 1,000 million) during the 2007–2015 period (Sanchez and others 2008). The Energy Star program has helped spread the use of LED (light-emitting diode) traffic lights, efficient fluorescent lighting, power management systems for office equipment, and low use of standby energy.

GreenLabel.   Singapore's GreenLabel program was launched in May 1992 by the Ministry of the Environment as part of the country's national environmental plan. GreenLabel is a voluntary ISO Type I program open to local and foreign companies. This program covers a broad range of products, as well as services and processes, but not food, drinks, or pharmaceuticals. More than 700 products have the GreenLabel, involving over 130 manufacturers (SEC web site).

Green Rating Project.   In India, a public disclosure program, the Green Rating Project, was established by the Centre for Science and Environment, an environmental NGO. Apart from the Project Advisory Panel, there was a three member technical panel from the pulp and paper sector formed to help develop the rating process. The results of the project showed that among 31 large pulp and paper factories, the adoption of a formal environmental policy increased from 30% to 89%, the establishment of an environmental department increased from 18% to 89%, and

certification of the EMS according to ISO 14001 increased from 3% to 46%. This program has been extended to the chloralkali and the automobile industries (Kathuria 2009; Sterner 2003).

References and Resources on Labeling and Certification

De Boer, J. 2003. "Sustainability Labelling Schemes: The Logic of their Claims and their Functions for Stakeholders." *Business Strategy and the Environment* 12 (4): 254–64.

EEA (European Environmental Agency). 2008. *Time for Action: Towards Sustainable Consumption and Production in Europe*. Technical Report No. 1/2008. Copenhagen: EEA.

EMAS (EU Eco-Management and Audit Scheme). http://ec.europa.eu/environment/emas/index_en.htm. Brussels: European Commission's Environment Directorate-General (DG).

EU. http://ec.europa.eu/environment/ecolabel/.

GEN (Global Ecolabelling Network). 2004. *Information Paper: Introduction to Ecolabelling.* Tokyo: GEN c/o Japan Environment Association (JEA).

———. 2007. *GEN Global Ecolabelling Network Annual Report 2007.*

Gerstenfeld A., and H. Roberts. 2000. "Size Matters: Barriers and Prospects for Environmental Management in Small and Medium-Sized Enterprises." In *Small and Medium-Sized Enterprises and the Environment: Business Imperatives*, ed. R. Hillary, 106-18. Sheffield: Greenleaf Publishing.

Golan, E., F. Kuchler, and L. Mitchell. 2001. "Economics of Food Labeling." *Journal of Consumer Policy* 24 (2): 117–84.

ISO (International Organization for Standardization). 1999. *ISO 14024:1999 – Environmental Labels and Declarations – Type I Environmental Labelling – Principles and Procedures. Geneva: ISO.*

———. 2000. *ISO 14020:2000 – Environmental Labels and Declarations – General Principles. 2nd ed.* Geneva: ISO.

———. 2004. *ISO 14001:2004 – Environmental Management Systems – Requirements with Guidance for Use. 2nd ed.* Geneva: ISO.

———. 2010. *ISO Survey of Certification 2009.* Geneva: ISO.

Kathuria, V. 2009. "Public Disclosures: Using Information to Reduce Pollution in Developing Countries." *Environment, Development and Sustainability* 11 (5): 955–70.

Khan, Z. 2008. "Cleaner Production: An Economical Option for ISO Certification in Developing Countries." *Journal of Cleaner Production* 16 (1): 22–7.

Matouq, M. 2000. "A Case Study of ISO 14.001-Based Environmental Management System Implementation in the People's Republic of China." *Local Environment* 5 (4): 415–33.

Netherlands, Ministry of Housing, Spatial Planning and the Environment (VROM). 1998. *Silent Revolution: Dutch Industry and the Dutch Government are Working Together for a Better Environment.*

Occupational Knowledge International (OK International). http://www.okinternational.org/lead.html.

OECD (Organisation for Economic Co-operation and Development). 2003. *Voluntary Approaches for Environmental Policy: Effectiveness, Efficiency and Usage in Policy Mixes*. Paris: OECD.

———. 2007. *Business and the Environment: Policy Incentives and Corporate Responses*. Paris: OECD.

Porrini, D. 2005. "Environmental Policies Choice as an Issue of Informational Efficiency." In *The Elgar Companion to Law and Economics. 2nd ed.* ed. J. G. Backhaus, 350–63. Cheltenham: Edward Elgar Publishing Limited.

Potoski, M., and A. Prakash. 2005. "Green Clubs and Voluntary Governance: ISO 14001 and Firms' Regulatory Compliance." *American Journal of Political Science* 49 (2): 235–48.

Rondinelli, D., and G. Vastag. 2000. "Panacea, Common Sense, or Just a Label?: The value of ISO 14.001 Environmental Management Systems." *European Management Journal* 18 (5): 499–510.

Rotherham, T. 2000. "Selling Sustainable Development: Environmental Labeling and Certification Programs." In *Environmentally Sound Trade Expansion in the America: A*

Hemispheric Dialogue, ed. R. L. Rosenberg, 55–80. Miami: North-South Center Press.

Sanchez, M. C., R. E. Brown, C. Webber, and G. K. Homan. 2008. "Savings Estimates for the United States Environmental Protection Agency's ENERGY STAR Voluntary Product Labeling Program." *Energy Policy* 36 (6): 2098–108.

SEC (Singapore Environment Council). http://www.sec.org.sg/awards/greenlabel.

SEPA CEC (State Environmental Protection Administration – China Environmental United Certification Centre Co., Ltd). "Labelling." SEPA CEC. http://www.sepacec.com/cecen/labelling/.

SMK. "Kompas voor duurzaam ondernemen (Compass for Sustainable Business)." SMK. http://www.smk.nl/ (in Dutch).

Sterner, T. 2003. *Policy Instruments for Environmental and Natural Resource Management*. Washington, DC: RFF Press (now part of Earthscan Publications).

UN. 2010. *Trends in Sustainable Development: Towards Sustainable Consumption and Production*. New York: UN Department of Economic and Social Affairs.

UNEP DTIE (United Nations Environment Programme – Division of Technology, Industry and Economics). 1998. "Voluntary Initiatives." *Industry and Environment Review* 21 (1–2). Paris: UNEP DTIE.

US EPA (Environmental Protection Agency) and US DOE (Department of Energy). 2010. http://www.energystar.gov/index.cfm?fuseaction=qhmi.showHomesMarketIndex.

Zeng, S. X., C. M. Tam, V. W. Y. Tam, and Z. M. Deng. 2005. "Towards Implementation of ISO 14001 Environmental Management Systems in Selected Industries in China." *Journal of Cleaner Production* 13 (7): 645–56.

Zhao, J., and Q. Xia. 1999. "China's Environmental Labeling Program." *Environmental Impact Assessment Review* 19 (5–6): 477–97.

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