



# **Environmental Labeling Issues, Policies, and Practices Worldwide**

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*prepared for:*

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## Environmental Labeling: Scope of this Report

Labeling programs can be classified according to a number of program characteristics, as illustrated on the following figure (Figure 1). The most important is whether the program relies on first-party or third-party verification<sup>1</sup>. The former is performed by marketers on their own behalf to promote the positive environmental attributes of their products. Programs relying on first-party verification are not addressed in this report. Third-party verification is carried out by an independent source that awards labels to products based on certain environmental criteria or standards. Environmental labeling programs can also be characterized as positive, negative, or neutral. Positive labeling programs typically certify that labeled products possess one or more environmentally preferable attributes. Negative labeling warns consumers about the harmful or hazardous ingredients contained in the labeled products. Neutral labeling programs simply summarize environmental information about products that can be interpreted by consumers as part of their purchasing decisions. Third-party environmental labeling programs can be further classified as either mandatory or voluntary. Mandatory programs include hazard or warning labels, and information disclosure labels. Voluntary labels are typically positive or neutral, and are further classified as either report cards, seal-of-approval, or single-attribute certification programs.

The US programs covered in this report include mandatory government programs, voluntary seal-of-approval programs, single-attribute programs, hazard warning programs, and information disclosure programs. Due to the scope of this report, not every labeling program that may be in existence today is covered (e.g., food is not covered), and the report should not be seen as a comprehensive study of all labeling programs worldwide. The report presents a snapshot of the major environmental labeling programs in existence during the research phase for which information was available.

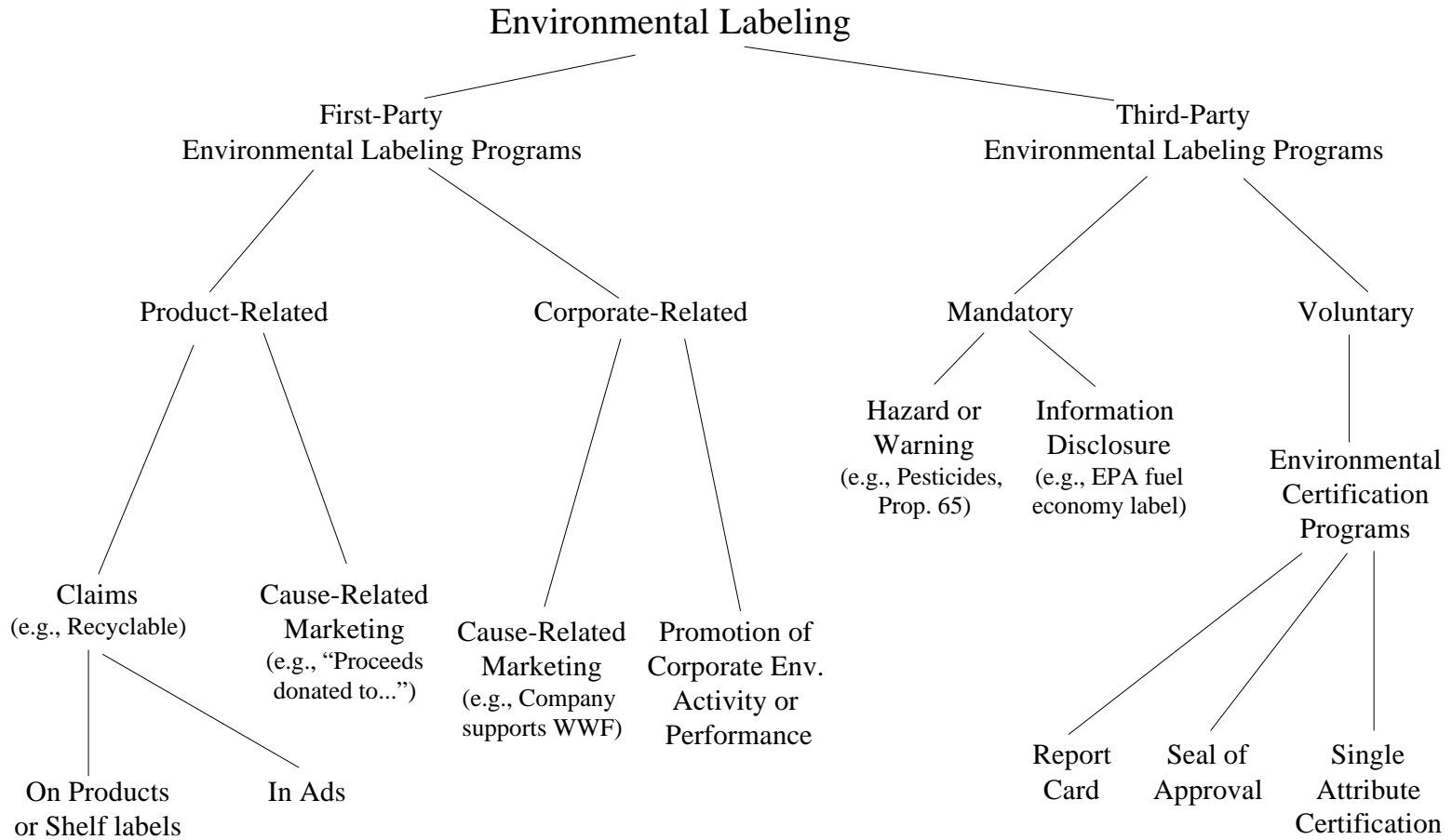
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<sup>1</sup> Verification refers to an evaluation process or determination that products or services meet specified criteria or claims.





**Figure 1: Classification of Environmental Labeling**



# Environmental Labeling Issues, Policies, and Practices Worldwide

## 1. Introduction

This research is part of the EPA's overall effort to educate and inform product users about the environmental attributes and consequences of products they purchase. It documents the state of environmental labeling worldwide and provides a basis for anticipating trends.<sup>2</sup> This report focuses on environmental labeling efforts aimed specifically at retail consumers; however, many of the labeling activities and programs covered have non-retail applications. The findings are expected to educate and inform those who may be directly affected (e.g., environmental policy makers, product manufacturers, organizations/governments making large purchases of consumer products) or indirectly affected (e.g., trade officials) by environmental labeling programs on the operation and development of environmental labeling programs. This report should also advance the debate about the utility of environmental labeling programs.

The term "environmental labeling" covers a broad range of activities from business-to-business transfers of product-specific environmental information to environmental labeling in retail markets. Labels, as well as other labeling program activities, serve a variety of purposes and target a number of different audiences.

At one end of the spectrum, business-to-business environmental labeling includes activities such as the provision of Material Safety Data Sheets (MSDSs), product stewardship programs, hazard communication programs, and product manifests. All of these activities are meant either to provide industrial customers and workers with information on the health, safety, and environmental effects of the products they purchase or to encourage them to use these products in ways that minimize their eventual impact on human health and the environment. At the other end of the spectrum, environmental labeling programs have been established worldwide to help consumers evaluate the environmental attributes of the products and services they are considering buying. In this case, the term "consumer" is not limited to private citizens but includes governments and large institutions seeking to incorporate environmental considerations into their procurement processes.

One goal of such programs, typically, is to promote environmental improvement by encouraging consumers to choose products and services considered to be environmentally preferable.<sup>3</sup>

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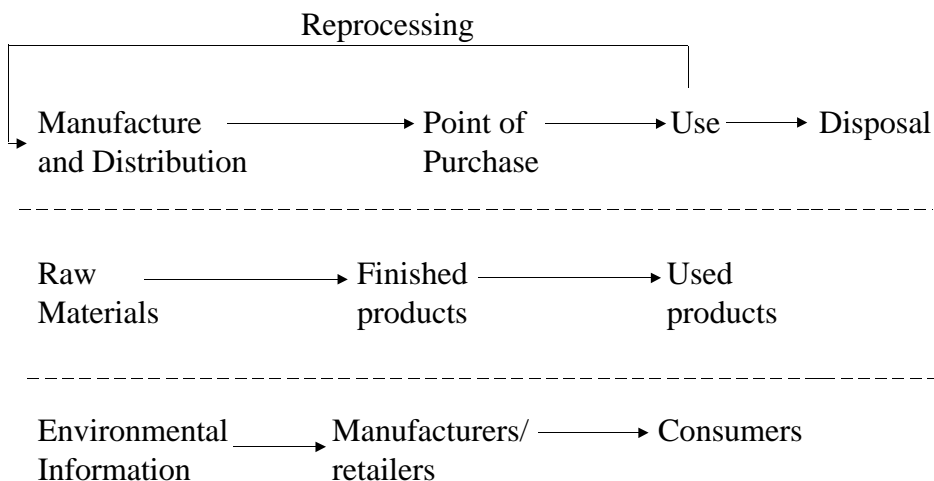
<sup>2</sup> This report builds on the *Status Report on the Use of Environmental Labels Worldwide* (EPA Document #742-R-9-93-001) by updating findings and documenting changes.

<sup>3</sup> Gaining more prominence in the past few years is the environmental certification of certain service industries such as hotels. Issues such as water conservation and energy efficiency are among the environmental attributes most frequently evaluated. For ease of presentation, the term "products" will be used throughout the

Related information dissemination activities include, but are not limited to, the Environmental Protection Agency's (EPA) Consumer Labeling Initiative (CLI), the Environmentally Preferable Procurement (EPP) Program and other numerous product labeling programs, the International Organization for Standardization's (ISO) efforts to develop standardized environmental labeling criteria, and the Federal Trade Commission's (FTC) guidelines for making environmental claims. Additionally, there are information disclosure activities among U.S. state programs. For example, the state of California's Proposition 65 program mandates that information on a set of listed toxics be disclosed on product labels. Similarly, Vermont's Household Hazardous Products Shelf Labeling Program requires retailers to place a label on store shelves that stock household products containing hazardous materials. These types of programs do not lead to product labeling per se, but provide consumers with added information about the products they purchase.

Information concerning the health and environmental effects of products and product constituents is currently available through a number of pathways, of which labeling is just one. Much of this information is already generated by manufacturers and is available at various stages of product manufacture. For some but not all products, environmental information may be passed on to retail customers (see Chart 1-1).

**Chart 1-1: Flow of Information from Manufacturers to Consumers**



For example, the Occupational Safety and Health Act (OSHA) requires manufacturers to generate an MSDS that includes a description of the product's physical and chemical properties, as well as its health, fire, and explosion hazards. MSDSs must be provided to workers, industrial customers (e.g., formulators and distributors) and Local Emergency Planning Committees.

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report to refer to products and services.

Warning information is required by the US Department of Transportation (DOT) during interstate transport of hazardous materials such as explosives, flammables, radioactive materials, and pathogens. Many of the chemical manufacturing, formulating, and distributing sectors have adopted the tenets of product stewardship. Companies practicing product stewardship take a “cradle-to-grave” approach to their products by encouraging the safe use and disposal of their products after they have been sold to industrial customers. Product stewardship can take the form of voluntary services offered to customers in the form of brochures, training videos, and site audits, as well as mandatory requirements that determine whether or not the company will sell or ship to a specific company. The Chemical Manufacturers Association’s Responsible Care Program is one example of a product stewardship program. These information dissemination activities serve different purposes and typically, neither reach the general public, nor are organized into a format that would be readily understandable by consumers. With the current increase in consumer right-to-know initiatives, particularly in the US, and interest in its uses as a soft policy tool, the demand for environmental labeling has been increasing.

The type of information presented on labels varies widely, depending on issues specific to the product and whether labeling is mandatory or voluntary. For example, products subject to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements must carry labels that list the active ingredients in the product, first aid statements, environmental, physical and chemical hazards, directions for use, and instructions for storage and disposal. Other products may carry voluntary labels specific only to environmental attributes such as the percent of post-consumer recycled content of the product or its packaging. Note that these examples all describe characteristics of the product during use or disposal: some labels may also present information about the manufacture of the product. For example, categories like resource consumption, energy use, pollutant releases to the environment, and workplace and ecosystem effects may be addressed.

Environmental labels provide an opportunity to inform consumers about product characteristics that may not be readily apparent. For example, it may be unsuitable to pour unused cleaning product down the drain, due to the product’s potential aquatic toxicity. Additionally, labels allow consumers to make comparisons among products. Armed with this information, consumers have the ability to reduce the environmental impacts of their daily activities by purchasing environmentally preferable products and minimizing their consequences during use and disposal. Labels help consumers vote their preferences in the marketplace and therefore potentially shift the market toward products that minimize environmental impacts. Label information helps consumers to use safely and properly recycle or dispose of both products and packaging.

The purpose of this report is to provide an overview and analysis of environmental labeling programs worldwide. Chapter 2 provides an overview of environmental labeling from the perspective of the United States. The chapter sets out some important background issues, history, and definitions, all of which are critical to understanding the development of environmental labeling to date, as well the future outlook for US programs. Chapter 3 describes

the types of environmental labeling programs, including specific definitions of program types. Chapter 4 presents an overview of environmental labeling programs worldwide. Topics covered include program breadth, methodology, recent changes, and coordination with other programs. Summary statistics are also provided. In Chapter 5, the forces affecting environmental labeling programs, such as public/societal interests, consumer interests, retailer's interests, producer's interests, operating costs/profits, standardization, and procurement programs are discussed. Chapter 6 discusses recent program changes and possible future trends. Finally, Appendix A summarizes the labeling programs covered in this report, and Appendix B provides detailed program summaries. The findings and summaries contained herein are based on a number of efforts that provide complementary research, including EPA's direct experience with environmental labeling and labeling programs, EPA's involvement in related governmental initiatives, literature reviews and investigations into labeling and program administration, and EPA's coordination with domestic and international programs.

## 2. Environmental Labeling: The US Perspective

### 2.1. Background

In all of the seven major industrialized nations (the “G7”), continual efforts have been made to compile environmental performance information specific to a wide range of products and services.<sup>4</sup> Such information is disseminated to consumers through hundreds of labeling programs, both governmental and non-governmental. These programs are implemented at various points throughout the manufacturing process, from raw material extraction to use and disposal. It is important to note that environmental labeling has practical implications in the marketplace, where goods and services compete for consumers, as well as public policy implications for governments, which are typically charged with the protection of environmental quality -- a “common good” owned collectively by society. Labeling in the US is no longer separable from labeling activities in foreign countries, such as ecolabeling programs, nor from international activities, such as the International Organization for Standardization (ISO)14000 standard-setting process. Thus, the scope of this report focuses on US programs, yet includes active foreign “ecolabeling” programs.

In simple terms, environmental labeling is defined as making relevant environmental information available to the appropriate consumers. Environmental labeling is the practice of labeling products based on a wide range of environmental considerations (e.g., hazard warnings, certified marketing claims, and information disclosure labels). Labeling contributes to the decision-making process inherent in product selection, purchasing, use and disposal, or retirement. Yet unlike most regulations that affect the behavior or actions of a limited number of entities (e.g., facilities or companies), labeling is designed to influence all consumers. In this context, the definition of “consumers” encompasses all individuals and organizations making purchase decisions regarding products and services, ranging from procurement officers of governments and corporations to individual retail consumers. Environmental labeling often also affects manufacturers and marketers as they design and formulate products that must compete based on quality, price, availability and, to varying degrees, environmental attributes.

Current initiatives to harmonize programs worldwide and to establish labeling standards recognize the diversity among the many types of environmental labels and the many programs now active. Some programs highlight just a single attribute of a product, such as the recycled fiber content of paper; others examine multiple attributes. Some programs, such as those developing automobile fuel economy labels, are neutral (i.e., they make no comparisons among similar products), while other programs attempt to identify environmentally preferable products for the consumer. Some, such as the US Environmental Protection Agency's (EPA's) pesticide labeling program, establish mandatory requirements (typically issued by the government as part

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<sup>4</sup> “G-7” consists of Canada, France, Germany, Italy, Japan, USA, and the UK.

of statutory requirements), whereas other programs are operated by independent third parties and are typically voluntary. Another form of labeling includes self-declarations made by manufacturers. While many programs target the retail consumer, programs such as EPA's Environmentally Preferable Products (EPP) program target institutional decision-makers, e.g., federal procurement officials.

Each of these labeling and program characteristics is closely related to the underlying methodologies used to evaluate the products' environmental attributes. The most comprehensive methodologies examine a product's entire life cycle, from material extraction, through production, to use and disposal. Whereas there is no single established standard, life cycle approaches are the most commonly used by labeling programs. Life-cycle approaches are usually adopted due to the difficulty of selecting a small set of attributes to represent what are in fact complex site-specific environmental consequences. Some programs, however, such as the US Energy Star program, assess products on a life-cycle approach but look primarily at a single characteristic of whether products meet energy-efficiency criteria.

Whereas much debate exists surrounding what constitutes an optimal program, and what information and format are most useful to those making purchase decisions, all such efforts contribute to the generation and dissemination of environmental information in the marketplace. Furthermore, the increased amount of information regarding environmental attributes and performance affects manufacturers upstream by pressuring them to take environmental attributes into consideration when designing or manufacturing their products. Overall, the combined effect is greater availability and use of such information in the US and in other marketplaces throughout the world.

## **2.2. Environmental Labeling in the US**

Much of the current research on environmental labeling programs focuses on the emerging third-party environmental labeling programs. (Third-party labeling programs use an independent source for their verification process.) Most of these programs are designed to either identify environmentally superior products or to inventory the products' environmental impact or burden categories (so that consumers can make such determinations themselves). While such programs exist in the US and many foreign markets, they do not and cannot represent the full spectrum of environmental labeling. In the US, such programs are relatively new compared to third-party environmental labeling programs in other countries, which are typically run by governments. Furthermore, there are tremendous differences among the missions of US programs. The existing US government programs often exist to implement specific requirements of statutes or regulations. For example, to be effective, hazard/warning labels typically are mandatory, and usually only governmental authorities have the power to impose such requirements on all products in the marketplace.



From a domestic perspective, environmental labeling in the US encompasses over 20 programs. In addition to the governmental warning labeling programs mentioned above, there are also:

- ▶ federal government programs dealing with disseminating relative performance information, such as the Energy Guide;
- ▶ governmental and private programs establishing performance or attribute standards and collecting information for decision-makers, although not necessarily involved in point-of-purchase labeling;
- ▶ private third-party programs, issuing both neutral and positive labels;
- ▶ environmental marketing claims made by manufacturers and marketers with guidance issued by the Federal Trade Commission; and
- ▶ federal, state, and local hazard warning programs.

Taken collectively, the labeling activities and coverage (re: product categories) of these programs play a substantive role in the US marketplace. The fact that US labeling is dispersed among many different programs requires greater attention to coordination, particularly during bilateral or multilateral harmonization and negotiations.

Since the creation of the Pesticide Labeling Program in 1947, EPA and its prior organizational entities have been involved in product evaluation and the administration of an environmental labeling program. Today, EPA is involved in 13 such programs, ranging from warning labels under the Toxic Substances and Control Act to the development of standards, used in the Agency's own Green Buildings and Energy Star programs and life cycle research for selected products and processes. (A full list of these programs is presented in Chapter 4.) EPA is also involved in other governmental programs, such as the Energy Guide for appliances, which is administered jointly with the Department of Energy.<sup>5</sup> Finally, EPA has contact in some form with almost all environmental labeling programs, both foreign and domestic. Such contact ranges from intermittent briefings and discussions, to exchanges of technical information used in developing standards to joint participation in International Organization for Standardization (ISO) activities.

Environmental labeling in the US marketplace is both active and wide-ranging. Consequently, the model of a single centralized labeling program does not fit the US experience, nor is it warranted, given the number of longstanding programs in existence and lack of a (federal) mandate to consolidate such activities. Summary information and the interrelationships among environmental labeling programs, both US and foreign, are examined in detail in the following chapters.

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<sup>5</sup>All of these efforts involve research efforts, some of which resulted in published reports, such as the *Status Report on the Use of Environmental Labels Worldwide*, *The Use of Life Cycle Assessment in Environmental Labeling*, and *Determinants of Effectiveness for Environmental Certification and Labeling Program*.



### 3. Definition of Environmental Labeling

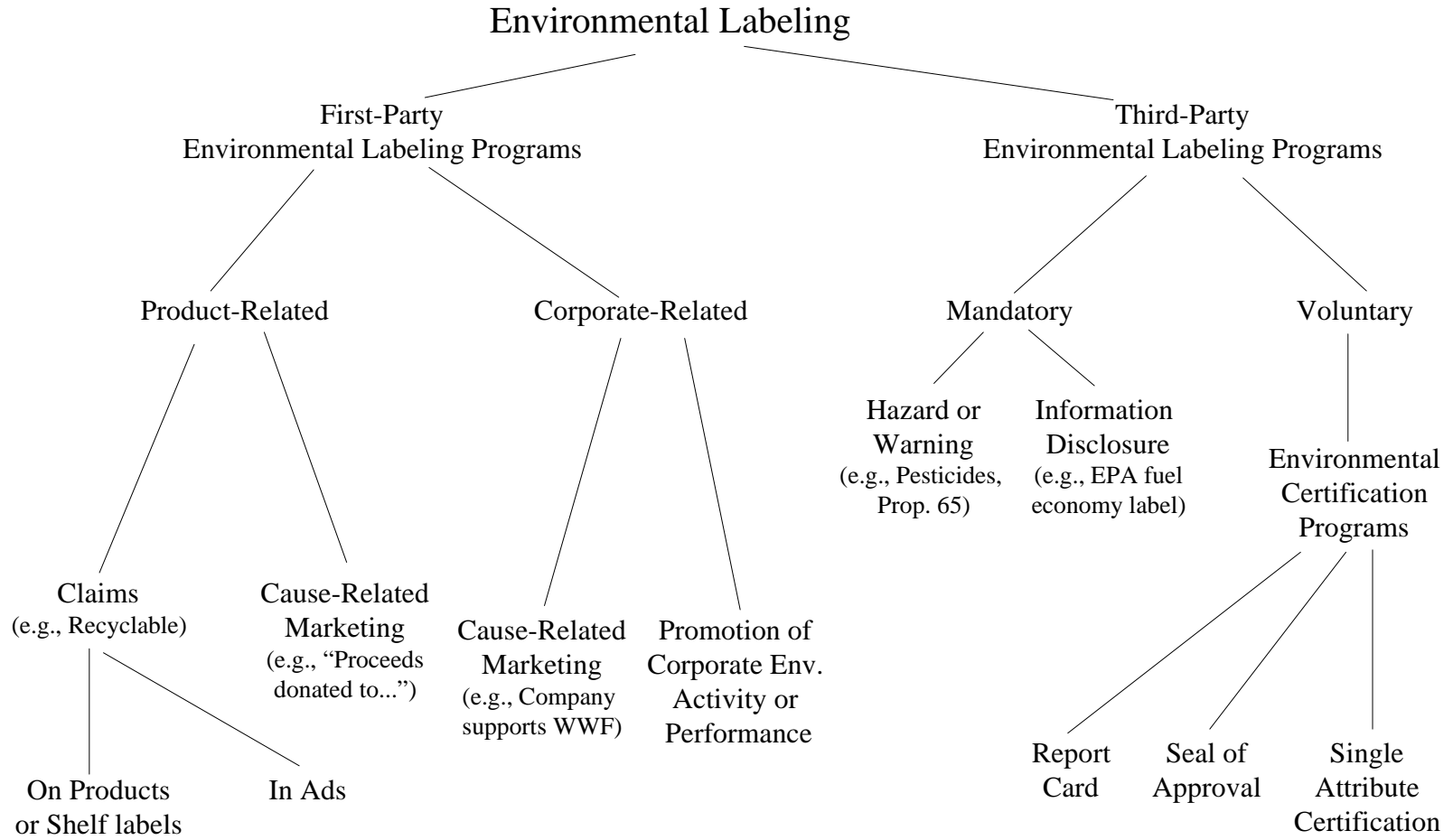
Labeling programs can be classified according to a number of program characteristics (see Chart 3-1). One of the most important is whether or not the program relies on first-party or third-party verification.<sup>6</sup> The former is performed by marketers on their own behalf to promote the positive environmental attributes of their products.<sup>7</sup> Programs relying on first-party verification are not addressed in this report. Third-party verification is carried out by an independent source that awards labels to products based on certain environmental criteria or standards. Environmental labeling programs can also be characterized as positive, negative, or neutral. Positive labeling programs typically certify that labeled products possess one or more environmentally preferable attributes. Negative labeling warns consumers about the harmful or hazardous ingredients contained in the labeled products. Neutral labeling programs simply summarize environmental information about products that can be interpreted by consumers as part of their purchasing decisions. Third-party environmental labeling programs can be further classified as either mandatory or voluntary. Mandatory programs include hazard or warning labels, and information disclosure labels. Voluntary labels are typically positive or neutral, and are further classified as either report cards, seal-of-approval, or single-attribute certification programs. A classification of each type of positive, negative, and neutral labeling program is presented on the following page.

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<sup>6</sup> Verification refers to the process by which an assessment and/or verification determines that products and services meet specified criteria or claims.

<sup>7</sup> Attributes refer to certain unique characteristics of the product.

**Chart 3-1: Classification of Environmental Labeling**



### 3.1. Positive Labeling Programs

Third-party verification programs are typically voluntary in nature and identify positive or neutral environmental aspects of a product. Labeling programs focusing on the positive attributes of a product are divided into two types: seal-of-approval (the most common) and single-attribute certification programs. They are described below.

#### *Seal-of-Approval Programs*

Seal-of-approval programs award or license the use of a logo to products that the program judges to be less environmentally harmful than comparable products, based on a specific set of award criteria. The operation of each such program differs slightly, but in general they follow a three-step process: product category definition, development of award criteria, and product evaluation. First, product categories are chosen. These categories can generally be suggested by either manufacturers or program officials. Once a product category has been decided upon, criteria are set for receiving a label within that category.

These criteria are usually based on some form of life-cycle consideration, (not necessarily a full life-cycle analysis (LCA)). There is usually a public review of program decisions. After criteria are set, applications are received, candidate products are evaluated, and awards are granted. In general, criteria are reviewed about every three years, and contracts have to be renewed. The review process is designed to provide for a continuous tightening of award criteria, such that only a small percentage of products will qualify for the label, thus providing an incentive for all other product manufacturers to improve the environmental attributes of their products. It is a complex task requiring the consideration of many factors, including environmental policy goals, consumer awareness of environmental issues, trade positioning, effects on imports and exports, and economic effects on domestic industry. Well-known seal-of-approval programs include Germany's Blue Angel, Canada's Eco-logo, and the US's Green Seal.

Seal-of-approval programs tend to have similar administrative structures. In a typical program, the government's environmental agency is involved to some extent. In some situations a government agency administers the program; in others they simply provide informal advice or funding. The bulk of the responsibility rests with a central decision-making board typically composed of academics and scientists, business and trade representatives, consumer groups, environmental groups, and government representatives. Technical expertise is provided by the government, standards-setting organizations, consultants, expert panels, and/or ad hoc task forces established to work on specific product categories.

#### *Single-attribute Certification Programs*

Single-attribute certification programs certify that claims made for a single-attribute of a product meet a specified definition. Such programs define specific terms such as "recycled" or "biodegradable" and accept applications from marketers for verification that their product attribute meet the program definition. If the programs verify that the product attributes meets their definitions, the program awards the use of the logo to the marketer. The primary single

certification program in the US is the Scientific Certification System's (SCS) Single Claim Attribute Certification. Alternatively, programs can set definitions of claims and manufacturers must meet these requirements. This is the case with the US Energy Star program, which sets stringent energy-efficient standards that products must meet before being awarded the "Energy Star."

### **3.2. Negative Labeling Programs**

#### *Hazard/Warning Labels*

Hazard or warning labels are mandatory labels that appear on certain products containing potentially harmful or hazardous ingredients. The purpose of such labels is to point out the negative characteristics of the product clearly and encourage the safe use of potentially hazardous products. Hazard or warning labels are typically mandatory programs that are initiated by a third-party (e.g., a government agency), which require that information be disclosed to consumers for health and safety reasons. Alternatively, manufacturers may voluntarily provide hazard/warning information on their products for liability purposes.

Well known hazard/warning labels in the US include pesticide labeling under FIFRA, which provides important warnings and advice for users; the Surgeon General's warnings on cigarettes; and the skull and crossbones label on poisons. Warning labels specific to health hazards include the State of California's Proposition 65 (see Program Summary Appendix for greater detail), which requires chemicals known to cause cancer or developmental or reproductive toxicity to be listed by the governor. Warnings must also be provided by businesses for a number of specific reasons, which include intentional exposure of individuals to these listed chemicals at significant levels.

Proponents of such disclosure warning labels claim that manufacturers will remove the offending chemicals rather than suffer the market setbacks (e.g., adverse publicity and loss of market share) that a hazard/warning label might cause. They argue that this approach provides a stronger incentive to reformulate products (to avoid hazardous ingredients) than would a voluntary environmental certification program. If true, the results/benefits of such an approach would be more certain to cause marketplace shifts.

### 3.3. Neutral Labeling Programs

#### *Information Disclosure Programs*

Unlike hazard/warning labels, which identify negative attributes, information disclosure programs are neutral. That is, the label contains summary facts that can then be used by consumers in making their purchasing decisions. One important requirement of information disclosure programs is that information needs to be simplified and comparable across products. Since the facts disclosed are not always positive selling features and may not otherwise be reported by marketers, information disclosure programs are usually mandatory. Unlike hazard/warning labels, which usually are mandated for health and safety reasons, information disclosure labels are developed because the program believes that consumers have the “right to know” about the product.

Perhaps the best known information disclosure label is the US Food and Drug Administration’s (FDA) nutrition label. The food label must appear on most processed food sold in the US; labeling of unprocessed fruits and vegetables is voluntary. Examples of environmental information disclosure labels include the automobile Fuel Economy Information Program and the Energy Guide program. The Fuel Economy Information Program is an EPA/Department of Energy (DOE) initiative; the Energy Guide is an EPA initiative. The automobile Fuel Economy Information Program requires that a label listing the mileage rating be affixed to all new cars and trucks sold. Begun as a voluntary program in 1973, it soon became mandatory for auto makers to report the mileage rating of new vehicles. The Energy Guide program requires that a label disclosing energy consumption per year or an energy efficiency rating be affixed to certain household appliances, such as refrigerators, refrigerator-freezers, freezers, water heaters, clothes washers, dishwashers, furnaces, room air conditioners, central air conditioners, and heat pumps.

An interesting hybrid of the information disclosure label is the battery labeling program. This program, administered by the EPA Office of Solid Waste, requires that a label appear on certain batteries and rechargeable consumer products, stating the chemical name (nickel-cadmium or lead) and the phrase "BATTERY MUST BE RECYCLED OR DISPOSED OF PROPERLY." While this type of labeling is mandatory and presents neutral information (the chemical name), it also notifies users/consumers of their legal obligation to dispose of the product properly.

#### *Report Cards*

The report card label, one type of information disclosure label, uses a standardized format to categorize and quantify various impacts/burdens that a product has on the environment. Specific and consistent information (for example, pounds of air emissions) is presented on the label, allowing a comparison across categories. By providing the consumer with standardized detailed information and little interpretation, the report card allows consumers to make judgments based on their particular environmental concerns.

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In the US, Scientific Certification Systems (SCS) has prepared an eco-profile that can be applied

to any product category. These eco-profiles are based on a life-cycle assessment (LCA), which is the first step in the more comprehensive Life Cycle Stressor Effects Assessment (LCSEA). The SCS eco-profile evaluation is a multi-step process involving the identification and quantification of inputs and outputs for every stage of a product's life cycle including raw materials extraction, material processing, manufacturing, distribution, use, and disposal. Based on the assessment, three claims of achievement may be certified:

- ▶ certified environmental state-of-the-art,
- ▶ certified environmental improvements, and
- ▶ certified environmental advantages.



## **4. Overview of Labeling Programs Worldwide**

### **4.1. Introduction**

This chapter provides an overview of a variety of different types of labeling programs in the US, and primarily voluntary, seal-of-approval, programs in other countries. The majority of the overseas programs covered in this report are government- or quasi-government-run programs. Typically, there is one such national (voluntary) labeling program in each country. In contrast, the US, lacking such a national labeling program, has a variety of different types of programs in operation. The US programs covered in this report include mandatory government programs, voluntary seal-of-approval programs, single-attribute programs, hazard warnings programs, and information disclosure programs. Charts are provided throughout this chapter to illustrate the discussion; often, these charts are used to show the difference between the programs in the US and the rest of the world.

*Due to the scope of this report, not every labeling program that may be in existence today is covered (e.g., food is not covered), and the report should not be seen as a comprehensive study of all labeling programs worldwide. The report presents a “snapshot” of the major environmental labeling programs in existence during the research phase and for which information was available. Unless otherwise noted, the charts in this section include all programs surveyed as part of this report.*

Section 4.2 provides some fundamental information about labeling programs, such as label and program type, how programs are administered and financed, and changes to programs over the years. Section 4.3 includes several maps that show the geographic distribution of the labeling programs covered in this report. Section 4.4 provides an overview of the reasons environmental labeling programs are initiated, as well as the methodologies used by each program to establish product categories and award criteria. A discussion of the ways in which environmental labeling is being used today, either for procurement purposes or in trade, is given in Section 4.5. Section 4.6 provides a brief discussion of the changes that have occurred in labeling programs. Finally, Section 4.7 describes the efforts countries are making to coordinate their environmental labeling programs with each other.

### **4.2. Fundamental Information**

This section helps to define the basics of existing environmental labeling programs by summarizing information and characteristics fundamental to each environmental labeling program. Characteristics discussed include program and label type, program administration, financing, and age, as well as number or range of product categories and awards. It should be noted that certain program characteristics are frequently linked. For example, programs identifying negative product attributes are, by necessity, mandatory. Furthermore, mandatory

programs are typically administered by governments, since environmental regulations may provide them with the authority to require mandatory labeling. In the case of the State of California's Proposition 65, considered to be a hazard warning program, businesses that knowingly expose individuals to any of a list of chemicals are required to provide a warning of such exposure. Most seal-of-approval programs, however, are third-party and voluntary. As their name implies, such programs award labels for (relative) positive environmental attributes.

For a listing of the programs covered in this report, refer to the overview table in Appendix A. For detailed summaries of the programs contacted and included in this report, refer to the reports in Appendix B.

### *Program Type*

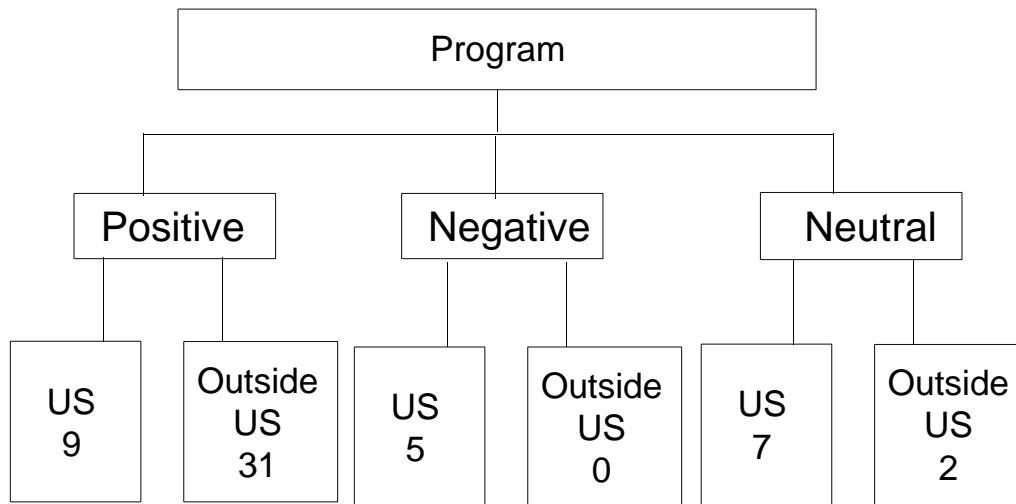
The programs reviewed issue one of three kinds of labels: positive, negative, or neutral. Most of the programs discussed in this report award positive labels indicating to the consumer that the environmental attributes of the labeled product in some way outperforms the environmental attributes of other similar products. Certification of the positive environmental attributes of a product provides manufacturers with an incentive to apply for an environmental label in the hopes of capturing more market share and improving corporate goodwill.

Negative labels, on the other hand, are typically required by law and are used to present the hazards associated with use and disposal of the product. For example, Vermont's Household Hazardous Product Shelf Labeling Program requires all retailers stocking household products containing hazardous constituents to identify those products via a shelf label. Given that most regulations establish guidance only, mandatory labeling programs require a statement of fact, and do not necessarily result in a comparable labeling format or information across products. In addition, differing requirements across jurisdictions for mandates that are not updated to reflect the current state of the economy can result in clutter on the label and/or higher labeling costs for marketers.

Neutral labels, such as the US Energy Guide, simply report summary facts about the product and allow consumers to make their own judgments based on their particular concerns. Such labels can also provide information for manufacturers and others who may use the information for internal use (e.g., benchmarking studies). The container's size, however, may dictate how much neutral label information can be included.

As shown in the following chart, there is a fairly even split in the number of positive, negative, and neutral US programs covered in this report. As mentioned above, however, the majority of other countries' programs covered in this report are positive programs, reflecting the fact that most of these are seal-of-approval programs (see Chart 4-1).

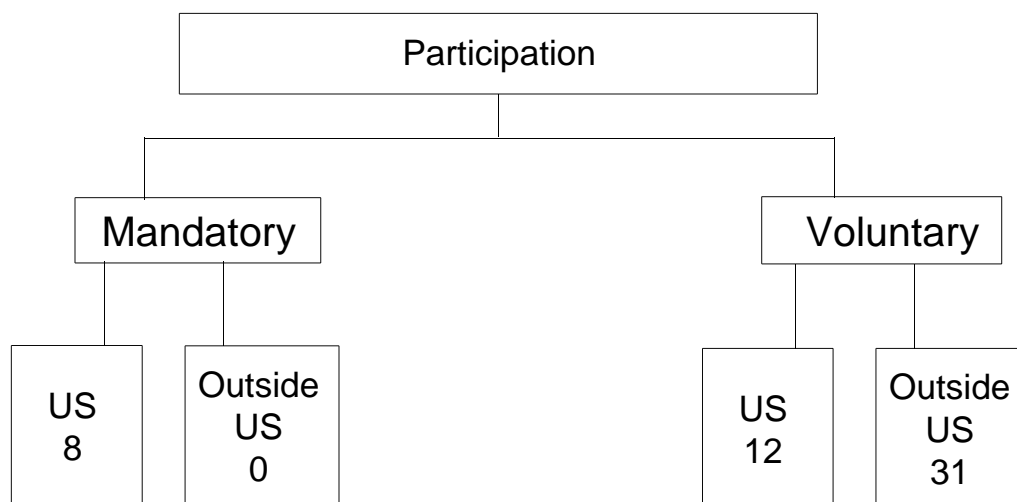
**Chart 4-1: Program Type  
(based on programs reviewed)**



## Participation

Participation in labeling programs can be either mandatory or voluntary. This report includes voluntary programs worldwide and mandatory and voluntary programs in the US; due to the scope of this report, not every existing program was surveyed. Of the programs surveyed, most are voluntary (this is exclusively so for the programs outside the US). US programs covered in this report are fairly evenly split between mandatory and voluntary programs (see Chart 4-2).

**Chart 4-2: Participation in Labeling Programs  
(based on programs reviewed)**



With voluntary programs, manufacturers choose to participate in a program and typically submit an application for a specific product to be labeled. To encourage manufacturers to participate, emphasis is placed on the positive attributes of a product. Because these programs are propelled by their market influence, manufacturers apply for a label when it increases their product's marketability as well as their competitive edge.

Mandatory programs, on the other hand, can require the identification of negative product characteristics, and are typically one element of a regulatory approach to consumer and environmental protection. For example, the US battery labeling requirements mandate that rechargeable cadmium and/or lead batteries carry labels that inform users of the contents of the batteries and indicate that batteries must be recycled and/or properly disposed. Whether or not a program is mandatory or voluntary will influence the extent and type of information about environmental attributes on labels in the marketplace. Typically, mandatory programs result in more comprehensive dissemination of information in the marketplace, since all similar products are required to carry a label.

## *Label Type*

The types of labels awarded by programs fall into the following categories: seal-of-approval, single-attribute, hazard warning, information disclosure, and report card. Most programs discussed in this report award “seal-of-approval” labels; they license use of a seal (label) for one or more superior product characteristics. These programs generally evaluate multiple attributes of a product and employ some form of life-cycle assessment (LCA) to evaluate the environmental impacts of the product. (LCA is a process that encompasses consideration of all aspects of the manufacture of a product from natural resource extraction to product disposal.)

Some of the programs contacted analyze only a single product attribute and award a label certifying the environmental preferability of only that attribute. For example, Germany’s Green Dot program certifies that packaging manufacturers participate in an established source reduction or recycling program for consumer packaging waste. As mentioned above, hazard warning programs identify the negative attributes of a product and are generally mandatory. Finally, information disclosure programs and report cards both present neutral summary information on an established set of environmental attributes.

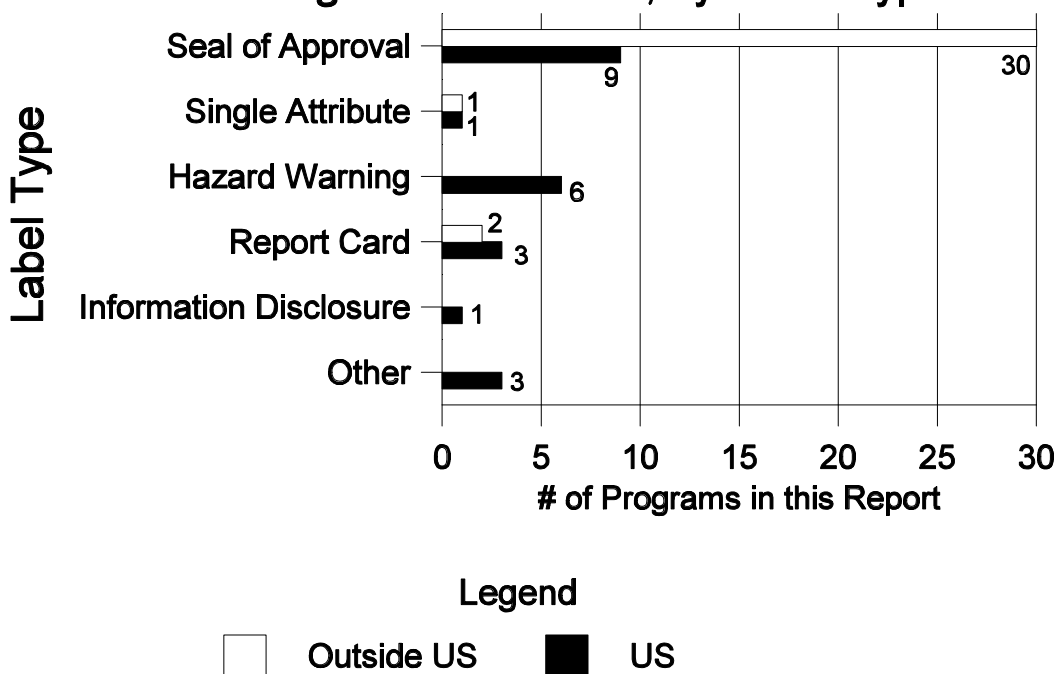
The choice of label type by program will have an effect not only on the level of information consumers receive about environmental attributes, but on the way in which they are likely to interpret this information. For example, single-attribute labels provide information on only one environmental attribute. Report card labels provide information on a number of environmental attributes. While the single-attribute label may suggest to the consumer that the product has an environmentally preferable attribute, this may not be the attribute that the consumer cares most about. Alternatively, while the report card label may present information on all the attributes the consumer cares about, the consumer may not be able to judge the overall environmental preferability of the product. To better understand the relationships among label type, participation and program type, Table 4-1 compares the associations among these various categories.

**Table 4-1: Participation by Program and Label Type**

	Mandatory	Voluntary
<b>Positive</b>	N/A	Seal-of-approval Single-attribute
<b>Neutral</b>	Information Disclosure	Report card
<b>Negative</b>	Hazard warning	N/A

The majority of programs contacted for this report are seal-of-approval programs. This is overwhelmingly so for the overseas programs; 30 out of the 33 overseas programs covered in this report are seal-of-approval programs. Though the majority of US programs included in this report are also seal-of-approval programs, they exhibit a greater variety of label type. This may be a reflection of the fact that the US does not have a national third-party labeling program, whereas seal-of-approval programs are the national program for many of the other countries (see Chart 4-3).

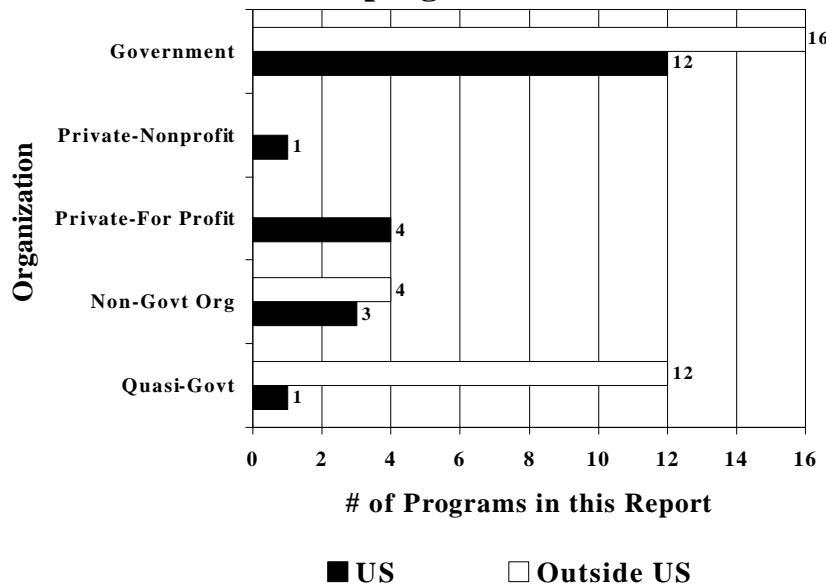
**Chart 4-3: Programs Reviewed, by Label Type**



## Administration

Programs are sponsored and/or administered by governments, private companies (for profit and non-profit), non-governmental organizations, or some combination of the above (quasi-governmental). This is true for both US and non-US programs. A program is defined as quasi-governmental if two or more groups are involved in the administration of the program and one is a governmental entity. Frequently, programs are considered quasi-governmental because they were started by or are supported by a government, while also relying on a private company to run their daily activities. Among those included in this report, the US is dominant in programs that are privately run. Green Seal and SCS are examples of programs run by private companies. The distribution of programs included in this study by administration type can be found in the chart below (see Chart 4-4). Programs' administrative bodies affect the longevity of the program in a number of ways. The administrative body often provides (or can provide if necessary) the financial backing and other resources (e.g., office space, supplies) for the program. Thus, governmental or quasi-governmental-backed programs are expected to survive in the long run due to the possibility of other formal and informal subsidies. Similarly, non-governmental organizations (other than private companies), such as a National Standards Institute, may also have other operations or resources from which the labeling program may draw. Of the programs contacted for this report, most are run by governments; very few are run by private organizations.

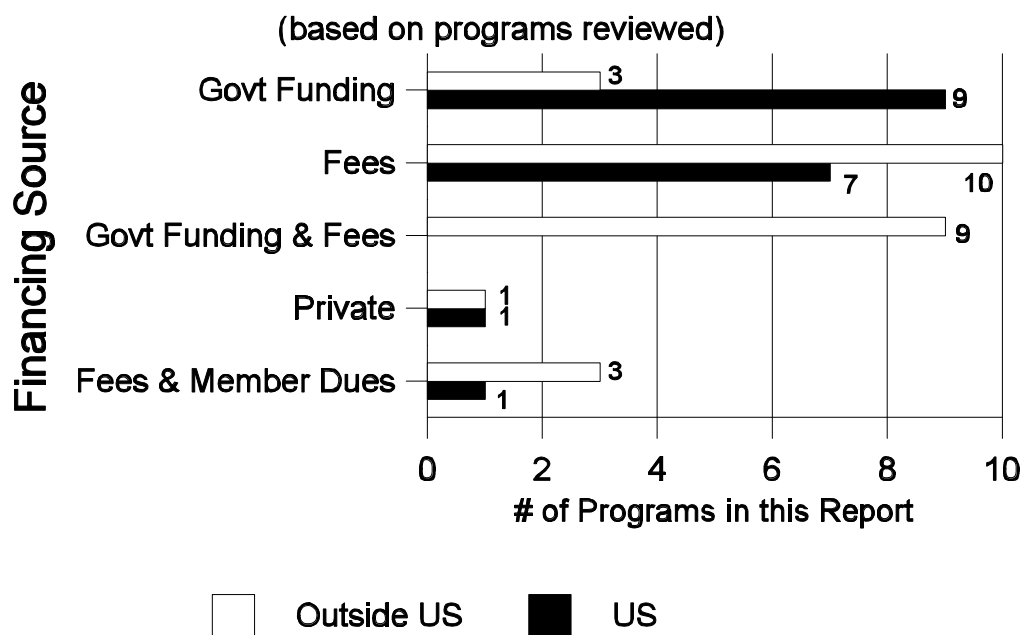
**Chart 4-4: Programs by Organization Type  
(based on programs reviewed)**



## Financing

Many labeling programs are not yet fully self-sufficient, and require additional financing to cover their operating costs. Programs are financed a number of ways (see Chart 4-5). They can be financed by the government, by fees collected for their services, by revenue streams from other operations, by other sources such as payment from private companies and donations from private and public organizations, or by a combination of any of these. As shown in the figure below, fees and government funding are the major sources cited by those programs contacted for this study. Those programs funded solely by fees may have a somewhat higher credibility risk because of the inherent conflict between independent selection of product categories (and setting of award criteria) and the need to generate revenue (i.e., have customers for licenses) to cover both fixed and operating costs. Yet, even those programs that are government subsidized have stated goals of financial self-sufficiency.

### Chart 4-5: Programs by Financing Source



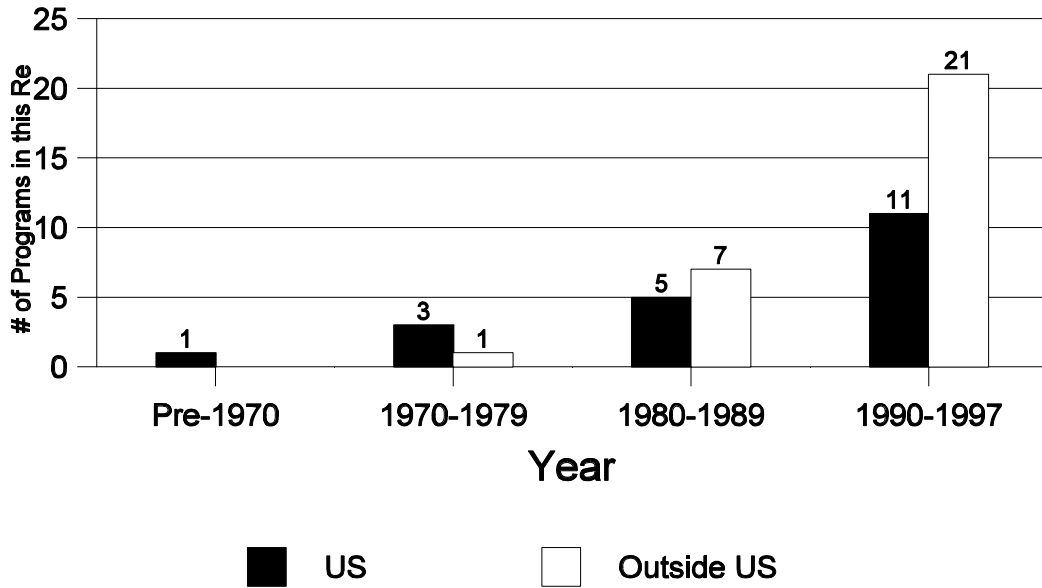
## Year Founded

The year the program was founded establishes a timeline of environmental labeling program formation. Programs that began in the early 1970s and pre-1970 are primarily US programs. The exception is Germany's Blue Angel program, the oldest seal-of-approval program in existence. The US programs that began in these early years of environmental labeling are the Energy Guide, the Fuel Economy Information Program, the US EPA Pesticide Program (FIFRA), which began in 1947, and EPA's toxic substances control program under the Toxic Substances



Control Act (TSCA). Most of these are mandatory programs (with the exception of Energy Guide and Fuel Economy, which are both information disclosure programs), and were initiated by the US government when it became evident that health and safety information, particularly about agricultural pesticides, had to be conveyed to consumers. The recent growth in environmental labeling is illustrated in Chart 4-6, which presents the start-up year of programs included in this report.

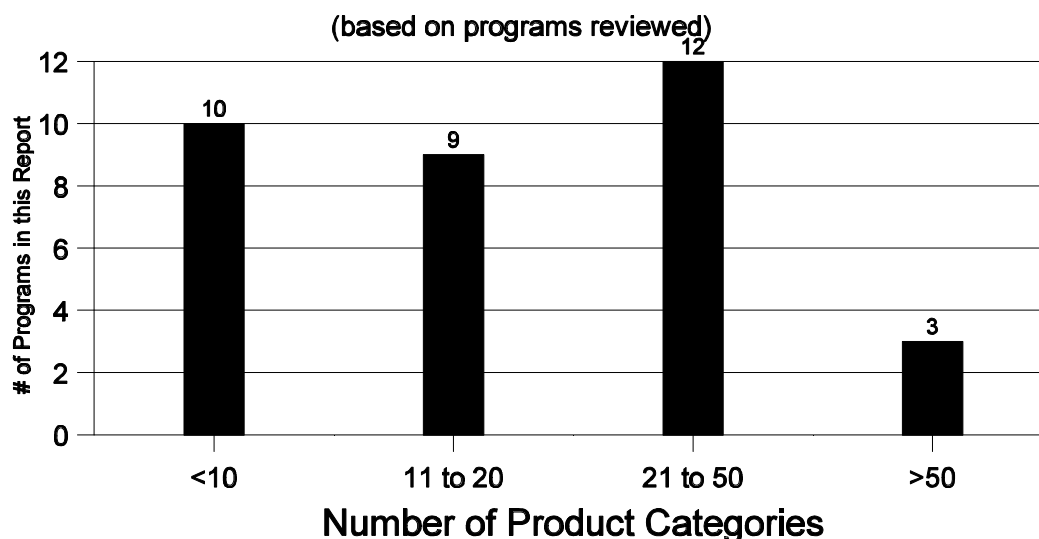
**Chart 4-6: Number of Programs Founded by Year  
(based on programs reviewed)**



## Product Categories

The number of product categories covered helps to identify the size and scope of a program, as well as the program's stage of development and how long it has been in existence. The following chart (see Chart 4-7) indicates the current number of product categories covered by each program surveyed in this report. Note that this chart includes only seal-of-approval programs that are already developed; other types of programs tend to only have one or two product categories and are therefore not as relevant to this breakout. The number of categories currently ranges from fewer than 10 (10 programs) to more than 50 product categories (3 programs). It should be noted, however, that all programs are continually developing product categories. As programs are increasingly sharing more information, the rate of product category definition and criteria development is rising.

**Chart 4-7: Product Categories in Seal-of-Approval Programs**



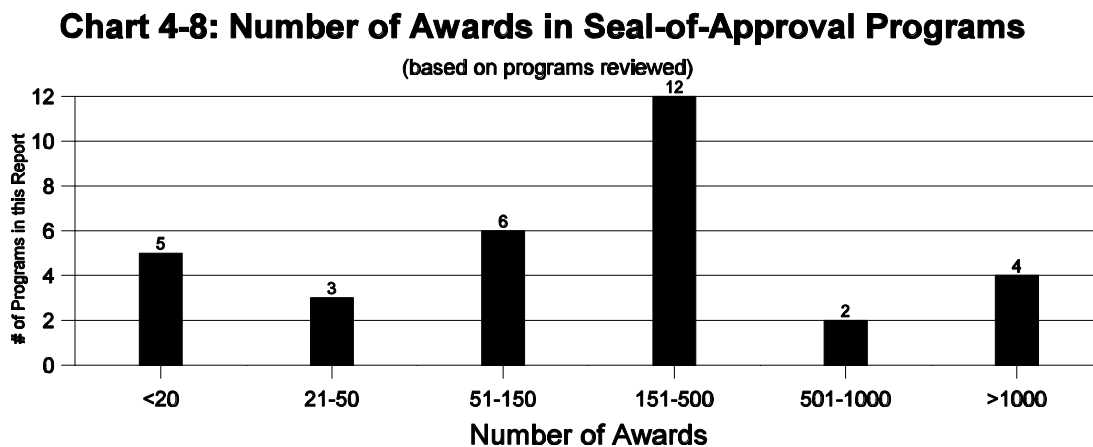
The types of products for which criteria are developed also varies. Appendix B contains a detailed list of product categories for each program summary. The most prevalent categories are paper products (including towels, toilet paper, office paper), detergents, office equipment, and dishwashers. (Selection of such categories reflects products for which the environmental impacts have been studied in detail over time.) It is relatively easy for programs to adopt standards for these categories, hence their occurrence in almost all environmental labeling programs. Less typical categories usually reflect the particular needs or conditions of individual markets. For example, to accommodate one of its largest export products, India's Ecomark program is considering the establishment of a category for leather goods. In Japan, standards have been developed for fusuma and shoji paper made from recycled pulp. In Germany, because of a sensitivity to noise pollution, standards have been developed for products that generate comparatively less noise, such as low-noise construction machines, low-noise compost choppers, and low-noise mopeds.

## Number of Awards

The number of awards conferred by a program depends on how many product categories it has established and how long it has been in existence. For example, long-standing, well-established programs such as Germany's Blue Angel have had years to select product categories, develop criteria, and garner support among manufacturers, government, and consumers. Programs such as these may have bestowed thousands of awards. Such programs are well known in the marketplace and thus will have the potential for reaching many consumers. Moreover, these programs may have gone through several criteria revisions and thus added product categories over time. A strong market presence may encourage programs to set higher standards, thus creating incentives among manufacturers to continue to strive for improvement in their products.

New programs have had little time to establish product categories and criteria or award many labels. If a program has little visibility, manufacturers may not have an incentive to apply for the label, thus reducing the number of labels that a program will be able to award. Also, the cost to apply for the label will likely affect the number of awards bestowed. To encourage more people to apply for the GreenLabel, the Singapore Ministry of the Environment bears all the costs of the program, thereby minimizing the manufacturer's fees. The results have been that manufacturers have applied for the GreenLabel in relatively large numbers; over 700 products have been awarded the label. The US SCS program, which has been in existence since 1984, now has over 400 growers who have applied for their products to obtain the SCS Nutriclean label.

The following chart indicates the current number of awards given by the developed seal-of-approval programs (see Chart 4-8).



Differences in the number of labels awarded may also be due to differences in “accounting” practices. While most programs count a product receiving an award (e.g., Company X’s recycled paper product) as one award, other programs count an awarded company as one award (e.g., even though Company X may have an award for two of their products, towels and copier paper, they are only counted once). Other programs count each awarded product that sits on the shelf as one award (e.g., each labeled package of recycled paper is counted once).<sup>8</sup>

### **4.3. Geographic Representation**

The following maps identify information about the major programs in each country. Figure 1 locates each program covered in this report on a world map. Figures 2, 3, and 4 divide the world into three regions (Europe, Pacific Rim, and North and South America) and provide the country name, program name, and whether the program is part of the European Union (EU), a G7 nation, or both.

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<sup>8</sup> This report does not count the total number of products sold or total number of companies receiving a license as the number of awards per program.

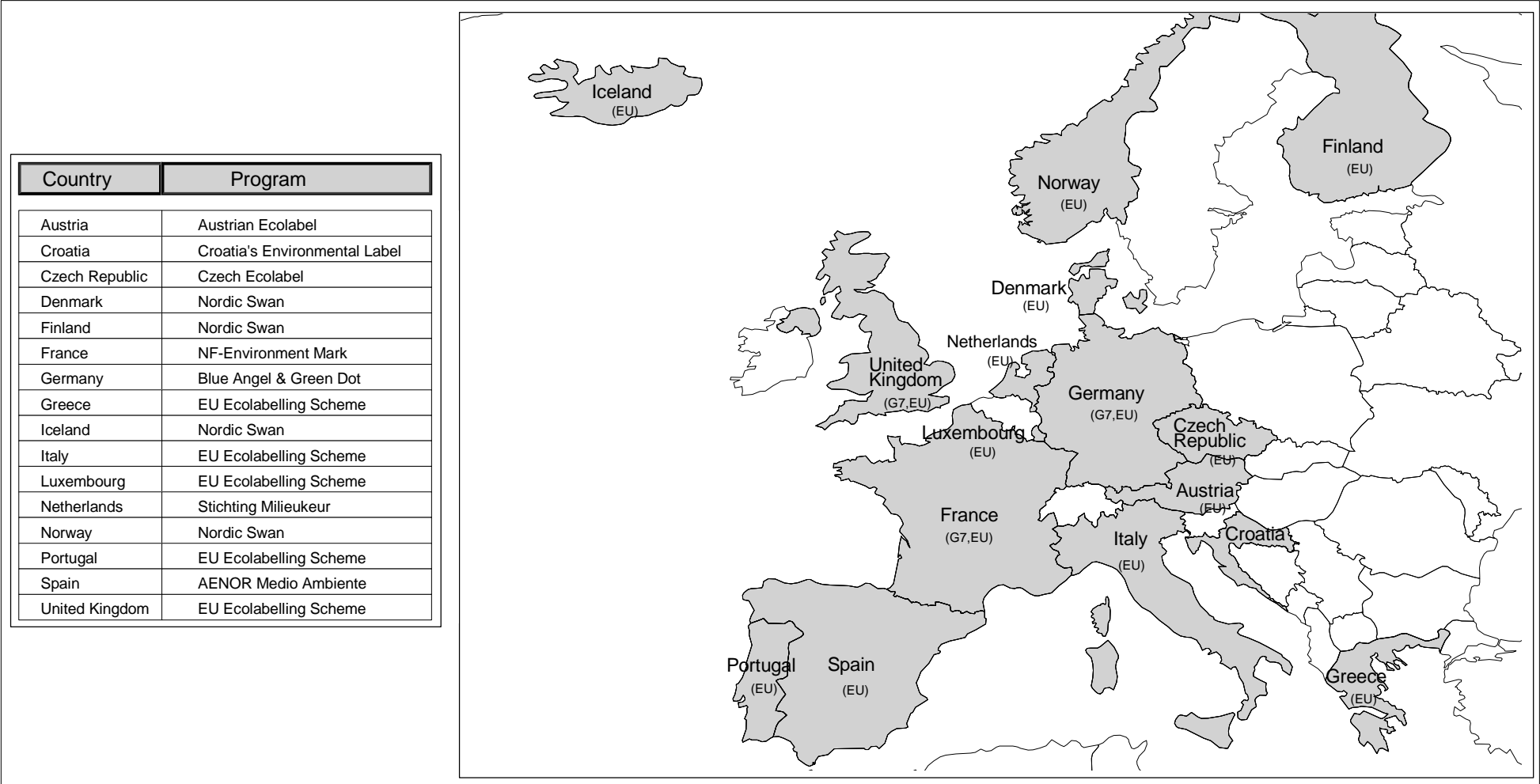
Figure 2: Positive and Neutral Third Party Ecolabeling Programs Worldwide <sup>a</sup>



<sup>a</sup> Covered in this Report



Figure 3: Positive and Neutral Third Party Ecolabeling Programs in Europe<sup>b</sup>

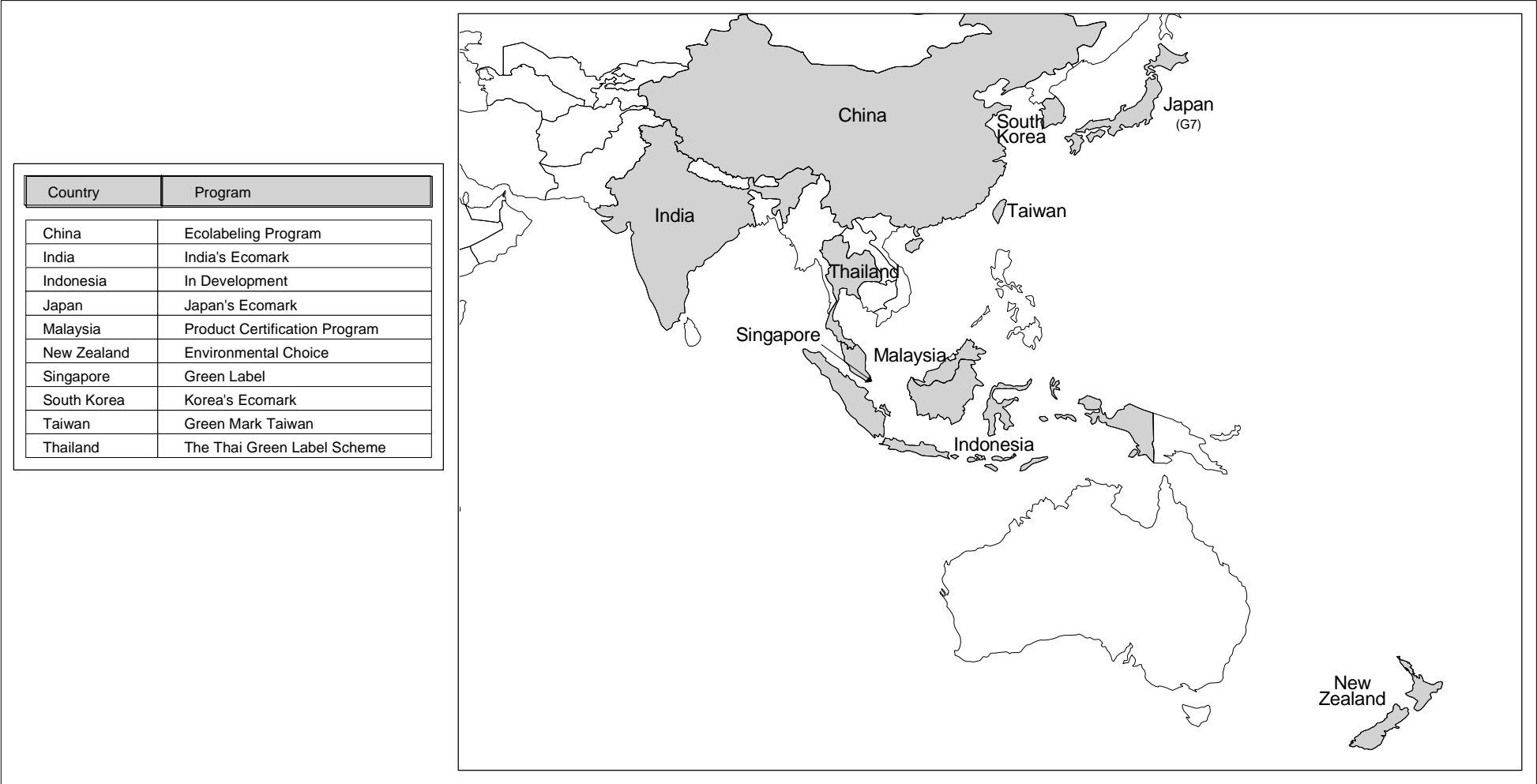


<sup>b</sup> Covered in this Report





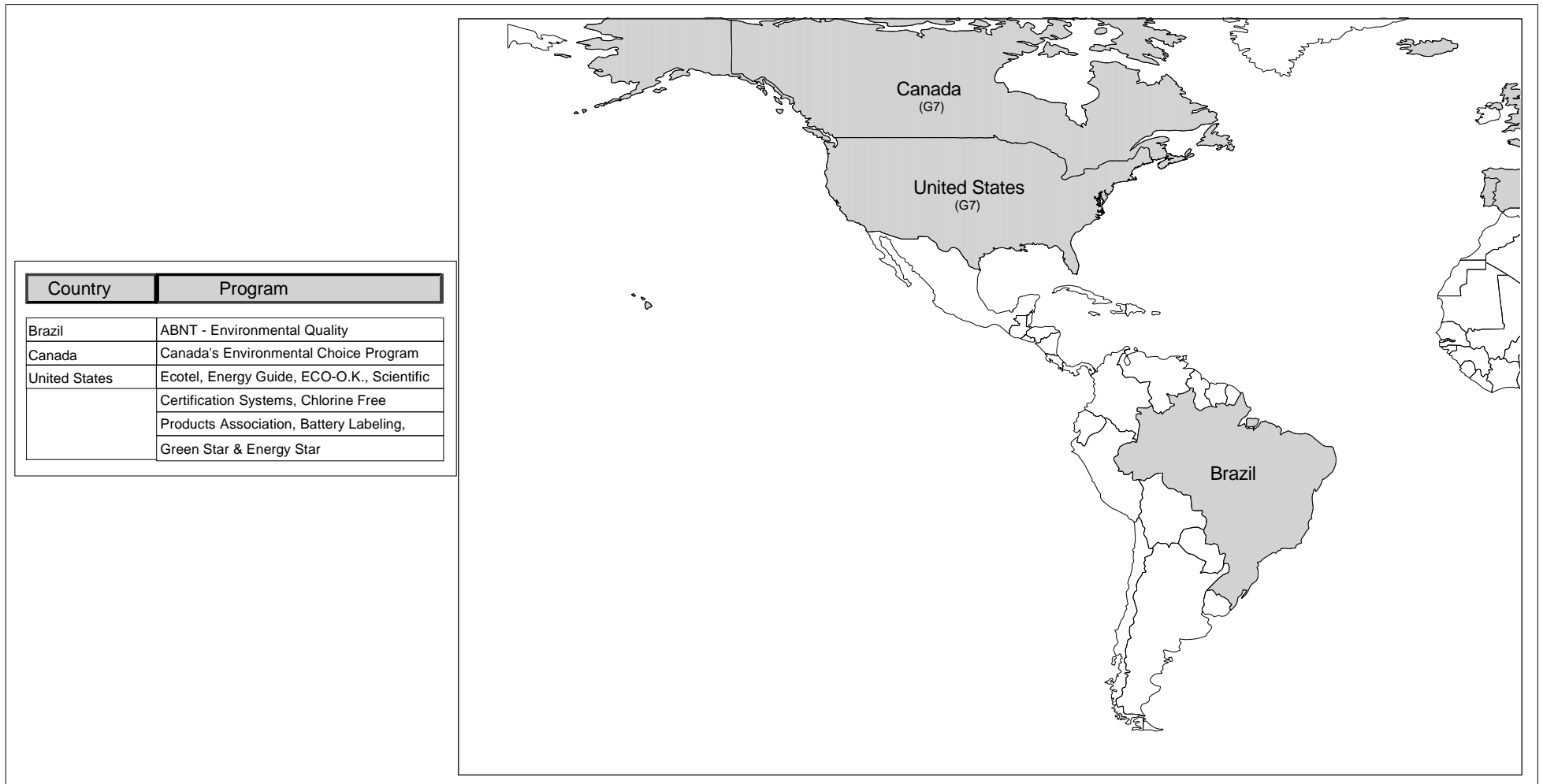
Figure 4: Positive and Neutral Third Party Ecolabeling Programs in the Pacific Rim <sup>c</sup>



<sup>c</sup> Covered in this Report



Figure 5: Positive and Neutral Third Party Ecolabeling Programs in North & South America <sup>d</sup>



<sup>d</sup> Covered in this Report



#### 4.4. Program Methodology

This section describes the various reasons for which environmental labeling programs are initiated, as well as the methodologies used by each program to establish product categories and develop award criteria. A discussion of stakeholder involvement in this process is also presented; such involvement is key to the transparency and nondiscrimination called for in draft ISO standards. Similarities or differences between adopted methodologies will influence the extent to which programs will be able to standardize or mutually recognize their operations with those of other programs. The analytical methodologies employed by programs are also closely linked to programs' credibility.

##### *Program Goals*

All environmental labeling programs aim to improve some aspect of environmental quality in their respective countries by reducing pollution. Typically, they are formed with the country's specific environmental improvement goals and needs in mind. In general, environmental labeling programs work toward this goal by recognizing manufacturers that produce and market products that are (relatively) less harmful to the environment and by encouraging consumers to purchase products labeled as environmentally preferable. If consumers buy environmentally preferable products due to label information, it's hoped that market forces will encourage other producers to change their manufacturing procedures to reduce environmental harm. For example, Canada's TerraChoice program seeks to "reduce the stress on the environment by encouraging the demand for and supply of environmentally responsible products and services." Another common goal expressed by environmental labeling programs is to educate consumers and increase environmental awareness. It is hoped that through widespread visibility of environmental labels, consumers will be educated, and information will be disseminated regarding environmentally preferable products and "green consumerism." Japan's Ecomark, for example, seeks to "disseminate information on the environmental aspects of products and to encourage consumers to choose environmentally sound products." Similarly, Singapore's GreenLabel specifically seeks to "promote green consumerism and increase environmental awareness." The EU program sees its role as an information disseminator, responsible for formulating a consensus standard across EU markets.

Some programs have focused their environmental improvement or consumer education/information dissemination goals by addressing specific environmental problems. For example, the US Energy Star program seeks to reduce air pollution by reducing the burning of fossil fuels. Energy Star is pursuing this goal by encouraging the production and use of energy-efficient products that require less electricity. Many of the mandatory programs have narrower, specific environmental goals and target specific environmental issues. For example, the US EPA's mandatory Ozone Depleting Substances label warns consumers of products manufactured with

ozone-depleting substances and their harmful effects. Similarly, the State of Vermont's Hazardous Household Products Shelf Labeling program seeks to reduce the use of toxic substances by identifying household products containing one or more of a list of hazardous chemicals. A missions/goals summary is presented in Table 4-2.

**Table 4-2: Missions/Goals Given for Programs Covered in this Report**

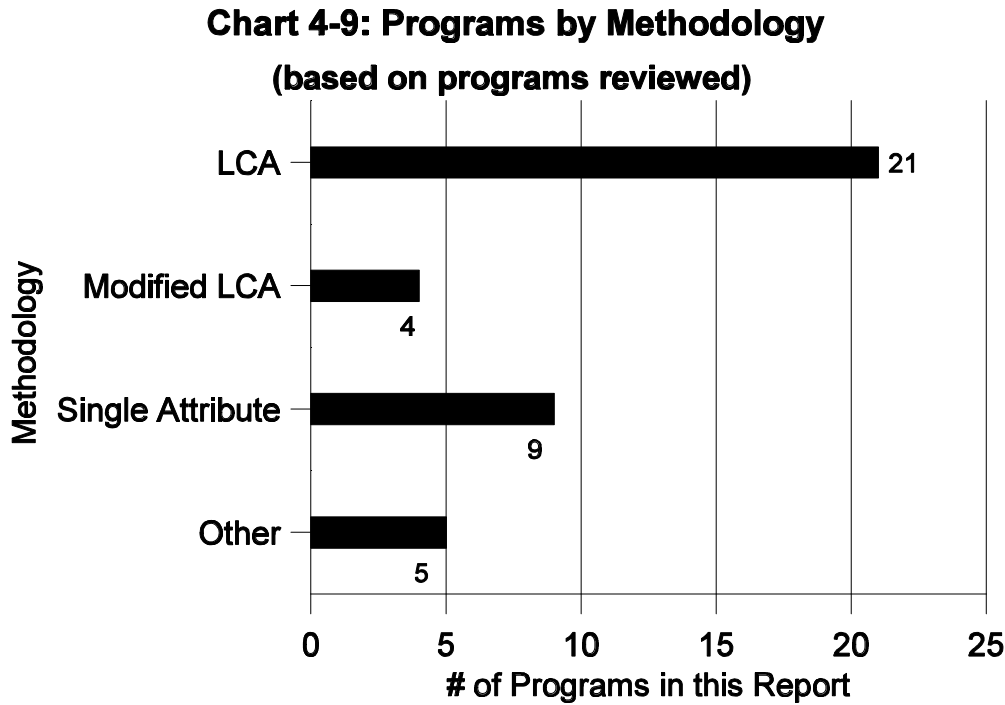
Program Characteristic	Number of Programs that Report this Mission/Goal
Program missions/goals	Promote production and use of environmentally preferable products - 19  Information dissemination/education - 8  Target specific environmental problems - 12
Note: Numbers of programs reporting these missions/goals are not mutually exclusive.	

*Program Methodologies*

A program's evaluation method is one of its most important features, because it reflects the scientific basis, data sources, and judgment on which product categories are chosen and which label award decisions are made. Most programs rely on some form of life-cycle assessment (LCA) to choose product categories and develop criteria for awarding labels. Full LCA is very detailed, evaluating all aspects of the production process including raw material extraction, manufacture, transportation, use of the product, recycling, and disposal. Because LCA encompasses the entire production process and beyond, it is often too expensive and time-consuming to conduct a full, in-depth LCA. Programs will often, therefore, consider only the stages of LCA that they find most relevant to their needs. France's NF-Environnement Mark program utilizes a simplified LCA that identifies the "key stages" in the product's life cycle -- those stages expected to have the most significant environmental impacts. Product criteria are based on these key stages. Detailed discussions of program methodologies are included in each individual program summary.

One alternative methodology used by a number of programs evaluates a single environmental attribute (for example, whether or not the product is recyclable), rather than the product's entire life cycle. For example, the US Energy Star program evaluates products based on whether they

meet Energy Star’s energy efficiency standards. This method, however, is not as complete as LCA. Not only are fewer attributes analyzed, but a product receiving a label for a single attribute may in fact have an overall negative environmental impact due to its other attributes. The number of programs by product evaluation methodology (based on their own descriptions) is shown in Chart 4-9.



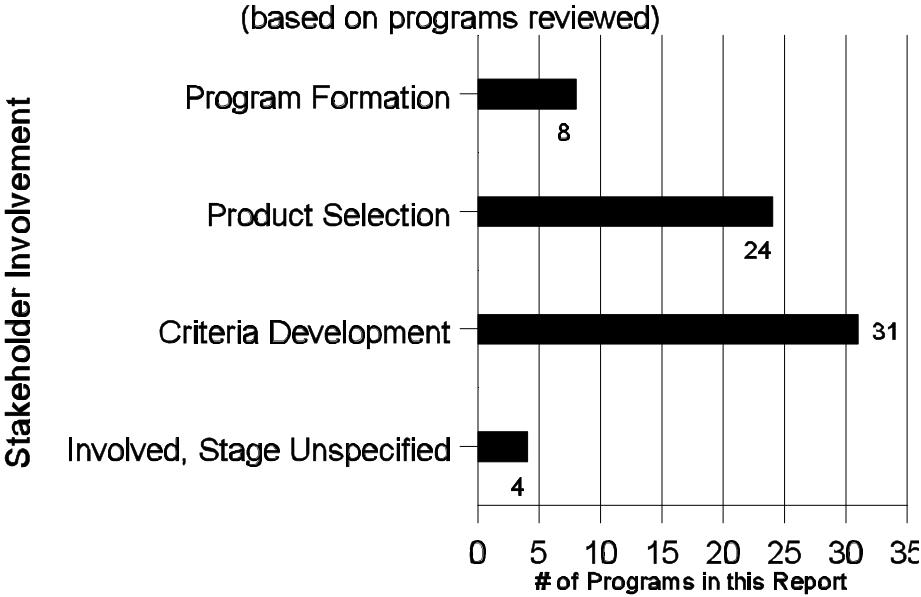
Procedurally, any methodology may include independent testing and studies conducted by programs themselves to determine the environmental impacts of product categories or individual products. Such efforts lower the cost, reduce the time needed, and increase harmonization among the analyses of similar products across programs. Many programs report that literature reviews and studies conducted by other programs, as well as information about specific product categories contributed by participating manufacturers, are often used in combination with LCA to establish award criteria. In certain cases, programs may adopt each others’ award criteria, with modifications. For example, Canada’s Environmental Choice program has exchanged information with both the Taiwan program and the US Green Seal program and has adopted product standards from these programs.

*Stakeholder Involvement*

Stakeholder involvement in the environmental labeling process can occur at three stages: program formation, product category selection, and criteria development. Stakeholders generally consist of representatives from outside groups, such as domestic and foreign manufacturers, academia, consumer groups, and environmental groups. The general public may also have the opportunity to provide input. The extent of stakeholder involvement provides insight into the level of transparency actually provided by environmental labeling programs. Stakeholder involvement indicates the degree to which programs might be influenced by particular groups or balanced by including the needs of all interested parties.

Most programs (in this case third-party programs) allow an open process by which any interested stakeholders may submit proposals for product categories. Product category selection, however, is usually made by the programs' governing bodies, which typically consist of a limited representation of interested stakeholders (see Chart 4-10). Many programs do solicit stakeholder involvement during development of product award criteria. In some programs, draft criteria are published and comments accepted from the public. Very few programs, however, publish stakeholder comments and program responses for further public review before finalizing award criteria. The United States' Green Seal program is an example of a program that does make stakeholder comments and the program's responses available to the public, but it does so only as an accompaniment to its already published final award criteria.

**Chart 4-10: Programs by Stakeholder Involvement**





Some programs that claim to have an open stakeholder involvement policy have been accused by manufacturers of the contrary. For example, some Indian industries have complained that India's Ecomark has not done enough to involve them in product criteria development, and feel the Indian Government has "rushed through" the Ecomark development. Additionally, Indian exporters feel that many of the product categories chosen for Ecomark do not reflect India's major export products, and that Ecomark has adopted the ecolabeling standards of their export customers' countries in order to operate in those markets.

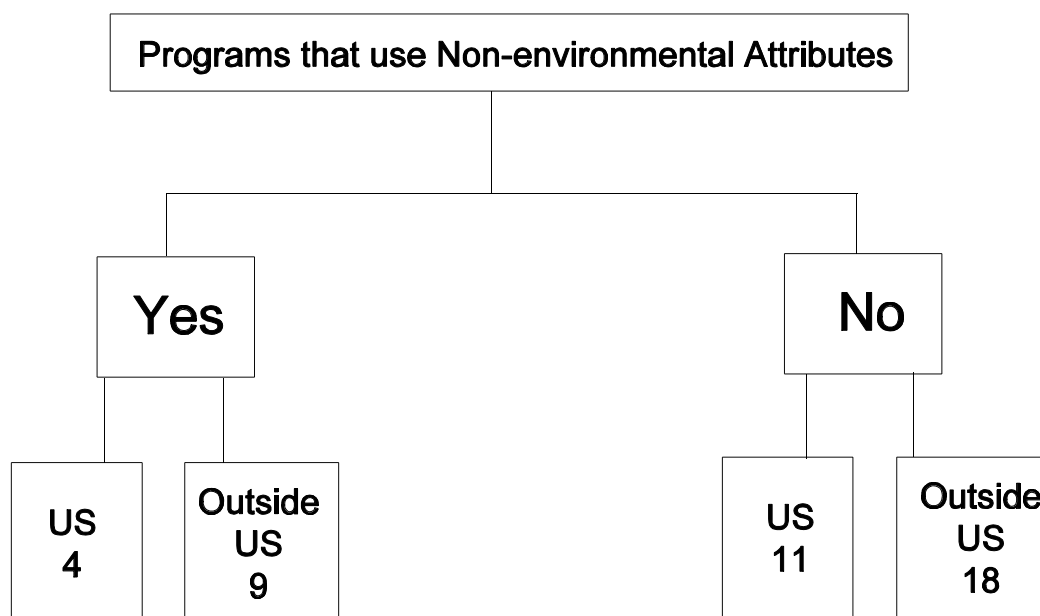
#### **4.5. Program Breadth**

Program breadth can be illustrated by the following characteristics: whether product evaluations include non-environmental as well as environmental attributes, whether the label is used in procurement programs, whether the label is awarded to pre-retail and/or retail products, and whether the organizing body engages in other programs or activities. The extent to which programs are visible in the market will influence the success and growth of programs.

##### *Use of Non-Environmental Attributes*

Some programs (see Chart 4-11) incorporate social and other conditions in their product criteria. For example, the ECO-O.K. program run by Rainforest Alliance includes criteria for environmental education programs, improvement of social and work conditions, and compliance with human rights legislation. India's Ecomark program also considers non-environmental attributes when evaluating products. In addition to complying with product-specific criteria, manufacturers must show that their products are also in compliance with India's Bureau of Indian Standards' product quality standards.

**Chart 4-11: Programs that use Non-environmental Attributes  
(based on programs reviewed)**



By including non-environmental attributes in their award criteria, programs broaden the type of information they provide to consumers, and thus may appeal to a wider range of consumer concerns. The impact of such a broadened scope can be greatest in developing countries where worker rights and basic living conditions may be of greater concern. Such programs may be subject to criticism if the criteria for non-environmental attribute(s) are more qualitative than quantitative in nature, which is often the case when standardized methodologies have not been established.

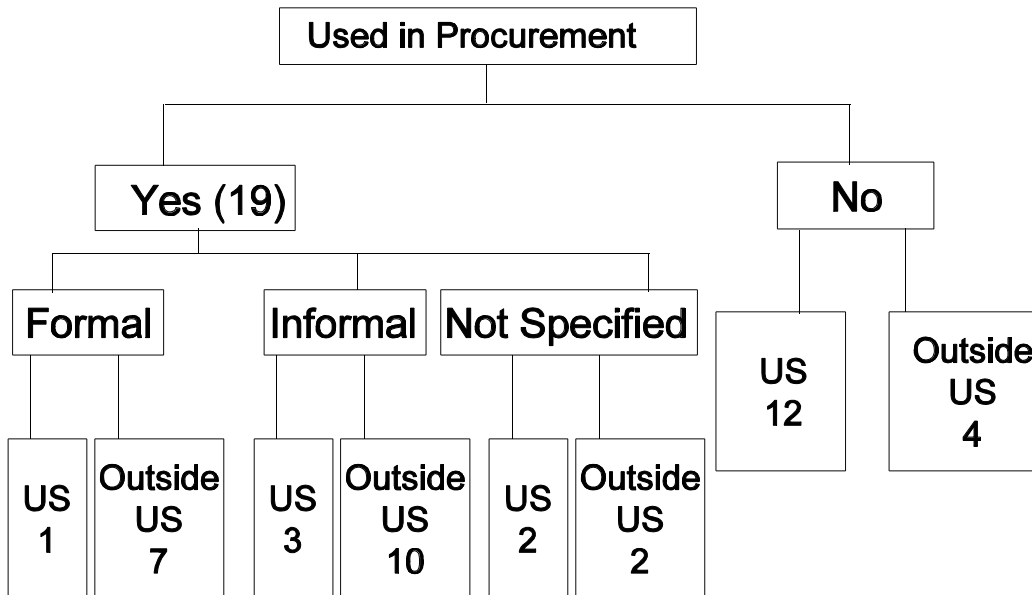
*Use in Procurement*

Governments and large organizations are increasingly considering environmental attributes of purchased goods and services. In the case of governments, the purchaser’s mandate or mission also includes stewardship of environmental quality. Also, incorporating environmental attributes either benefits the organization directly (e.g., reduced costs over the life of purchased goods) or indirectly (e.g., corporate goodwill among stockholders or customers). The use of environmental labels by procurement programs (i.e., larger customers) typically increases the market presence of the labeled products and enhances the credibility of the labeling program. This has been the case with the Energy Star-labeled office equipment program. Initially, the US government mandated that all federal offices stock Energy Star-labeled office equipment, but as the demand for these products grew it became evident that not only were government agencies buying these products, but so too were private organizations.

Where procurement programs use labeling programs in their activities, the relationship may be formally acknowledged or used informally. In a formal arrangement a program's label is specifically mandated or referenced by the procurement program. For example, governments frequently have mandates to "buy recycled" or to buy green products. An example of a formal arrangement in the US is Executive Order 12845 - Requiring Agencies to Purchase Energy Efficient Computer Equipment, established to ensure that "all acquisitions of microcomputers, including personal computers, monitors, and printers, meet 'EPA Energy Star' requirements for energy efficiency." Similarly, Taiwan is in the process of establishing a "Government Procurement Policy" that would require government agencies to buy products labeled with Taiwan's Green Mark label. More often, informal relationships are formed.

Large institutions may also include environmentally-labeled products in their goods and services selection. For example, large companies in the Nordic countries have procurement policies that require the purchase of products labeled with the Nordic Swan or its equivalent. In addition, some retailers are actively seeking out environmentally preferable products to offer to their customers. In some cases, they specifically seek out labeled products. The large US home and garden equipment retailer, Home Depot, and the United Kingdom's largest do-it-yourself home products retailer, B&Q, each consider environmental attributes in their product evaluation and selection. These stores plan to or do stock environmentally preferable alternatives whenever possible. Chart 4-12 indicates whether the labels (usually seal-of-approval labels) from the programs in this report are used in procurement programs, and whether the relationship between the labeling program and the procurement is a formal or informal one. As seen in the chart, the majority of the US programs are not used by procurement programs, perhaps because many of the programs are mandatory government programs and thus establish a regulatory floor for all products in the US market place.

**Chart 4-12: Number of Programs Used in Procurement  
(based on programs reviewed)**

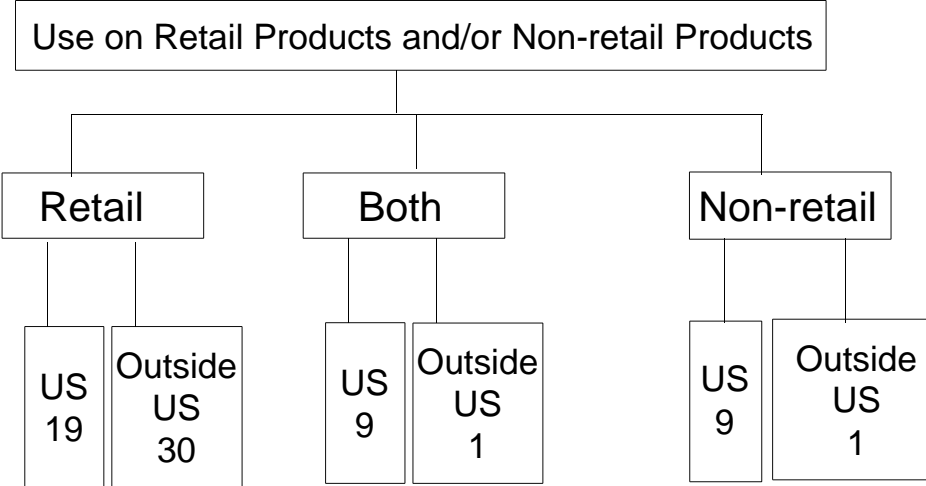


*Use Beyond Retail*

Although environmental labels are most typically applied to retail products, they are also used in non-retail applications. In general, retail products are intended for sale to individual customers and are distributed through retail outlets located near the consumer. The majority of US programs use environmental labels on retail products only. Pre-retail transactions involve trade between, for example, raw material suppliers, product manufacturers, formulators/packagegers, and wholesalers. The two most prevalent uses of environmental labeling for non-retail consumers are commercial enterprises and procurement programs (of governments and large organizations). All of the programs surveyed for this report target their label to retail products. A number of programs, however, also apply their label on pre-retail products (or both retail and non-retail products). When labels are used on pre-retail products, labeling information may inform and influence the purchasing decisions of upstream consumers and may affect the visibility of labeled products in the marketplace. For example, if retailers buy products based on environmental characteristics, then the presence of environmentally preferable products in the market is increased. For example, several programs do or will provide guidelines for the sustainable production of timber (e.g., Malaysia and SCS' Forest Conservation Program), certifying the management of particular forest tracts as environmentally sustainable. Once a forest is eco-certified, the timber and the subsequent lumber and wood products can be labeled as being environmentally preferable, as long as it can be determined that the wood came from the original

certified forest. This information may affect many purchasing decisions as it is passed from seller to customer, possibly to the retail level. Chart 4-13 shows the breakdown of whether labels are being used on retail products, non-retail products or both.

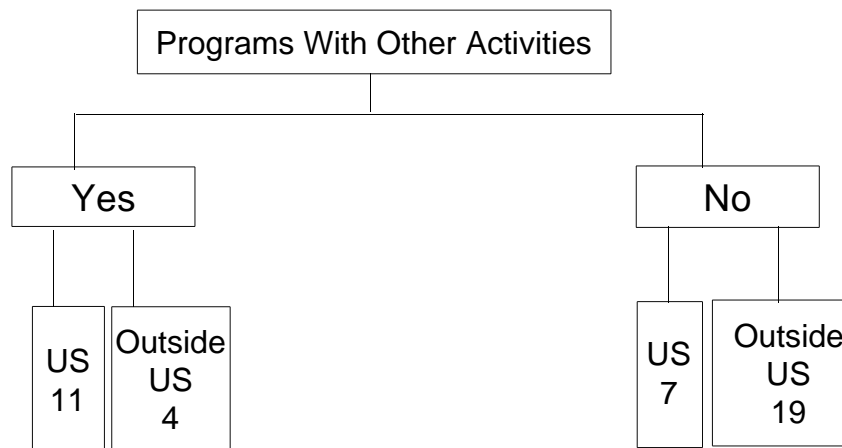
**Chart 4-13: Use on Retail/Non-retail Products  
(based on programs reviewed)**



### Other Programs/Activities

Other support activities such as public education, and involvement and cooperation with related programs and activities, can be important in increasing peoples' awareness of labeling programs. Support activities enhance visibility of environmental labeling in the marketplace. For example, the Vermont Household Hazardous Product Shelf Labeling Program has a consumer education program aimed at prompting consumers to avoid purchasing hazardous products. The Vermont Agency for Natural Resources has developed brochures and posters for both consumers and retailers and has, in the past, launched media and advertising campaigns at recycling depots, schools, and businesses, to educate people about the program. In addition, programs associated with or involved in other activities may have a greater financial and resource base on which to draw. The Scientific Certification System (SCS) provides a variety of other services besides its Eco-profile label. As part of its NutriClean program, SCS provides importers with testing and quality management services so that they can apply for US Food and Drug Administration (FDA) certification more quickly, as well as similar services for US produce exporters so that they can comply with regulations in their importing country. Green Seal receives grants for education and outreach programs as well as independent research, in conjunction with their labeling program. Direct and indirect subsidies help strengthen the position (e.g., by defraying costs) of the environmental labeling program. The tendency for US programs to incorporate other activities into their labeling programs is much stronger than for non-US based programs (see Chart 4-14).

**Chart 4-14: Programs With Other Activities  
(based on programs reviewed)**



Such activities can also include coordination with labeling programs in other countries. For example, Canada's TerraChoice has started a new program called the Environmental Technology Verification (ETV) Program, which is being coordinated with US governmental agencies. (ETV

expects to issue “certificates of authenticity” to environmental technologies under the new program. TerraChoice has thus broadened the scope of its activities, an additional labeling program, and has increased its interaction with US stakeholders and customers.) Similarly, Malaysia’s Product Certification Program has developed an Environmental Management System (EMS) certification program with reciprocal arrangements with foreign certification programs in countries that trade with Malaysia. Malaysia coordinates with the Japanese Audit and Certification Organization, and EMS certifies Japanese companies that export to Malaysia. This program also works with the Canadian Standards Association (CSA); Malaysian companies are inspected by the Standards and Industrial Research Institute of Malaysia (SIRIM) in accordance with CSA requirements and are granted CSA’s EMS certification. Of course, some environmental labeling programs are administered by national standards institutes (e.g., France, Sweden), which have a wide range of activities.

#### **4.6. Changes to Environmental Labeling Programs**

As programs develop, some have experienced significant changes while others have remained virtually the same. An overview of these changes illustrates how programs are responding to stakeholders and may indicate the future direction of these programs. Slightly less than half (23) of the programs covered in this report (including seal-of-approval, hazard warnings, information disclosure, and single-attribute programs) indicate that they have made significant changes to their programs. Many of these programs have made minor changes, associated with normal operation, such as increasing (or decreasing) the number of product categories or number of products reviewed.

Perhaps the most significant changes occur when a program alters or revises the methodology by which it chooses product categories and sets award criteria. Some programs, such as France’s NF-Environnement Mark, have simplified their methodology from a full LCA to a simplified analysis that concentrates on what the program determines to be the most important stages of a product’s life-cycle. France made this revision primarily due to cost considerations. A number of other programs have undergone administrative changes. Both the Canadian TerraChoice program and Taiwan’s Green Mark program have changed hands from government-funded and administered programs to programs that are run by independent private companies. This administrative change suggests that governmental involvement is more beneficial in the early phases of program development; once a program is established, it may be more efficiently or effectively run by a private company. Interestingly, in the case of Taiwan, it is hoped that the shift to an independent company will mean that there will be more flexibility to participate in international coordination efforts, which the government was not doing.

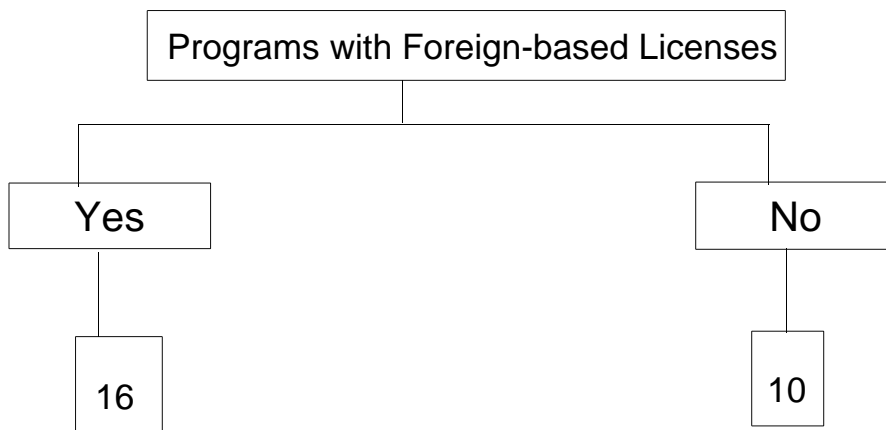
Other programs, perhaps best exemplified by the European Union’s environmental labeling program, have made efforts to engage in international standardization and harmonization efforts. The EU program has proposed several revisions to incorporate international trade principals in an effort toward mutual recognition of other environmental labeling programs, both within and

beyond EU borders. In this regard, the program has increased compatibility between the EU label, national programs of EU member countries, and draft ISO standards.

#### 4.7. Coordination Efforts Among Programs

Many of the programs contacted for this report are trying to incorporate the interests of other countries into their activities by sharing information and pooling resources with other programs, as well as investigating mutual recognition of foreign labels and assisting foreign manufacturers seeking labels. The number of foreign-based licensees listed in the chart (see Chart 4-15) provides some indication as to the degree to which programs included in this report have extended their sphere of influence beyond domestic borders, and whether it is feasible for foreign manufacturers to compete for the environmental label.

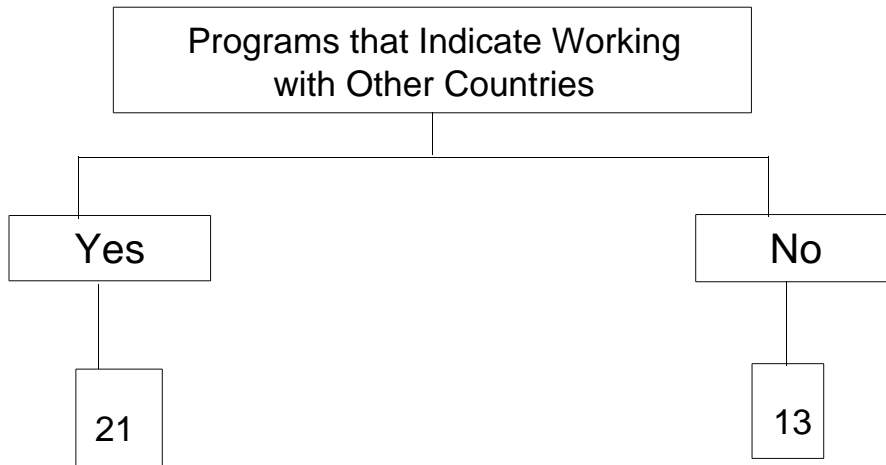
**Chart 4-15: Programs with Foreign-based Licenses  
(based on programs reviewed)**





The second chart (see Chart 4-16) indicates how many programs included in this report are coordinating labeling activities with one or more programs in other countries.

**Chart 4-16: Programs that Indicate Working with Other Countries (based on programs reviewed)**

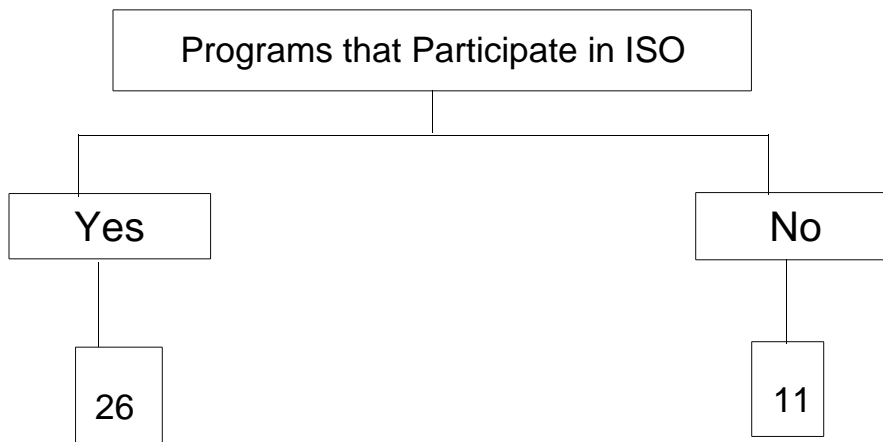


Such coordination can take the form of sharing information, product category justification, award criteria or standards, or mutually recognizing labels, among others. For example, several programs indicated that a part of their methodology is to review other programs' criteria when setting their own. Programs in developed countries are also making a point of reaching out to programs that are in start-up stages in developing countries. For example, TerraChoice is specifically working toward mutual recognition of award criteria with Taiwan through standardization of operations based on ISO standards, mutual recognition of non-product-related impacts, and cooperation in auditing, verification and testing. It should be recognized that the effort spent on such coordination varies widely among programs.

Another indication of inter-program coordination is participation in ISO, which was founded in 1947 and has representatives from 130 countries. ISO's main goal is to standardize products and activities worldwide to promote international exchange of goods and services. It also aims to foster global communication and cooperation over intellectual, scientific, technological, and economic matters. ISO standards on environmental labels and declarations state that environmental labels should communicate accurate and verifiable information about the "environmental aspects of products and services in order to encourage the demand and supply of those products and services that cause less stress on the environment, thereby stimulating the

potential for market-driven continuous environmental improvement.”<sup>9</sup> Programs that are members of ISO or have adopted ISO guidelines have made a commitment to working toward standardization and thus coordination among programs. Participation in the ISO standards development itself involves significant inter-program communication. In addition, other interested parties, such as trade, consumer, and environmental organizations, participate in ISO standards developments and may aid or provide guidance in evaluating labeling programs’ operations. Chart 4-17 illustrates the number of programs that indicated that they are making efforts to coordinate with ISO standards.

**Chart 4-17: Programs that Participate in ISO  
(based on programs reviewed)**



#### 4.8. Trade Issues

Trade issues have sometimes been raised in connection with environmental labeling programs. This report does not discuss trade issues in full, but provides an overview of the discussion surrounding this issue. Some concerns have been expressed about potential conflicts between provisions of international trade agreements and certain aspects of environmental labeling programs. The World Trade Organization (WTO) Agreements contain provisions precluding discrimination among “like products.” Some interpret these provisions as precluding consideration of (a broader set) of factors, beyond the physical characteristics of the products, as a basis for distinguishing among products. Many environmental labeling programs, however, as part of their life-cycle approach, rely on consideration of such a broader set of factors in

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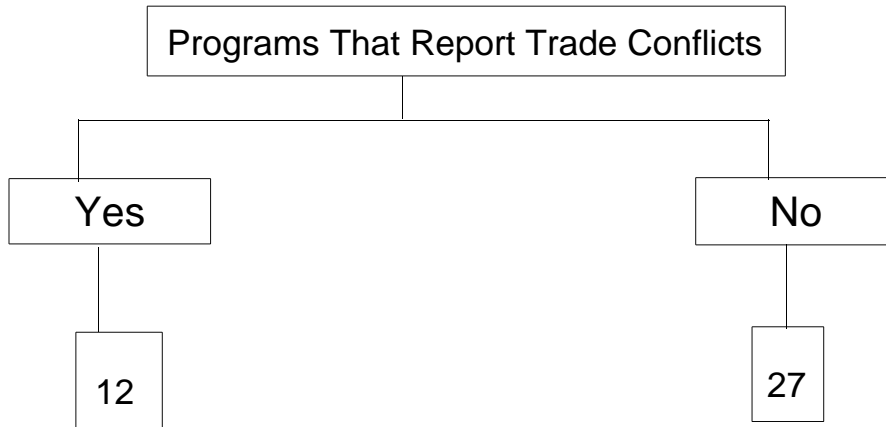
<sup>9</sup>ISO Draft International Standards, Series 14020-14024, Environmental Labels and Declarations, 1997.

determining criteria for awarding labels. In trade parlance, these factors are sometimes referred to as process of production methods (PPMs). Environmental labeling programs often consider environmental aspects of the production process in determining the eligibility of a product for a label. Some argue that consideration of such a broad set of factors in determining eligibility for an ecolabel may violate WTO provisions. Others argue that the voluntary nature of many ecolabeling programs precludes such a conflict. The World Trade Organization (WTO) agreement now explicitly recognizes the objectives of sustainable development and environmental protection. It may be inevitable that the WTO develops interpretations that allow for recognition of environmental impacts of PPMs.

A second conflict arises from the essentially domestic focus of most environmental labeling programs. Each program typically develops award criteria that are achievable by a least some of their domestic manufacturers. Foreign producers, particularly in developing countries, participate less actively in standard development and may be less accustomed to stringent environmental standards. They may thus face greater problems in getting products certified for an environmental label. The following example highlights this concern: Country A develops award criteria for product X. Because Country A has environmental concerns specific to that country, Country A's award criteria for product X may differ from Country B's criteria for the same product. Manufacturers in Country B, having reformulated their product and production to meet *domestic* regulations, and possibly labeling standards, may not be able to meet Country A's criteria for product X. If so, this may give rise to a trade issue. This issue can be especially compelling when the exporter is a developing country that is already struggling to compete in the global market.

The following chart (see Chart 4-15) lists the number of programs that indicated that they have experienced trade issues or conflicts. For example, Germany requires companies that do not participate in its Green Dot program to take back their packaging and bear the cost of recycling the packaging themselves. There are no exceptions for foreign companies. The take-back burden is therefore far greater for companies that ship their products long distances to Germany because they either have to pay the transportation costs of shipping the packaging back to the country of origin or arrange for in-country processing. Many manufacturers exporting to Germany from within the EU and beyond claim that the domestic demand for the Green Dot label places imported goods at a market disadvantage. Manufacturers in India have also reported trade conflicts with regard to its textile exports. In fact, the Indian Ecomark program recently added textile products as one of its product categories in response to new regulations, enacted by Germany and the rest of the EU, banning the use of certain dyes in textiles. Germany and the EU are two of India's largest markets for garments and textiles, and India has developed criteria that specifically state that these banned dyes cannot be used in textile production. Thus, labeled textiles will have an easier time entering the EU market.

**Chart 4-18: Programs that Report Trade Conflicts  
(based on programs reviewed)**



Indonesia's Environmental Labeling Program, though still in its developmental stages, was initiated by demand in the export markets. As a result of the growing concern among consumers in particular markets for sustainable forest practices, Indonesia plans to develop environmental labeling criteria and guidelines for sustainable forest management practices, as well as a timber certification program. (Forest products are Indonesia's second largest exports.) Additionally, though Hong Kong does not currently have an environmental labeling program, studies have been conducted by the Institute of Environmental Studies at the Hong Kong University of Science and Technology (HKUST) to determine the suitability of a labeling program for Hong Kong. HKUST determined that an environmental labeling program may be established for two primary reasons: 1) to improve environmental quality and protection through market forces, and 2) to assist industries exporting to markets where environmental-labeled products are available. HKUST concluded that because Hong Kong is a major exporter, several product categories may be suitable for a Hong Kong ecolabel.

## 5. Forces Affecting Environmental Labeling Programs

The formation of labeling programs is driven largely by domestic forces. Because environmental labeling programs serve to inform the public of the relevant country, they tend to form around environmental goals and needs that are considered high priorities in that country. In general, these forces include some combination of consumer demand, competition among producers, and the leadership position of a sponsoring organization. Consumer demand drives program formation by creating a market for a reliable source of information about the environmental characteristics of a product. Competition among producers acts as a driving force as producers seek ways to communicate the environmental attributes of their products to gain a competitive edge. Finally, sponsoring organizations can also play a role in program formation by promoting the usefulness of environmental labeling as a tool in a country's overall environmental protection plan. The relative importance of each of these forces will depend on the type of environmental labeling desired. In the case of negative labeling, consumers and the sponsoring organization (typically governments) will be the major forces. On the other hand, producers will have a stake in promoting positive labeling (which is awarded only to "preferable products") and perhaps, to a greater extent, neutral labeling (which is available to all products regardless of differences in environmental attributes).

The diversity in these domestic forces across countries has resulted in a varied group of environmental labeling programs; each program differs in its mandate, operations, organizational affiliation, and role in the marketplace. For programs with government involvement, the program mandate often reflects the government's environmental policy goals, which are typically stated as the protection of human health and the environment. In such settings, labeling efforts range from regulatory programs (such as the FIFRA, ozone-depleting substances, and battery labeling requirements in the US) to "soft" policy tools (such as EPA's Energy Star program in the US, and the Blue Angel Program in Germany). In addition, there are private and quasi-government programs that may have similar mission statements but are far more limited than the government in their mandate and authority over environmental matters. For example, the keystone of the US SCS program is the dissemination of information on environmental attributes to consumers. Japan's Ecomark and the Nordic Swan programs report that environmental quality improvement and/or protection of public health are the most important mandate of their program. Few take on product categories that may be unpopular or for which the program will not be able to cover its costs. Government regulatory programs, on the other hand, can address such categories.

Although there are many other forces involved, the implications of these differences in program mandates can be profound. For example, EU sees its role as an information disseminator, responsible for formulating a consensus standard across EU markets. Consequently, the program is challenged to balance its need for consensus on labeling standards from competent bodies against the establishment of its own more stringent award criteria for the entire EU market, which might arguably provide greater environmental benefits.

Important factors influencing the formation of environmental labeling programs include public/societal interests, consumer interests, retailer interests, producer interests, operating costs/profits, standardization, and procurement applications. Each factor is discussed in detail below.

### **5.1. Public/Societal Interests**

The attraction of environmental labeling to those involved in formulating and implementing public policies related to preserving and enhancing environmental quality is that, as a policy tool, the benefits of environmental labeling are closely connected to consumers' concerns regarding the value of product environmental aspects, general environmental concern, and any tradeoffs considered in particular purchasing decisions. Thus, the collective shifts in consumer demand might be expected to reflect the interests of a large portion of society.

For environmental labeling to be an effective policy tool, a number of conditions must hold true. First, product evaluations must be known and accurate. Second, product standards must be associated with significant environmental differences among products. Third, this information must be disseminated to consumers. Fourth, consumers must understand environmental issues and product-specific information well enough to make informed purchasing decisions. Finally, the label must have substantial market penetration in order to affect a significant number of producers.

Environmental labeling programs face several challenges in trying to provide useful information to consumers that will influence consumption patterns based on environmental considerations. For product evaluations to be known and accurate, programs must conduct reliable scientific analyses. Such analyses, however, include life-cycle assessments, which are extensive, time consuming, and often require information about processes that is not readily, if at all, available. These types of complications often require that the program make expert judgments; this practice, however, may come under close scrutiny and debate.

Programs also face the obstacle of disseminating information, a key factor in the success of the program. For example, Canada has launched a large media and marketing campaign; though it is fairly new, it could prove to be quite successful. The time, energy, and resources that go into advertising are immense, however, and pose a significant challenge to the program.

Governmental sponsorship and involvement with labeling programs, which is common among existing environmental labeling programs, can improve the program's financial stability and credibility in the eyes of manufacturers and consumers. On the other hand, a non-governmental program run by a respected consumer or environmental organization may be more immune to the political pressure that can affect governmental decision-making, and may differ in terms of consumer credibility and confidence. Private sponsorship, however, has its own drawbacks. While not subject to the vagaries of the political climate, privately owned and operated labeling

programs may be heavily influenced by the need to cover costs, and consequently may not take on the larger environmental mission that a government-sponsored program might. Ultimately, government involvement in an environmental labeling program depends in part on the government's ability to act as an advocate in the marketplace, and the role that non-governmental groups play in consumer protection and environmental policy. One survey found that 37 percent of the people who considered themselves the "primary food shoppers" of their household believed that "environmental groups" were the best source of unbiased information about the environment, 8 percent believed the government was, and 5 percent believed that product manufacturers were.<sup>10</sup>

There are also several limitations in using environmental labeling programs as a policy tool. For example, these programs rely on consumers' ability and willingness to include environmental considerations in their purchase decisions. Anecdotal information from several environmental labeling programs, however, suggests that consumers in many countries are aware of environmentally-labeled products and are willing to pay a premium to purchase environmentally-preferable products. For example, in a 1988 survey of German households, 68 percent were familiar with the Blue Angel label and knew that it was linked with the concept of environmental protection. Similarly, in a 1994 survey of households in Singapore, 78 percent recognized the GreenLabel as a signature of environmentally-preferable products. Furthermore, 30 percent said they consider a product's environmental attributes as a part of their purchasing decision process. In Japan, a 1993 public opinion poll indicated that 53 percent of the population was familiar with the Japanese EcoMark. A 1996 survey of Canadians found that one in five Canadians said that they or someone in their household had purchased a product carrying the Ecologo in the past year. In France, a 1996 survey found that 54 percent of households indicated that they would be willing to pay up to 10 percent more for environmentally-preferable products (although few studies have documented such behaviors). Finally, due to a lack of awareness among consumers, the EU is in the process of revamping its environmental label and the awarding of labels. The setting of the award criteria will be reduced into a three-step process decided upon by two groups, the EU Commission and the newly established European Ecolabel Organization (EEO). The Commission hopes that criteria setting and ecolabel awards will be quicker and more routine, thus increasing the number and recognizability of EU-labeled products on the market. (For more information on reform of the EU environmental label, refer to the EU program summary in Appendix B.)

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<sup>10</sup>Environmental Research Associates, 1990.

## 5.2. Consumer Interest

The power of consumer interest in and response to environmental problems is undeniable. The continued funding and expansion of both governmental and non-governmental environmental programs throughout the world, many of which have been in existence for over 25 years, is compelling evidence of the strength of individuals' concerns about environmental issues. Intermittent consumer activism in the marketplace, as seen in reactions to companies' environmental performance or disclosure of environmental attributes of particular products, has been well documented and is often referred to as the power that labeling programs seek to harness. A recent example is the successful consumer boycott of household detergents in Sweden, promoted by the Swedish Society for Nature Conservation (SSNC). The boycott gave rise to the first multi-national environmentally labeled detergent on the Swedish market.

Environmental labeling is also tied to consumer right-to-know initiatives in several developed markets, particularly the US. The premise is that consumers have a right to know about the ingredients contained in a product, as well as each ingredient's health and environmental hazards, so that they can use this information to make informed decisions regarding the products they purchase. The US Federal Trade Commission's (FTC) Guides for Environmental Marketing Claims was a direct result of an increase in consumer right-to-know developments. The concept of a consumer's right to know, however, is relatively new and not widely recognized. As such, it remains a highly contentious issue. Opponents argue that consumer right to know may, in some instances, be in direct conflict with GATT's trade efforts and manufacturers' proprietary interests.

Consumer activism has played a role in creating a market for environmental labeling programs. First-party cause-related marketing (e.g., "Proceeds donated to..." or "company supports WWF") and environmental claims (e.g. recyclable) have sought to capitalize on this consumer demand for environmentally preferable products and services. The EPA, FTC, and others, however, have also documented confusion and misunderstanding among consumers regarding environmental issues, particularly when making choices among products. Environmental claims can create misunderstanding because they often pertain to product characteristics, such as *ozone-friendly*, with which a consumer generally has little or no experience or cannot physically perceive; consumers therefore have difficulty in evaluating the credibility or value of the claim. Furthermore, claims such as *recyclable* and *compostable* relate to more than just the inherent qualities of the product being promoted; they also reflect the context in which a product is used, recycled, or disposed. Finally, some terms used in environmental marketing, such as *source-reduced*, are often poorly understood by consumers. These kinds of claims and the existence of claims that may be false have driven the need for labels that are accurate and verifiable, and written to be simple and understandable. It has also driven most third-party environmental labeling programs to provide product-specific information with which consumers can themselves distinguish among product choices, or to identify products that cause less stress on the environment based on the program's independent evaluation.



To ease some of this confusion, the FTC's Guides for Environmental Marketing Claims provides manufacturers with stringent guidelines for making environmental claims on their products, which are consistent with consumer understanding of these terms.<sup>11</sup> Similarly, the EPA, through its Consumer Labeling Initiative (CLI), along with other US federal agencies and industry stakeholders, are investigating ways in which product labels on household cleaners, indoor insecticides, and outdoor pesticides can be improved to increase consumers' comprehension and use of information presented on these labels. (For a detailed description of the CLI, refer to the program summary in Appendix B.)

### **5.3. Retailer Interests**

Retailers can play a role in environmental labeling programs. On the one hand, they can play a significant role in fostering environmental labeling by selecting products to sell based in part on environmental attributes. For example, in the United States, Home Depot has made a commitment to stocking products considered to be environmentally-preferable. On the other hand, retailers have also attempted introducing their own environmentally-sensitive product lines. For example, the Texas-based *Whole Foods Market* has developed its own line of organic food products as well as other "environmentally sound" products such as personal health care products. Such actions on the part of retailers can diminish the effectiveness of independent labels on the retailers' shelves because multiple, competing labeling may cause confusion. The extent of retailers' impact, however, is tempered by the size of their operations. If they handle a significant market share of a particular product type (e.g., dishwashing soap), they will have the power to educate consumers through environmental labeling (and other avenues) as well as to influence producers production/marketing strategies. By and large, however, most retailers will function only as intermediaries in the flow of environmental information from manufacturer to consumer due to their relatively small size in national markets.

### **5.4. Producer Interests**

One of the unique qualities of environmental labeling is that it opens up an untapped source of information to consumers. Much of the information concerning the health and environmental effects of products and product constituents is currently generated by manufacturers. This information, however, typically does not make it to the ultimate consumer in a form that is readily understandable. Producers have the ability to make information easy to read and comprehend, but doing so is a double-edged sword because some consumers will switch to products deemed to be more environmentally sensitive.

Producers cannot ignore that environmental marketing has emerged as an increasingly important

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<sup>11</sup>*Business and the Environment*, vol. 9, no. 6, June, 1998.

issue for consumers, producers, regulators, and policy makers. Producers have responded to consumer demand (real, anticipated, or perceived) for products that are manufactured with environmental considerations in mind. They have done so by increasing environmental marketing claims, submitting products to environmental labeling programs for certification, and introducing new or redesigned “green” products. Producers do this primarily to remain competitive in a market where consumers are demanding environmental information. Any competitive advantage (such as certification) or handicap (such as a hazard warning) is important to a producer in that it can set a company apart from its competitors. For example, when an American paper company was the first to be certified by the Blue Angel program, a number of German companies quickly followed suit. Conversely, California’s Proposition 65 has spurred manufacturers to change their product formulations to avoid carrying a label that warns of the risk of cancer and birth defects.

In addition, producers may be motivated by liability or public image concerns. By disclosing environmental information on product labels, producers say they better equip consumers with information to use, recycle, and dispose of the product/packaging safely. This may decrease producers’ liability. By having their products certified by an environmental labeling program, producers may be able to avoid financial and public relations risks as well as to increase sales. For example, Germany’s Blue Angel is credited with creating incentives for manufacturers to reformulate certain products (e.g., low-VOC paints and high-recycled-fiber-content paper products) prior to any evidence of consumer demand for such products.

## **5.5. Operating Costs and Profit**

An important factor in the success of any environmental labeling program is its ability to cover its costs and therefore stay in business. The ease with which programs will be able to cover costs varies depending on two questions:

- ▶ can the program charge enough in application, testing, audit and other fees to cover its costs; and
- ▶ can the program subsidize its environmental labeling activities from other program activities?

Subsidies may be in the form of professional and administrative time, office space and supplies, etc. Because government-sponsored and/or operated programs will typically have other resources to draw on, profitability may not be critical to the success or longevity of the program. The same may be true for quasi-government programs, where there is still some access to government resources, and for programs run by national standards institutes, for which environmental labeling is just one part of their operations. For privately-run programs and other programs that do not have other resources to draw on, however, the ability to cover costs will be critical to whether or not they remain in operation in the long run. For these programs, there is an inherent conflict in prioritizing efforts to develop award criteria and issue awards or otherwise

evaluate products. Programs can lose credibility if they are thought to be motivated by profit in their selection of product categories or in the awarding of labels.

## **5.6. Standardization of Environmental Labeling Programs**

One of the more recent forces affecting environmental labeling programs is an effort by the International Organization for Standardization (ISO) to standardize environmental labeling programs. ISO has set out standardizing criteria and is in the process of developing additional criteria that prescribe certain elements to be present in environmental labeling programs meeting the standards. Programs, in turn, have been adopting these principles even in draft form. Because each program has different product categories, criteria, and environmental preferences, labels are generally not transferable between one country and another. To avoid this problem, programs have begun to standardize around the ISO principles, finding ways to harmonize their programs.

The lack of a national, third-party labeling program in the US may affect standardization of environmental labeling programs. The majority of US government programs often exist to implement specific requirements of statutes or regulations and have been in place for many years (e.g., the US EPA's pesticide program, through FIFRA, was established in 1947). Typically, these are mandatory programs and are therefore usually hazard/warning labels. As a result, they are specific to domestic US policy needs, and only US governmental authorities have the power to impose such requirements. It may be more difficult to coordinate non-governmental US programs with other worldwide labeling programs, particularly during bilateral or multilateral harmonization and negotiations.

## **5.7. Procurement Programs**

The procurement activities of governments and large organizations are increasingly considering environmental attributes of purchased goods and services. Such consideration is typically given because the purchaser's mandate/mission also includes stewardship of environmental quality, as is the case with governments, or because incorporating environmental attributes either benefits the organization directly (e.g., reduced costs over the life of purchased goods) or indirectly (e.g., goodwill among stockholders or customers). Use of environmental labels in purchasing decisions, however, has given rise to discussion about a number of issues, such as whether labels provide purchasers sufficient information to improve decision-making.

Nonetheless, US procurement pilot projects are providing a proving ground for the benefits and drawbacks of using environmental labels and environmental labeling information in EPA's Environmentally Preferable Purchasing Program.

The explicit consideration of environmental attributes in procurement can be addressed in a number of ways. At one end of the spectrum, the organization or government conducts its own research and establishes specific environmental attributes which may be preconditions for submitting bids, used as price preferences. In some cases, however, a third-party environmental labeling practitioner, rather than the government, may undertake the needed LCA-based analysis. In situations where a procurement program relies on information provided or analyzed by a third-party environmental labeling practitioner, it may be important for the procurement process to include careful consideration of the underlying analysis, data, evaluation methodology, and any judgments that might be used.

The use of environmental labels by procurement programs has the potential to increase the market presence of the labeled products and enhance the credibility of the labeling program. Although most procurement programs do not require that *only* labeled products be bought, many programs, such as Japan's Green Purchasing Network (GPN), encourage the purchase of "environmentally preferable products," which include ecolabeled products. GPN aims to promote "green purchasing" and has established purchasing guidelines for several product categories, as well as providing consumers with information on the environmental impact of products through guidebooks and newsletters. There are 425 companies, 107 government agencies, and over 90 non-profit organizations that are members of the GPN.

A similar program has been established in the US through Green Seal's "Environmental Partners Program." Businesses, government agencies, universities, non-profit and other organizations who join the program as Pledged Partners, commit to buying environmentally-preferable products and services as part of their procurement policies. These partners must annually provide Green Seal with a list of their purchases as a way to ensure compliance with the pledge. Green Seal provides all its Partners (pledged partners and those who simply subscribe to the program to receive information) with the *Choose Green Reports*, which provide recommendations of specific environmentally-preferable brands of products, including ecolabeled products, and list places where these products can be purchased. The Partners program currently has over 400 members, 163 of whom are pledged members.

In the case of private procurement, product evaluations and determinations of environmental preferability are a matter of cost-effective decision-making and the cost of information. Government procurement, however, can be much more complicated because of the breadth of government mandates and decision-making procedures. Though some countries, such as the Netherlands, Japan, and Germany have informal procurement policies that simply encourage the purchase of labeled products, particularly as part of a local or national government agency's policies, only a few labeling programs are associated with formal procurement requirements. For example, the countries in the Nordic Council require that their local and national governments purchase Nordic Swan labeled products whenever possible.

## 6. Recent Trends and Future Outlook

While there are marked differences among programs, their mission statements are basically consistent on three major points, which are reflected in the ISO draft on general principles (14020):

- ▶ the objective of environmental labels (and declarations) is market-driven continuous environmental improvement;
- ▶ this will occur if labels can increase the demand for and supply of environmentally preferable products and services; and
- ▶ ecolabels should communicate verifiable, accurate, non-deceptive information on the environmental attributes of products and services.

Many involved in the formulation of environmental policy and those affected by it see environmental labeling as one tool that differs dramatically from regulatory command-and-control approaches affecting manufacturing, yet may offer society a market-based means of capitalizing on (individual) consumers' interest in environmental protection and improvement. To date, the effectiveness of labels as a policy tool has not been thoroughly studied. Some successes, such as Blue Angel's low-VOC paint labeling, have been documented, but worldwide there is insufficient market penetration to make accurate assessments of environmental labeling's value. This section identifies a number of overview findings that provide context for the future of environmental labeling in the near term:

- ▶ There is a marked trend toward globalization of previously domestic programs;
- ▶ There is a widespread commitment by the programs to standardize methodologies and harmonize programs; and
- ▶ There are several issues (e.g., free trade agreements) that, depending upon their resolution, may drive wedges between programs or otherwise constrain the growth and use of environmental labeling, particularly third-party labeling programs, as a policy tool.

A wide range of government policy makers, manufacturers, and consumers are acutely interested in whether these trends will continue. Many labeling programs and some manufacturers have made significant investments in order to participate or compete in labeling. Objections to the use of environmental labeling have come from several sectors. Certain trade officials and manufacturers, fearing possible loss of their competitive position, have objected to the use of LCA-based product standards as contrary to GATT. Companies that do not want the added costs of certification or having to place an environmental claim on their labels have also raised complaints. Some foreign manufacturers see ecolabeling programs as a form of protectionism for domestically manufactured goods. Proponents see labeling as a relatively non-intrusive policy tool with which to make more transparent the environmental attributes of goods and services. The future level of environmental labeling activity in the US and world markets depends on a diverse combination of factors including: prevailing economic conditions; political support for and opposition to global free trade, societal commitment to consumer right-to-know; ambient

environmental quality and goals; local conditions that might affect the environmental impacts of manufacture; consumer use of labeling information; the development of standardized methodologies and operating practices for environmental labeling programs worldwide; and their individual and collective success in the marketplace.

### **6.1. The Proliferation and Globalization of Environmental Labeling Programs**

Of the programs for which information could be collected, 17 had formed as of 1989. By 1997, the number had grown to 49. This proliferation has occurred for many reasons, including market-specific reasons. In addition to the increased number, the operations of and interactions among programs is expanding beyond their domestic origins. From a larger perspective, there are several drivers of program proliferation and globalization:

- ▶ trade in goods has become increasingly global;
- ▶ there has been increasing recognition of consumers' right to know in the US and abroad;
- ▶ competitive pressures on manufacturers and countries to initiate programs have arisen; and
- ▶ new programs have been able to accelerate their development based on the experience of and information generated by existing programs.

As mentioned earlier, foreign trade in proportion to domestic consumption of goods has increased over the past fifteen years. International trade worldwide has increased from \$4.0 trillion in 1985 to \$7.3 trillion in 1993. Environmental labeling programs have responded to the changing pattern of trade and consumption in a number of ways. Programs are having to consider logistical and cost recovery issues related to evaluations of imported products and to factor in imports in certain market analyses. In addition, certain programs have been involved in facilitating the entry of their own country's exports into foreign markets where environmental labeling exists.

Governmental consumer right-to-know initiatives in the US (e.g., the Toxics Release Inventory, the Federal Aviation Administration's publication of airline performance statistics, and EPA's Consumer Labeling Initiative) and abroad (e.g., UNEP's Food and Agriculture Organization's 1985 Code of Conduct on the Distribution and Use of Pesticides, as amended in 1989, which establishes the principle of shared responsibility of governments and others to ensure consumers are informed and safe through a variety of means including product labeling) have established the right of consumers to have access to information on potential health and (local) environmental hazards. Non-governmental right-to-know initiatives may take the form of grass root movements, such as boycotts, information dissemination such as environmentally-oriented buying guides, or petitions establishing statutory requirements, such as California's Prop 65. At the same time, consumer environmental interests have broadened to include information on other environmental attributes, such as possible environmental impacts at remote locations — often expressed as concern for sustainable production practices. Product labeling is among one of the most direct ways to summarize and transmit to consumers assessments of the products' environmental attributes.

New programs have been created for a wide variety of reasons. Among the mission statements submitted, one of the most frequently cited goals is to inform and provide information to (domestic) consumers, although no programs referenced a consumer demand study when providing background on their formation. However, competitive positioning of manufacturers, trade ministries, and governments has also played a role in the genesis of particular programs. For example, the Indian government has asked several research institutions in the country to provide local textile manufacturers with information about dyes that have been banned by the EU, one of India's largest textile importers. The government and universities are providing Indian textile manufacturers information about these dyes as well as information about alternative, less toxic dyes.

In an effort to move toward equivalency, harmonization, and/or mutual recognition, the Global Environmental labeling Network (GEN) was formed by national and multinational ecolabel licensing organizations. "The GEN shall foster cooperation, information exchange, and longer-term harmonization with regard to environmental labeling..." and "... shall promote environmental labeling programs worldwide." The short-term objectives of GEN are to create an ongoing framework for information exchange, to ensure that the interests of environmental labeling programs are represented, and to provide a forum for regular member meetings. In addition, their long-term goals include moving toward harmonization and offering information to developing programs. To the extent that groups such as GEN are successful in reducing the barriers to entry, the number of labeling programs may continue to grow.

Thus far, GEN has 20 members.<sup>12</sup> While membership is open to all national and multinational environmental labeling licensing organizations, they must meet the following criteria:

- ▶ based solely on voluntary participation for potential licensees;
- ▶ run by not-for-profit organizations without commercial interests;
- ▶ exhibit independence from undue commercial interests;
- ▶ the source of funding shall not create a conflict of interest;
- ▶ seek advice from, and consult with, stakeholder interests;
- ▶ legally protected logo;
- ▶ determination of criteria based on an assessment of the overall life of a product category;
- ▶ open access to potential licensees from all countries;
- ▶ criteria levels established to encourage the production and use of products and services that are significantly less damaging to the environment than other products; and

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<sup>12</sup>They include Austria, Brazil, Canada, Croatia, Germany, Greece, Israel, Japan, Korea, Luxembourg, New Zealand, Norway, Spain, Sweden, Swedish Society for Nature Conservation, Taiwan (ROC), Thailand, US, and UK.

- ▶ periodic review, and if necessary, update of both environmental criteria and categories, taking into account technological and market place development.<sup>13</sup>

Coordination and cooperation among labeling programs increases the ability of new programs to accelerate their development based on the experience of and information generated by existing programs. For more developed programs, such cooperation can facilitate development of new product categories or award criteria. One example of inter-program coordination is Green Seal and Canada's TerraChoice. Both programs recognize each other's product criteria, and have adopted each other's product criteria for certain product categories.

The increased pace of information transfer has also been fostered by the efforts of several international organizations, most notably GEN and ISO. Still slightly less than one-half of the programs responding (21 of 49) reported that they actively work with programs in other countries.

In addition to information transfer, programs have also explored several other harmonization measures that reduce the hurdles of program formation and development. In general, such measures recognize the research and judgments of another program, falling into two categories: mutual recognition and technical equivalence. Mutual recognition means that two or more programs agree to recognize each other's licensed seal or product assessment. The underlying premise for mutual recognition is that each program sufficiently captures the environmental attributes of products given differing local conditions. That is, a product having received a label in one program is eligible for a label from the second program (typically in another country or market) and need not undergo complete product evaluation again. For example, paper products that have been certified under the EU ecolabelling program need not go through additional evaluation if they seek to receive the Nordic Swan label. Technical equivalence means that two or more programs view the other's product category definition, award criteria, and/or product assessment methodology as essentially the same as their own. This is true of certain product categories common to both the US Green Seal program and Canada's TerraChoice program. Programs can use technical equivalence as a basis for coordinating research, information gathering, and even mutual recognition.

## **6.2. Standardization**

Since 1992, many labeling programs have participated in a variety of standardization and harmonization efforts. Most significant is the international coordination of developing standardized definitions, analytical procedures, and program characteristics under the auspices of ISO. Product evaluation and program standards are being developed by ISO for two types of third-party programs: Type I applies to seal-of-approval programs; Type III applies to eco-profiles, or report cards. As part of this research, programs were asked about their level of participation in

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<sup>13</sup>From World Wide Web site <http://www.interchg.ubc.ca/ecolabel/gen.html>



the ISO process and the program's commitment to ISO draft and/or final standards. In addition, some less formal standardization occurs as part of harmonization -- the formal and informal cooperation and coordination of programs to increase consistency across programs.

Activities range from using common terminology to the informal sharing of methodological approaches used to develop award criteria. It should be stressed that the ISO standards development process is ongoing. Of four proposed standards on environmental labeling, only two are close to being finalized. In addition, the Organization for Economic Cooperation Development (OECD), GEN and EU-US bilateral agreements have and will continue to foster standardization by reducing the very real barriers to information transfer, thus enabling programs to access the best, most up-to-date information available needed for individual labeling efforts. For example, research on topics such as product evaluation methodologies and data sources that occurs under the auspices of OECD (funded by OECD member countries) assists programs worldwide in learning from one another. GEN provides a current inventory of the existing standards of its members and facilitates the sharing of individual program's research. Bilateral agreements can foster mutual recognition of the larger mission of both governments and their respective labeling programs. They can also assist both parties to identify common interests and basic areas of cooperation (typically the sharing of methodologies and information). However, to the extent that the dominant programs differ in their opinions of the benefits of and need to standardize, there is a risk that ISO standards will not be finalized. If so, environmental labeling will continue to be characterized by diverse methodological approaches and inconsistency.

One example of standardization's possible effects on individual programs involves the stipulation that the development of award criteria should be based on some form of life cycle analysis. The draft ISO standards call for use of life cycle considerations in all phases of labeling: product category selection, establishment of award criteria, and product evaluation. This approach was neither feasible nor common in the 1980s, when a number of the currently active programs began. Recent trends, however, have shown that more and more programs are utilizing either full LCA or a modified version of LCA. Of the 49 programs covered in this report, 21 of them use life cycle methodologies. Several older programs, such as Japan's EcoMark, have shifted toward Life-Cycle-Assessment-based methodologies, but the investment in past standards may be problematic for programs such as Germany's Blue Angel, which have standards for 88 product categories, most based on post-manufacture phases of the life cycle. Should that program adopt a full LCA (following SETAC's guidelines), all existing standards would need to be revisited at a tremendous cost to the program.

Currently, ISO technical committees, technical advisory groups, and working groups have been organized to address standardization of a wide range of matters, including general principles of ecolabeling, guiding principles and procedures for Type I programs, guiding principles and procedures for Type III programs, and principles and framework of LCA. The draft standards for program administration recognize the benefits of transparency and non-discrimination, which some programs have been criticized for not providing. These standards, in conjunction with the development of product evaluation methodology and LCA standards, are expected to improve

programs' interactions with all interested parties, increase the efficiency of operations, improve the credibility of labeled information in the marketplace, and ultimately drive environmental quality improvements.

Consensus on the benefits of, the need for, and a definition of LCA may be elusive precisely because those participating in ISO have differing self interests. Those participating in standards development in the US delegation include all levels of government, consumer product and commercial product manufacturers (both US and foreign-owned), trade associations, consultants, academics, public interest groups, labeling programs, and testing organizations. Many programs are actively participating in the development of standards pertinent to their program. Some, such as Japan and the EU, have made interim program improvements that are consistent with draft standards. However, because the ISO process is lengthy and ever-changing, programs will be unlikely to commit resources or reinvent themselves to meet ISO standards until they are finalized.

### **6.3. Wedge Issues**

Several issues may drive wedges between programs or otherwise constrain the growth and use of environmental labeling as an effective policy tool. Such forces range from those within the labeling programs themselves (e.g., self interest in preserving the status quo) to forces external to programs (e.g., international trade agreements) and issues involving the programs and their major customers/constituents (e.g., self-sufficient financing). The ultimate resolution of these issues cannot be predicted at this time. Of those identified in this section, some have already had real effects on labeling programs, for example, GATT prohibition of PPM restrictions. Others, such as the possible limitations of ISO standards, are described as potential obstacles. Each issue should be viewed as important and a possible determinant to the future success or failure of existing labeling programs.

#### *Program Goals*

As mentioned above, environmental labeling program mandates are very similar. One important difference among programs, however, is their differing expectations regarding the ability of labeling information to inform and educate consumers and to change consumer purchasing decisions. The seal of approval programs (ISO Type I) assume that the information needed to accurately describe numerous environmental attributes and LCA results is too complex and too extensive to present on a label. Consequently, the labeling organization synthesizes this information and establishes what it hopes to be a credible judgment of preferability (the licensing of the logo for qualifying products). On the other hand, report card programs (ISO Type III) believe that individual consumers can themselves prioritize across environmental burden (or stressor effect) categories (e.g., water consumption and air pollutants released) and that the consumer needs no interpretation. In that respect, the report cards (e.g., nutritional labeling) standardize and present environmental information.

One important difference between environmental report cards and the nutrition label is that environmental attributes are far more complex and difficult to standardize. For example, environmental impacts are typically site-specific, and differences in how the product is used and disposed of must be assumed. At present there is no conflict between these labeling approaches, since they have yet to gain significant penetration in the same market. If they do, consumer confusion might result from labeling clutter. (If products in the same category had different label types, comparisons cannot be made. Multiple labels on different products might confuse consumers.) Such differences in how consumers use label information could affect a program's suitability to label certain products, affect non-retail use of labels and labeling information, and shape their near-term objectives and goals. In an overarching sense, the competition between the differing approaches to presenting environmental information on the label can be expected to constrain information-sharing alliances and may create conflicts among programs.

### *Limitations to Standardization*

ISO and other processes drive standardization and have already prompted several programs to change their operations. Programs may be limited, however, in facilitating certain changes at the program level. The most significant limitations may be the adoption of effective program transparency and how to reconcile new methodologies with existing program protocols and licensed awards. In addition, harmonization of nontechnical matters, such as cultural norms and values used in prioritization and tradeoff analyses among attributes, may impede mutual recognition of award criteria in particular product categories.

In the US, regulatory development is an excellent example of a readily transparent process. The regulatory agenda is published, as are preliminary proposals. All governmental analyses of the proposals are publicly available upon request, as are summary reports detailing proposals. Public comments are solicited for anywhere from 60 to 90 days at several stages. A public docket is prepared so that anyone may review all comments. Public meetings may be held at various times throughout the process. Subsequently, the Agency must respond, in the record, to each comment made, prior to revising analyses or proposals. Several rounds of proposals and public input may occur prior to the proposal of a final rule along with its estimated impacts and benefits -- based on assumptions, data sources, and analytical methodology that have been thoroughly reviewed. This is fairly costly for the government and a time-consuming process, but one that is thought to guarantee transparency and facilitates participation by as many interested parties as possible.

Environmental labeling programs, particularly those with very limited funding, may operate with limited input on the development and/or limited review of proposals for product category selection and award criteria. This streamlined approach eases development of new product categories and criteria and allows the program to better control the process. In addition to the procedural constraints, there are practical limits to widespread participation when stakeholder access is limited in duration. For example, foreign manufacturers and public interest groups are more likely to be excluded from a limited process, or one in which regular participation on ad hoc

committees is required, because of the high cost of participation. Unless there are changes to the amount of information made public and how it is disseminated at each step of the process, the more streamlined labeling programs may not comply fully with the ISO principle of transparency. Draft ISO standards also call for non-discrimination. That is, all domestic and foreign parties should be treated on an equal footing. This is an immense challenge for programs because currently there is no system to disseminate proposals and operational information and to collect input on an international scale. International information exchange efforts using the Internet, as is being tried by GEN, may help programs reach the goals of transparency and non-discrimination.

As the ISO process moves forward, each program is assessing how it might reconcile new methodologies with its existing program. Even if the methodological differences can be standardized, mutual recognition remains the only solution to certain inherent differences among programs. Such country/market differences will certainly result in differences among award criteria for the same product. For example, Country A's market basket analysis may contain a small share of environmentally preferable performers (imported from Country B). In Country B, the share of those products may exceed 50 percent. Country A's labeling program could help to shift the market toward the environmentally preferable alternatives at the expense of its domestic manufacturers. Alternatively, the LCA could reveal that the impact of the greatest environmental burden of the product manufacture differs dramatically between the countries based on local conditions (e.g., availability of water or suitable disposal capacity). LCA itself does not incorporate cultural values.

#### **6.4. Future Outlook**

In addition to the background information presented in this report, it would be useful to have an accurate forecast of how environmental labeling activities and programs will interact with governmental policies and social concerns. Unfortunately, the future of such labeling in the marketplace is too complex. There are, however, a number of issues that are important for which trends can be projected into the near term, and others that can be identified as important but for which the near-term outcome cannot be anticipated at this time.

Given recent history and the interests of those participating, ISO efforts on draft standards are expected to continue, although there will be differences in rates of standards development and outcome. To the extent that the standard setting process involves major stakeholders and a representative (international) group of minor stakeholders, most standards are likely to be finalized. The extent to which standards are adopted by individual programs will depend upon: 1) the adoption of programmatic changes called for in draft ISO standards, such as effective and inexpensive means of ensuring transparency and public participation; and 2) the extent to which LCA and harmonization issues have been articulated and addressed during the intervening period.

What trade issues will arise, how these conflicts are resolved, and in what venue they will be resolved (e.g., WTO decisions, bilateral negotiations) are all important near-term drivers affecting the long-term future of environmental labeling. The fact that the first few will be precedent-setting throughout the world makes them of particular interest. Consequently, those labeling programs and efforts less likely to attract trade conflicts (e.g., because their product criteria do not include PPMs or product content in a significant way), are better positioned to succeed in the short term. In the longer term, compatibility with ISO standards, trade conflict resolution precedents, and cost-effective operating practices will play an increasingly important role in the success of environmental labeling.

Demand for environmental information as provided by labeling programs is generated from several sources. The major consumers of such information are expected to continue or increase their demand in the next five to ten years. Governmental procurement programs in the US and Europe already consider environmental attributes in their decision-making and look to labeling programs as important contributions to the process. Similarly, product stewardship and vendor screening activities as related to ISO 14000 programs will foster use of such information in private sector procurement and product design. Regulatory requirements will also increase demand for environmental information. In the US, for example, facilities covered by the expansion of Toxics Release Inventory reporting to new industries will need information on the content and composition of inputs.

Demand from retail consumers is associated with knowledge of and concern about environmental issues and is far less predictable. One of the primary limitations in environmental labeling programs to date has been a lack of awareness on the part of consumers. Increased consumer awareness about environmental issues and the existence and purpose of environmental labeling could significantly affect the success of programs. If national and international news events, in combination with consumer education, increase awareness of environmental issues and labeling information is found to be credible and useful, retail consumer demand is likely to increase. The degree of change in retail consumer interest over time is, however, more uncertain. In turn, the viability of programs dependent upon fees for services and licensing fees are more at risk from any downturn in demand from customers (throughout the supply chain) than are programs with other sources of funding (such as governmental subsidies) or those programs with a diverse set of products/services (such as consulting and testing not directly related to labeling).



## **Appendix A:**

### **Overview Table of Environmental Labeling Programs Covered in this Report**





## Appendix A: Overview of Environmental Labeling Programs Covered in this Report

Country	Seal	Category	Mandatory/ Voluntary	Type of Label	Type of Program	Govt/ Non-Govt	Year Founded	No. of Product Categories
<b>Developed Programs</b>								
Austria	Austrian Eco-Label	Type I	V	Seal of Approval	Positive	Govt	1991	35
Canada	Canada's Environmental Choice	Type I	V	Seal of Approval	Positive	Quasi	1988	49
China	-	Type I	V	Seal of Approval	Positive	Govt	1994	12
Croatia	Croatia's Environmental Label	Type I	V	Seal of Approval	Positive	Govt	Unknown	33
Czech Republic	-	Type I	V	Seal of Approval	Positive	Govt	1994	17
Denmark	Nordic Swan	Type I	V	Seal of Approval	Positive	Quasi	1989	42
EU	European Union Ecolabel Award Scheme	Type I/III	V	Seal of Approval	Positive	Govt	1992	11
Finland	Nordic Swan	Type I	V	Seal of Approval	Positive	Quasi	1989	42
France	NF-Environnement	Type I	V	Seal of Approval	Positive	Govt	1992	6
Germany	Blue Angel	Type I	V	Seal of Approval	Positive	Govt	1977	88
Germany	Green Dot	Type I	V	Single Attribute	Positive	Quasi	1990	7
Iceland	Nordic Swan	Type I	V	Seal of Approval	Positive	Quasi	1989	42
India	Eco-Mark	Type I	V	Seal of Approval	Positive	Govt	1991	16
Japan	Ecomark	Type I	V	Seal of Approval	Positive	Quasi	1989	69
Korea	Ecomark	Type I	V	Seal of Approval	Positive	Govt	1992	36
Luxembourg	European Union Ecolabel Award Scheme	Type I	V	Seal of Approval	Positive	Govt	1992	11
Malaysia	Product Certification Program	Type I	V	Seal of Approval	Positive	Govt	1996	1
Netherlands	Stichting Milieukeur	Type I	V	Seal of Approval	Positive	Quasi	1992	32
New Zealand	Environmental Choice	Type I	V	Seal of Approval	Positive	Quasi	1990	17
Norway	Nordic Swan Label	Type I	V	Seal of Approval	Positive	Quasi	1989	42
Singapore	Green Label Singapore	Type I	V	Seal of Approval	Positive	Govt	1992	21
Spain	AENOR Medio Ambiente	Type I	V	Seal of Approval	Positive	Non-Govt	1993	3
Sweden	SIS-Nordic Swan Label	Type I	V	Seal of Approval	Positive	Quasi	1989	42
Sweden	Good Environmental Choice	Type I	V	Seal of Approval	Positive	Non-Govt	1990	17

## Appendix A: Overview of Environmental Labeling Programs Covered in this Report

Country	Seal	Category	Mandatory/ Voluntary	Type of Label	Type of Program	Govt/ Non-Govt	Year Founded	No. of Product Categories
Taiwan	Green Mark Taiwan	Type I	V	Seal of Approval	Positive	Non-Govt	1992	35
Thailand	The Thai Green Label Scheme	Type I	V	Seal of Approval	Positive	Quasi	1993	6
UK	European Union Ecolabel Scheme	Type I	V	Seal of Approval	Positive	Govt	1992	11
US	Battery Labeling	N/A	M	Information Disclosure	Neutral	Govt	1996	3
US	Chlorine Free Products Association	Type I	V	Seal of Approval	Positive	Non-Govt	1997	2
US	ECO-O.K.	Type I	V	Seal of Approval	Positive	Non-Govt	1987	5
US	Ecotel	Type I	V	Seal of Approval	Positive	Non-Govt	1994	1
US	Energy Guide	Type III	M	Report Card	Neutral	Govt	1975	19
US	Energy Star	Limited Attributes Seal	V	Seal of Approval	Positive	Govt	1992	26
US	Fuel Economy Information Program	Type III	M	Report Card	Neutral	Govt	1975	1
US	Green Seal	Type I	V	Seal of Approval	Positive	Private - non-profit	1989	88
US	ODS - Ozone		M	Hazard	Negative	Govt	1990	Undefined
US	Office of Pesticide Program (FIFRA)		M	Hazard	Negative	Govt	1947	
US	Proposition 65	Other	M	Hazard	Negative	Govt	1986	Undefined
US	SCS - Claim Certification	Type II/various	V	Seal of Approval	Neutral	Non-Govt	1991	4
US	SCS - Eco-Profile	Type III	V	Report Card	Neutral	Non-Govt	1989	All
US	SCS - Forestry	Type I	V	Seal of Approval	Positive	Non-Govt	1991	2
US	SCS - NutriClean	Type I	V	Single attribute	Positive	Non-Govt	1984	1
US	Smart Wood Program		V					
US	TSCA		M	Hazard	Negative	Govt	1976	
US	Vermont		M	Hazard	Negative	Govt	1991	35
US	WAVE	Type I	V	Seal of Approval	Positive	Govt	1992	1
US	<i>Greening the Government</i>	Buying Guide	N/A	Buying Guide	Neutral	Govt	1997	N/A
US	<i>The Green Pages</i>	Buying Guide	N/A	Buying Guide	Neutral	Govt	1993	N/A
US	US EPA VOC Emission Standards for Architectural Coatings	N/A	M	Information Disclosure	Negative	Govt	1998	50
<b>Programs in Development</b>								
Brazil	ABNT - Environmental Quality	Type I	V	Seal of Approval	Positive	Quasi	1993	2
US	Consumer Labeling Initiative	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress
US	Electric Utility Labeling	In Progress	In Progress	In Progress	In Progress	Quasi	In Progress	In Progress
US	Small Spark Ignited Engines	In Progress	V	Seal of Approval	Positive	Govt	In Progress	In Progress
Finland	Type III	Type III		Report Card	Neutral	Govt		
Indonesia	BAPEDAL	Type I	V	Seal of Approval	Positive	Govt	1995-present?	In Progress

### Appendix A: Overview of Environmental Labeling Programs Covered in this Report

Country	Seal	Category	Mandatory/ Voluntary	Type of Label	Type of Program	Govt/ Non-Govt	Year Founded	No. of Product Categories
Indonesia	Ministry of Trade	Type I	V	Seal of Approval	Positive	Govt	unknown	In Progress
Indonesia	Indonesian Ecolabeling Working Group	Type I	V	Seal of Approval	Positive	Non-Govt	1994	1
Germany	Type III	Type III		Report Card	Neutral		not yet developed	
Hong Kong	Eco-label						not yet developed	
<b>Not Operational</b>								
Australia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
US	OAQPS labels/CA program	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Argentina	-		N/A	N/A	N/A	N/A	N/A	N/A
Chile	-		N/A	N/A	N/A	N/A	N/A	N/A
<b>No Information Provided</b>								
Greece								
Italy								
New Zealand	Project 98 - food label							
US	Flipper							
Sweden	Swedish Type III							
Germany	Blue Angel's Green Passport - private							

## Appendix A: Overview of Environmental Labeling Programs Covered in this Report

Country	Seal	No. of Awards	Indicated that Standards Have Changed	Significant Program Changes	Other Programs/ Activities	Foreign Based Licenses	Methodology
<b>Developed Programs</b>							
Austria	Austrian Eco-Label	150	Yes	No	No	10	LCA
Canada	Canada's Environmental Choice	126	Yes	Yes	Yes	10	LCA
China	-	43	unknown	No	No	0	single-attribute or few factors
Croatia	Croatia's Environmental Label	15	Unknown	Unknown	Unknown	Unknown	LCA
Czech Republic	-	198			No	0.41	LCA
Denmark	Nordic Swan	350	Yes	Yes	No	20%	LCA
EU	European Union Ecolabel Award Scheme	182	Yes	Yes	No	N/A	LCA
Finland	Nordic Swan	350	Yes	Yes	No	20%	LCA
France	NF-Environnement	>300	No	Yes	No	0	Simplified LCA
Germany	Blue Angel	4135	Yes	No	No	17%	modified LCA - only looks at final impact
Germany	Green Dot	N/A	Yes	No	Yes	Unknown	Single attribute
Iceland	Nordic Swan	350	Yes	Yes	No	20%	LCA
India	Eco-Mark	1	No	No	No	0	LCA
Japan	Ecomark	2031	Yes	Yes	Yes	Unknown	LCA
Korea	Ecomark	219	No	No	Unknown	Unknown	modified LCA
Luxembourg	European Union Ecolabel Award Scheme	182	Yes	Yes	No	N/A	LCA
Malaysia	Product Certification Program	unknown	0	No	No	0	single-attribute
Netherlands	Stichting Milieukeur	86	Yes	Yes	No		LCA
New Zealand	Environmental Choice	55	1	Yes	No	0	LCA
Norway	Nordic Swan Label	350	Yes	Yes	No	20%	LCA
Singapore	Green Label Singapore	702	Yes	No	Unknown	Unknown	simplified LCA
Spain	AENOR Medio Ambiente	14	No	No	No		LCA
Sweden	SIS-Nordic Swan Label	350	Yes	Yes	No	20%	LCA
Sweden	Good Environmental Choice	1139	Yes	No	Unknown	Unknown	simple multi-attribute

## Appendix A: Overview of Environmental Labeling Programs Covered in this Report

Country	Seal	No. of Awards	Indicated that Standards Have Changed	Significant Program Changes	Other Programs/Activities	Foreign Based Licenses	Methodology
Taiwan	Green Mark Taiwan	102	Yes	Yes	No	4	LCA
Thailand	The Thai Green Label Scheme	0	0		Yes	No	LCA
UK	European Union Ecolabel Scheme	182	Yes	Yes	No	N/A	LCA
US	Battery Labeling	N/A	N/A	No	No	N/A	N/A
US	Chlorine Free Products Association	2	0	No	Yes	unknown	single-attribute
US	ECO-O.K.	about 100	0	No	Yes	?	Other
US	Ecotel	34	unknown	No	Yes	Yes	proprietary
US	Energy Guide	N/A	N/A	Yes	No	N/A	N/A
US	Energy Star		Yes	Yes	Yes	0	single attribute
US	Fuel Economy Information Program	N/A	N/A	Yes	No	N/A	N/A
US	Green Seal	300	Yes	Yes	Yes	5	LCA
US	ODS - Ozone	N/A	N/A	Yes	No	N/A	N/A
US	Office of Pesticide Program (FIFRA)	N/A			No	No	N/A
US	Proposition 65	N/A	N/A	No	No	N/A	single-attribute
US	SCS - Claim Certification	2000	Yes	No	Yes	Yes	single-attribute
US	SCS - Eco-Profile	Unknown	Yes	Yes	Yes	Yes	LCSEA
US	SCS - Forestry	50	Yes	Yes	Yes	Yes	Other
US	SCS - NutriClean	400 growers	No	No	Yes	Yes	single-attribute
US	Smart Wood Program						
US	TSCA				No	No	
US	Vermont	N/A	No	Yes	Yes	N/A	single-attribute
US	WAVE	750	0	No	Yes	No	N/A
US	<i>Greening the Government</i>	N/A	N/A	N/A	N/A	N/A	N/A
US	<i>The Green Pages</i>	N/A	N/A	N/A	N/A	N/A	N/A
US	US EPA VOC Emission Standards for Architectural Coatings	N/A	No	No	No	N/A	single-attribute
<b>Programs in Development</b>							
Brazil	ABNT - Environmental Quality	In Progress	In Progress	In Progress	?	In Progress	LCA
US	Consumer Labeling Initiative	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress
US	Electric Utility Labeling	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress
US	Small Spark Ignited Engines	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress
Finland	Type III						
Indonesia	BAPEDAL	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress

**Appendix A: Overview of Environmental Labeling Programs Covered in this Report**

<b>Country</b>	<b>Seal</b>	<b>No. of Awards</b>	<b>Indicated that Standards Have Changed</b>	<b>Significant Program Changes</b>	<b>Other Programs/ Activities</b>	<b>Foreign Based Licenses</b>	<b>Methodology</b>
Indonesia	Ministry of Trade	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress
Indonesia	Indonesian Ecolabeling Working Group	In Progress	In Progress	In Progress	unknown	unknown	unknown
Germany	Type III						
Hong Kong	Eco-label						
<b>Not Operational</b>							
Australia	N/A	N/A	N/A	N/A	N/A	N/A	N/A
US	OAQPS labels/CA program	N/A	N/A	N/A	N/A	N/A	N/A
Argentina	-	N/A	N/A	N/A	N/A	N/A	N/A
Chile	-	N/A	N/A	N/A	N/A	N/A	N/A
<b>No Information Provided</b>							
Greece							
Italy							
New Zealand	Project 98 - food label						
US	Flipper						
Sweden	Swedish Type III						
Germany	Blue Angel's Green Passport - private						

## Appendix A: Overview of Environmental Labeling Programs Covered in this Report

Country	Seal	Use of Non-Environmental Attributes	Developed/Developing	G7	EU	Stage at Which There is Stakeholder Involvement	Used in Procurement	Used on Retail Products
<b>Developed Programs</b>								
Austria	Austrian Eco-Label	No	Developed	No	Yes	criteria devlp	Yes, unspecified	Yes
Canada	Canada's Environmental Choice	No	Developed	Yes	No	prod/crit	Informal	Yes
China	-	No	Developed	No	No	product selection, criteria development	unknown	Yes
Croatia	Croatia's Environmental Label	No	Developed	No	No	criteria devlp	Informal	Yes
Czech Republic	-			No	Yes	criteria devlp		Yes
Denmark	Nordic Swan	Yes	Developed	No	Yes	product cat sel, criteria devlp	Formal	Yes
EU	European Union Ecolabel Award Scheme	No	Developed	NA	Yes	product cat sel, criteria devlp	Informal	Yes
Finland	Nordic Swan	Yes	Developed	No	Yes	product cat sel, criteria devlp	Formal	Yes
France	NF-Environnement	No	Developed	Yes	Yes	criteria devlp	Informal	Yes
Germany	Blue Angel	Yes	Developed	Yes	Yes	product cat sel, finalizing draft criteria	Informal	Yes
Germany	Green Dot	No	Developed	Yes	Yes	criteria devlp	Formal	Yes
Iceland	Nordic Swan	Yes	Developed	No	Yes	product cat sel, criteria devlp	Formal	Yes
India	Eco-Mark	Yes	Developing	No	No	no	No	Yes
Japan	Ecomark	No	Developed	Yes	No	crit	Informal	Yes
Korea	Ecomark	No	Developed	No	No	criteria devlp	unknown	Yes
Luxembourg	European Union Ecolabel Award Scheme	No	Developed	N/A	Yes	product cat sel, criteria devlp	Informal	Yes
Malaysia	Product Certification Program	No	Developed	No	No	product selection, criteria development	No	Yes
Netherlands	Stichting Milieukeur	No	Developed	No	Yes	prod, crit	Informal	Yes
New Zealand	Environmental Choice	No	Developed	No	No	prod, crit	No	Yes
Norway	Nordic Swan Label	Yes	Developed	No	Yes	product cat sel, criteria devlp	Formal	Yes
Singapore	Green Label Singapore	Yes	Developed	No	No	product criteria	Yes, unspecified	Yes
Spain	AENOR Medio Ambiente	No	Developed	No	Yes		No	Yes
Sweden	SIS-Nordic Swan Label	Yes	Developed	No	Yes	product cat sel, criteria devlp	Formal	Yes
Sweden	Good Environmental Choice	No	Developed	No	Yes	prod cat sel, criteria devlp	Informal	Yes

## Appendix A: Overview of Environmental Labeling Programs Covered in this Report

Country	Seal	Use of Non-Environmental Attributes	Developed/Developing	G7	EU	Stage at Which There is Stakeholder Involvement	Used in Procurement	Used on Retail Products
Taiwan	Green Mark Taiwan	Yes	Developed	No	No	product cat sel, criteria devlp	will be formal in future	Yes
Thailand	The Thai Green Label Scheme	No	Developing	No	No	product cat, crit product cat sel, criteria devlp		Yes
UK	European Union Ecolabel Scheme	No	Developed	N/A	Yes	manufacturers lobbied for law	Informal	Yes
US	Battery Labeling	No	Developed	Yes	No		No	Yes
US	Chlorine Free Products Association	No	Developed	Yes	No	membership (it's a trade association)	unknown	Yes
US	ECO-O.K.	Yes	Developing**	No**	No	Y	Informal	Yes
US	Ecotel	Yes	Developed	Yes	No	N	No	Yes
US	Energy Guide	No	Developed	Yes	No	N	No	Yes
US	Energy Star	No	Developed	Yes	No	Y	Formal	Yes
US	Fuel Economy Information Program	No	Developed	Yes	No	N	No	Yes
US	Green Seal	No	Developed	Yes	No	throughout	Informal	Yes
US	ODS - Ozone	No	Developed	Yes	No	n	No	Yes
US	Office of Pesticide Program (FIFRA)		Developed	Yes	No			Yes
US	Proposition 65	No	Developed	Yes	No	prog formation	No	Yes
US	SCS - Claim Certification	No	Developed	Yes	No	throughout	No	Yes
US	SCS - Eco-Profile	Yes	Developed	Yes	No	throughout	Informal	Yes
US	SCS - Forestry	Yes	Developed	Yes	No	throughout	No	Yes
US	SCS - NutriClean	No	Developed	Yes	No	throughout	No	Yes
US	Smart Wood Program			Yes	No			Yes
US	TSCA		Developed	Yes	No			Yes
US	Vermont	No	Developed	Yes	No	unknown	No	Yes
US	WAVE	N/A	Developed	Yes	No	N	No	Yes
US	<i>Greening the Government</i>	N/A	Developed	Yes	No	N/A	Yes	N/A
US	<i>The Green Pages</i>	N/A		Yes	No	N/A	Yes	N/A
US	US EPA VOC Emission Standards for Architectural Coatings	No	Developed	Yes	No	N/A	No	Yes
<b>Programs in Development</b>								
Brazil	ABNT - Environmental Quality	No	Developing	No	No	product cat sel, criteria devlp	In Progress	In Progress
US	Consumer Labeling Initiative	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress
US	Electric Utility Labeling	In Progress	developed	Yes	No	Y	No	In Progress
US	Small Spark Ignited Engines	In Progress	developed	Yes	No	Y	In Progress	Yes
Finland	Type III			No				Yes
Indonesia	BAPEDAL	In Progress	developing	No	No	In Progress	In Progress	Yes



**Appendix A: Overview of Environmental Labeling Programs Covered in this Report**

<b>Country</b>	<b>Seal</b>	<b>Use of Non-Environmental Attributes</b>	<b>Developed/Developing</b>	<b>G7</b>	<b>EU</b>	<b>Stage at Which There is Stakeholder Involvement</b>	<b>Used in Procurement</b>	<b>Used on Retail Products</b>
Indonesia	Ministry of Trade	In Progress	developing	No	No	In Progress	In Progress	Yes
Indonesia	Indonesian Ecolabeling Working Group	unknown	developing	No	No	In Progress	In Progress	Yes
Germany	Type III		Developed	Yes	Yes			
Hong Kong	Eco-label			No	No			
<b>Not Operational</b>								
Australia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
US	OAQPS labels/CA program	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Argentina	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>No Information Provided</b>								
Greece								
Italy								
New Zealand	Project 98 - food label							
US	Flipper							
Sweden	Swedish Type III							
Germany	Blue Angel's Green Passport - private							

## Appendix A: Overview of Environmental Labeling Programs Covered in this Report

Country	Seal	Used Within Industry Sector, i.e. pre-retail	Participating in ISO	Method of Financing	Indicated Working with Another Country	Report Trade Conflict or Issues
<b>Developed Programs</b>						
Austria	Austrian Eco-Label	Unknown	Yes	Fees	Yes	Yes
Canada	Canada's Environmental Choice	No	Yes	Fees	Yes	No
China	-	No	No	Fees and Govt	No	Yes
Croatia	Croatia's Environmental Label	Unknown	Yes	Unknown	Unknown	Unknown
Czech Republic	-	No		Fees and Govt	Yes	
Denmark	Nordic Swan	No	Yes	Fees and Govt	Yes	No
EU	European Union Ecolabel Award Scheme	No	Yes	Member states and fees	Yes	Yes
Finland	Nordic Swan	No	Yes	Fees and Govt	Yes	No
France	NF-Environnement	No	Yes	Fees	Yes	Yes
Germany	Blue Angel	No	Yes	Fees	No	No
Germany	Green Dot	No	N/A	Fees	No	Yes
Iceland	Nordic Swan	No	Yes	Fees and Govt	Yes	No
India	Eco-Mark	No	Yes	Fees	No	Yes
Japan	Ecomark	No	Yes	Fees	Yes	No
Korea	Ecomark	No	Unknown	Fees	No	Unknown
Luxembourg	European Union Ecolabel Award Scheme	No	Yes	Member states and fees	Yes	Yes
Malaysia	Product Certification Program	No	Yes	Fees and Govt	Yes	Yes
Netherlands	Stichting Milieukeur	No	No	Fees	Yes	No
New Zealand	Environmental Choice	No	Yes	Fees	Yes	No
Norway	Nordic Swan Label	No	Yes	Fees and Govt	Yes	No
Singapore	Green Label Singapore	No	Yes	Govt	No	No
Spain	AENOR Medio Ambiente	No	Yes		Yes	No
Sweden	SIS-Nordic Swan Label	No	Yes	Fees and Govt	Yes	No
Sweden	Good Environmental Choice	No	Yes	Funded by Swedish Society of Nature Conservation and 3 retailers	No	No

## Appendix A: Overview of Environmental Labeling Programs Covered in this Report

Country	Seal	Used Within Industry Sector, i.e. pre-retail	Participating in ISO	Method of Financing	Indicated Working with Another Country	Report Trade Conflict or Issues
Taiwan	Green Mark Taiwan	Yes	Yes	Fees and Govt	Yes	No
Thailand	The Thai Green Label Scheme	No	Yes	Funded by govt. industry and private orgs	Yes	
UK	European Union Ecolabel Scheme	No	Yes	Member states and fees	Yes	Yes
US	Battery Labeling	No	No	Govt	N/A	No
US	Chlorine Free Products Association	Yes	Yes	Inspection fees/Member dues	No	No
US	ECO-O.K.	Yes	No	Donations	N/A	No
US	Ecotel	No	No	Fees	No	No
US	Energy Guide	No	No	Govt	N/A	No
US	Energy Star	Yes	No	Govt	N/A	No
US	Fuel Economy Information Program	No	No	Govt	N/A	N/A
US	Green Seal	No	Yes	Fees	Yes	No
US	ODS - Ozone	Yes	No	Govt	N/A	No
US	Office of Pesticide Program (FIFRA)			Govt		
US	Proposition 65	Yes	N/A	Govt	N/A	N/A
US	SCS - Claim Certification	Yes	No	Fees	No	No
US	SCS - Eco-Profile	Yes	Yes	Fees	Yes	No
US	SCS - Forestry	Yes	No	Fees	No	No
US	SCS - NutriClean	Yes	No	Fees	No	No
US	Smart Wood Program					
US	TSCA			Govt		
US	Vermont	No	N/A	Govt	N/A	N/A
US	WAVE	No	No	Govt	N/A	N/A
US	<i>Greening the Government</i>	N/A	N/A	N/A	N/A	N/A
US	<i>The Green Pages</i>	N/A	N/A	N/A	N/A	N/A
US	US EPA VOC Emission Standards for Architectural Coatings	Yes	N/A	Govt	No	N/A
<b>Programs in Development</b>						
Brazil	ABNT - Environmental Quality	In Progress	Y	Govt, Other cert. activities	No	No
US	Consumer Labeling Initiative	In Progress	In Progress	In Progress	In Progress	In Progress
US	Electric Utility Labeling	N	In Progress	In Progress	N/A	N/A
US	Small Spark Ignited Engines	N	In Progress	In Progress	N/A	N/A
Finland	Type III					
Indonesia	BAPEDAL	In Progress	unknown	In Progress	In Progress	Yes

### Appendix A: Overview of Environmental Labeling Programs Covered in this Report

Country	Seal	Used Within Industry Sector, i.e. pre-retail	Participating in ISO	Method of Financing	Indicated Working with Another Country	Report Trade Conflict or Issues
Indonesia	Ministry of Trade	In Progress	unknown	In Progress	In Progress	Yes
Indonesia	Indonesian Ecolabeling Working Group	In Progress	unknown	In Progress	In Progress	Yes
Germany	Type III					
Hong Kong	Eco-label					
<b>Not Operational</b>						
Australia	N/A	N/A	N/A	N/A	N/A	N/A
US	OAQPS labels/CA program	N/A	N/A	N/A	N/A	N/A
Argentina	-	N/A	N/A	N/A	N/A	N/A
Chile	-	N/A	N/A	N/A	N/A	N/A
<b>No Information Provided</b>						
Greece						
Italy						
New Zealand	Project 98 - food label					
US	Flipper					
Sweden	Swedish Type III					
Germany	Blue Angel's Green Passport - private					

## **Appendix B:**

### **Summaries of Environmental Labeling Programs Covered in this Report<sup>1, 2</sup>**

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<sup>1</sup>Programs are presented in the same order as they appear in Appendix A, “Overview Table of Environmental Labeling Programs Covered in this Report.”

<sup>2</sup>Exchange rates are based on early 1998 values.



## List of Environmental Programs Covered in This Report

Country	Program	Page Number
<b>Developed Programs</b>		
Austria	Austrian Eco-Label	B-1
Canada	Canada's Environmental Choice	B-5
China	-	B-13
Croatia	Croatia's Environmental Label	B-17
Czech Republic	-	B-21
Denmark	Nordic Swan	B-23
EU	European Union Ecolabel Award Scheme	B-31
Finland	Nordic Swan	B-23
France	NF-Environnement	B-41
Germany	Blue Angel	B-47
Germany	Green Dot	B-55
Iceland	Nordic Swan	B-23
India	Eco-Mark	B-59
Japan	Ecomark	B-65
Korea	Ecomark	B-71
Luxembourg	European Union Ecolabel Award Scheme	B-31
Malaysia	Product Certification Program	B-75
Netherlands	Stichting Milieukeur	B-79
New Zealand	Environmental Choice	B-85
Norway	Nordic Swan Label	B-23
Singapore	Green Label Singapore	B-89
Spain	AENOR Medio Ambiente	B-95
Sweden	SIS-Nordic Swan Label	B-23
Sweden	Good Environmental Choice	B-99
Taiwan	Green Mark Taiwan	B-101
Thailand	The Thai Green Label Scheme	B-107
UK	European Union Ecolabel Scheme	B-31
US	Battery Labeling	B-111
US	Chlorine Free Products Association	B-115
US	Consumer Labeling Initiative	B-119
US	ECO-O.K.	B-121
US	Ecotel	B-125
US	Energy Guide	B-129
US	Energy Star	B-133
US	Fuel Economy Information Program	B-139
US	Pesticide Labeling under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)	B-141
US	Green Seal	B-153
US	EPA's Ozone Depleting Substance Warning Label (ODS)	B-161

US	Proposition 65	B-165
US	Scientific Certification Systems - Environmental Claims Certification Program	B-169
US	Scientific Certification Systems - Certified Eco-Profile Labeling System	B-173
US	Scientific Certification Systems - Forest Conservation Program	B-179
US	Scientific Certification Systems - NutriClean Food Safety Management Program	B-185
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US	Vermont	B-193
US	WAVE	B-197
US	<i>Greening the Government</i>	B-201
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US	US EPA VOC Emission Standards for Architectural Coatings	B-203
<b>Programs in Development</b>		
Brazil	ABNT - Environmental Quality	B-207
US	Consumer Labeling Initiative	B-119
US	Small Spark-Ignited Engine Labeling	B-210
US	Electric Utility Labeling	B-210
Indonesia	Environmental Labeling	B-210



## **AUSTRIAN ECO-LABEL**

### **Introduction**

The Austrian Eco-Label was created in 1991 on the initiative of the Federal Ministry of Environment, Youth and Family Affairs (BMUJF). The Eco-Label is a voluntary, seal-of-approval, targeted to both consumers and manufacturers. It is designed to draw consumers' attention to products and services that are "more environmentally friendly as compared to the very harmful effects inflicted by other products fulfilling the same function" (Umweltbundesamt, 1994). The program also seeks to motivate producers and traders to "develop and offer less environmentally-polluting products" (Umweltbundesamt, 1994). In addition to evaluating the environmental impacts of a product, the Eco-Label also certifies the quality of the product, ensuring "a high environmental standard without having to fear a loss of quality or safety" (Umweltbundesamt, 1994).

As of August 1997, product criteria have been developed for 34 product categories under the Austrian Eco-Label. Since 1996, new product categories include tourism, carpets, papers for magazines, and office chairs. Currently, there are a total of 150 products that have been awarded the eco-label, and ten foreign companies that carry the Austrian Eco-Label on their products.

### **Recent Developments**

Austria's ecolabeling scheme operates in conjunction with the European Union's (EU) ecolabeling program. The EU label, however, is not seen as a substitute for the Austrian label. In fact, "as long as product-related market shares and technology developments differ strongly within the large market areas like the EU, we [Austria] are of the firm opinion that it cannot be wise to reject national schemes" (Jakl, 1997). Although criteria for product groups developed under the EU ecolabeling scheme may be integrated into national ecolabeling programs, the EU Eco-label is not be a precondition for receiving the Austrian Eco-Label.

### **Program Summary**

BMUJF, the Federal Environmental Agency (UBA), the Austrian Consumer Association (VKI), and the Austrian Association for the Promotion of Quality (ARGE) are the four primary organizations responsible for administering the Austrian Eco-Label program. The ARGE administers and coordinates with manufacturers wishing to obtain the ecolabel. The other three organizations are involved with criteria development. In addition, several groups -- the Eco-Label Advisory Board and the "expert groups"(one for each product category) -- have been established to assist in the award process. Members of the Advisory Board and the "expert groups" include individuals from the four administrating bodies, as well as people from environmental protection organizations, manufacturing, trade associations, consumer protection organizations, and individual experts.

Product categories are proposed to the ARGE by manufacturers, institutions, and other interest groups. ARGE then prepares a summary of the proposals for BMUJF. Based on assessments of the proposed product groups' overall environmental impacts, the BMUJF decides which product categories will be pursued for the Eco-Label. Once product categories have been selected, the Federal Environmental Agency, the BMUJF, and the Consumer Association jointly develop and propose product criteria. Chaired by the Austrian Consumer Association (VKI), an expert group (with representatives from a wide range of stakeholder organizations) is responsible for discussing proposed criteria and coming to a unanimous decision in passing a draft set of environmental criteria for each product group.

The Eco-labeling Advisory Group approves the draft, which is then subject to a final examination by the Federal Environmental Agency, who approves the product criteria. The criteria are then authorized by the Minister for the Environment and published in the official Federal Environmental Agency gazette, the *Wiener Zeitung*. Usually, criteria are valid for three years unless there has been a major technology revision, in which case criteria may be reviewed before the three years are over. If no manufacturer applies for an ecolabel in a given product group, criteria for that product group may be withdrawn or altered prior to the three years.

The Austrian Eco-Label may be awarded to both products and services and is open to both domestic and foreign producers, who submit applications to ARGE. If the manufacturer is in compliance with the product criteria, a "label utilization contract" is awarded by BMUJF and signed by the producer. Each product label may be used for two years, after which it is eligible for renewal. There is an annual fee for use of the label, which varies depending on the sales of the product; the fee can range from ATS 2,000 (\$160.00 US) to an upper limit of ATS 25,000 (\$2,000.00 US). If a breach of contract is found, BMUJF has the right to prohibit further use of the label, either temporarily or permanently.

### **Program Methodology**

Product categories are proposed by manufacturers, institutions, and other interest groups to ARGE. Product categories are selected through an evaluation of the environmental impacts of the categories, as well as by stakeholder votes or a legislative body's votes. The program reports, however, that it does not conduct an environmental impact analysis when selecting product categories or in establishing product criteria.

When developing product criteria, the Austria Eco-Label program conducts a life-cycle assessment. In setting its criteria Austria Eco-Label collects information from previous literature and studies pertaining to the product categories, other programs' LCAs, independent testing and auditing, and information from the manufacturers themselves. Products are assessed on an "all-embracing and unified evaluation" of not only the environmental effects of product use but also on the following factors: relative consumption of raw materials and energy during the production process, toxicity of the product's contents, wastes generated during manufacturing as well as disposal, recyclability; quality and safety of the product, usability of the product, and durability

and ease of repair of the product. Additionally, Austria assesses product categories on other factors such as occupational health, human health impacts, the use of animal testing, and general compliance with health, safety and environmental regulations in the country. Austria Eco-Label reports that it does not use SETAC guidelines in its life-cycle assessment.

### **Other Information**

During the past year, Austria Eco-Label has participated in discussions with other European countries to try to harmonize national ecolabeling programs in Europe. Preliminary pilot projects have been established to try to develop unified product categories for three pilot product categories -- vacuum cleaners, coffee machines, and furniture. The aims of this pilot project are to 1) identify the critical steps in the criteria development process (which could lead to mutual recognition among programs); 2) establish what the key elements are in criteria development; and 3) to establish mutually-recognized testing procedures among participating countries.

### **References**

Bundesministerium für Umwelt, 1996, *Fact Sheet*, “*Certified Products.*”

Bundesministerium für Umwelt, 1996, *Fact Sheet*, “*Approved Criteria for Awarding the Austrian Eco-Label.*”

Umweltbundesamt, 1994, *The Austrian Eco-Label* (Booklet).

Dr. Thomas Jakl, Bundesministerium für Umwelt, personal communication with Abt Associates, July/August 1997.

Austrian Federal Ministry for Environment, Youth and Family. *Austria’s Approach to Environmental Labeling*. Website address:  
[www.bmu.gv.at/bmu/bmu/fachinfo/wum/UWZEnglish.html](http://www.bmu.gv.at/bmu/bmu/fachinfo/wum/UWZEnglish.html).

### **Product Categories**

#### *Final Categories*

- Refrigerators and freezers
- Sanitary paper and tissues made of recycled paper
- Varnishes and paints
- Recycled paper for writing, copying, and EDP purposes (fine paper)
- Filing systems made of recycled paper
- Exercise books made from recycled paper
- Household washing machines
- Wood and wooded materials for indoor building purposes
- Wooden furniture

Water-soluble varnishes for wooden floors  
Water-saving toilet flush tanks for non-chlorinated plastic materials  
Individual electronic controls for sanitary facilities  
Reprocessing of ink media (toner-modules, ribbon cassettes, ink cartridges)  
Saw-chain oil and lubricants  
Copying machines  
Solar collectors  
Wall paints  
Products made from recycled paper (e.g., envelopes, etc.)  
Detergents for dishwashers  
Detergents for manual use  
Textile detergents  
Printing paper for newspapers mainly made of waste paper  
Total chlorine free bleached paper, made from virgin fiber, for non-impact printing (e.g., inkjet and high speed laser printers)  
Low pollutant print products (publications)  
Wood-based playground equipment for outdoor use  
Compostable paper bags for biogenic waste  
Tickets for public transport (Go-for-the-Environment Tickets)  
Returnable bottles for beverages and liquids  
Compostments for cemeteries (e.g., compostable flower arrangements, etc.)  
Kitchen rolls, paper towels and cleaning cloths made out of recycled paper  
Cleaning agents  
Tourism enterprises (e.g., hotels, restaurants, etc.)  
Carpets  
Paper made from recycled materials for magazines  
Office Chairs

*Categories Under Consideration*

Thermal insulation  
Heating systems  
Energy supplying systems

# CANADA'S ENVIRONMENTAL CHOICE<sup>M</sup> PROGRAM: THE ECOLOGO<sup>M</sup>

## Introduction

"The mission of the Environmental Choice Program (ECP) is to reduce the stress on the environment by encouraging the demand for and supply of environmentally responsible products and services"(Canada's Environmental Choice Program, 1996). ECP was created as a voluntary ecolabeling program by Environment Canada (the environment department of the Government of Canada) in 1988. In 1995, TerraChoice Environmental Services Inc., a Canadian private sector company, assumed management of the ecolabeling program, though Environment Canada still retains ownership.

ECP has published 50 final guidelines, has generated 39 certification criteria documents through the Panel Review and Certification Process (see below), and has awarded the EcoLogo to over 1,750 products, services, technologies, and events as an indication of their positive environmental attributes. It has received a generally favorable response from consumers and industry -- a June 1996 survey found that one in five Canadians said that they or someone in their household had purchased a product carrying the EcoLogo in the past year, and that two in three Canadians said they had confidence in the EcoLogo as a buying guide. Additionally, in a 1995 survey, 80 percent of marketing managers said they expected some increase in consumer demand for information on environmental attributes of products.

## Recent Developments

ECP has undergone several significant changes in the past few years. As mentioned above, ECP management was transferred from the government to TerraChoice, a private consulting company. ECP has also begun a significant marketing program; they publish newsletters, distribute an ecobuyer guide, and staff attend numerous trade shows. Not only has their marketing increased, but it has also shifted targets; whereas retail consumers were the focus in the past, they are now shifting their aim upstream to, for example, industry groups, school boards, and private institutions. ECP has also increased use of their Panel Review and Certification Process for awarding labels. Described in detail in the summary section below, this differs from most other programs in that it will award a label to a single product that is particularly innovative without previously creating a product category and establishing award criteria. This methodology is very different from the conventional supply-side approach of most seal-of-approval programs that create standards for groups of products at a time.

## Program Summary

TerraChoice is responsible for selecting product categories, and does so based on either supply- or demand-side indicators. The supply-side management approach, one of the most commonly used by ecolabel programs, selects product categories based on the volume of the particular product in the marketplace and the potential for environmental improvement. The demand-side approach,

unique to the ECP program, allows manufacturers to request a label for a particular product (most other programs will field requests for product categories but not for specific products).

Criteria for the category are developed using a Technical Briefing Note (TBN) characterizing the lifecycle of a product. A Review Committee, including experts from various fields, then reviews the draft. Upon completion of the proposed guideline by the Review Committee, there is a four-to-eight-week public review period. While they are not formally required to reply, TerraChoice responds to most comments. TerraChoice officials, along with the Review Committee, revise the draft guidelines based on the public comments received. Upon acceptance by the government, the final guideline is released.

Manufacturers can then apply for an ecolabel for a product meeting the published criteria for the relevant product category. Applicants undergo a confidential certification and audit process conducted by TerraChoice. Applicants are responsible for the cost of verifying that the criteria are met by their product and that they meet general licensing requirements (e.g., compliance with applicable environmental, safety, and performance legislation). These costs can be between \$750 (\$542 US) to \$2,500 (\$1,807 US) Canadian dollars based on the certification criteria and the requirement for site auditing.

Companies can also apply for certification for a product for which criteria have not been developed, referred to as the Panel Review and Certification Process. Certification of applicants with unique or niche products or services for which product category standards have not been established are recommended. An expert panel reviews each specific product application. While manufacturers are not charged a higher fee for this process, it tends to be more labor intensive than the process for technical guidelines; the applicant must present a large amount of technical and marketing information documenting its environmental excellence. If several similar products apply for the award through the Panel Review and Certification process, TerraChoice may develop a set of criteria for the product category as described above in the supply-side approach.

Once a manufacturer has been awarded use of the ecolabel, the company enters into a contract with TerraChoice. The annual fee is based on gross annual sales, and can be anywhere between \$350 and \$10,000 per license. Compliance is ensured through an annual statement submitted by the manufacturer confirming continued compliance, and through a three-year review of guidelines. In addition, compliance monitoring is conducted and paid for by TerraChoice, and includes location visits, product testing, and records verification.

### **Program Methodology**

TerraChoice is responsible for selecting product categories, and does so based on either supply-or demand-side indicators. The supply-side management approach, one of the most commonly used by ecolabel programs, selects product categories based on the volume of the particular product in the marketplace and the potential for environmental improvement. The demand-side approach, unique to the ECP program, allows manufacturers to request a label for a particular product

without the development of overall labeling criteria. If several manufacturers express interest in certification of the product, TerraChoice then considers the development of labeling criteria for the whole class of products. These are known as Technical Guidelines.

Technical Guidelines for the category are developed using a Technical Briefing Note (TBN), which looks at the environmental impacts of the product throughout its lifecycle, as well as market, economic, and technical information about the product category. In developing the Technical Guidelines, information from public sources is gathered and evaluated. The Review Committee then reviews the Guidelines for scientific validity.

Companies can also apply for certification for a product for which criteria have not been developed, referred to as the Panel Review and Certification Process. Certification of applicants with unique or niche products or services for which product category standards have not been established, and which represent a clear and significant reduction in environmental impacts, are recommended. An expert panel reviews each specific product application. While manufacturers are not charged a higher fee for this process, it tends to be more labor intensive than the process for technical guidelines; the applicant must present a large amount of technical and marketing information documenting its environmental excellence. If several similar products apply for the award through the Panel Review and Certification process, TerraChoice may develop a set of criteria for the product category as described above.

### **Other Information**

ECP is sensitive to the constraints of small and medium-sized businesses. Because its fee is based on sales, the minimum fee is applied to businesses with smaller sales.

The program is informally connected to several governmental and non-governmental procurement programs. In part, because the government owns the program, the ecolabel is used for government procurement; most departments in the government are required to be “green,” creating a large market for products with the label. Additionally, the Green Procurement Institute is a Canadian organization set up to encourage green procurement. They work closely with ECP and provide a wealth of information to retailers and governments interested in green procurement. The EcoBuyer newsletter, mentioned above, is an ECP creation used to reach retailers and purchasing departments in private companies to inform them about ECP-labeled products. The ECP reports that, in addition to specifying labeled products, some retailers rely on the criteria outlined by the Canadian ecolabel but use their own verification process.

ECP is also active in coordination with other non-Canadian labeling bodies. The program is a member of the Global Ecolabeling Network (GEN), and participates in International Standards Organization (ISO) activities. ECP plans to incorporate the ISO 14020 and 14024 standards once they are final. ECP representatives advocate “consistency, high credibility, and mutual respect between existing and proposed programs,” and are working on mutual recognition with other programs. To this end, ECP has exchanged information with both the Taiwan program and the

US Green Seal program. Specifically, they are working toward mutual recognition with Taiwan through standardization of operations based on ISO standards, mutual recognition of non-product-related impacts, and cooperation in auditing, verification and testing. While the panel review process was not specifically designed to address these issues, it is a useful process for recognizing and awarding labels to products from other countries based on their environmental leadership.

Additionally, TerraChoice, acting as a privately hired consulting company, has contracts with both India and Mexico. While India already has a program structure set up, they have sought TerraChoice advice and recommendations regarding potential program revisions. Mexico has sought TerraChoice assistance in assessing the merit of, and issues relating to, the development of a Mexican environmental labeling program.

While completely separate from ECP, another labeling program is being formed by TerraChoice and the Ontario Centre for Environmental Technology Advancement called the Environmental Technology Verification (ETV) Program. In its pilot stage, this program is being coordinated with the U.S. Environmental Protection Agency (EPA) National Environmental Technology Strategy and the California EPA. ECP expects to issue “certificates of authenticity” to environmental technologies under the new program. The program is voluntary, and will provide a set of standards across Canada and the US.

## References

Canada’s Environmental Choice Program, October 1996.

*The Environmental Monitor*, June 1996.

*Insight Canada*, February 1995.

Canada’s Environmental Choice Program. “Environmental Choice Program, Annual Report.” 95/96.

Canada’s Environmental Choice Program. “Environmental Technology Verification (ETV) Program.” May, 1997.

Global Ecolabeling Network, *GENews*, March 1997, Issue No. 2.

Binette, Sherry. TerraChoice Environmental Services Inc. Personal communication with Abt Associates. Summer 1997.



Polak, John C. TerraChoice Environmental Services Inc. Personal communication with Abt Associates. Summer 1997.

Bozowsky, Evan. TerraChoice Environmental Services Inc. Personal communication with Abt Associates. Summer 1997.

Canada's Environmental Choice Program. *ECP-57 Industrial and Commercial Cleaners*, March 1, 1997.

**Product Categories** (number of awarded products in parentheses)

*Final Categories*

- Automotive engine oil (8)
- Products made from recycled plastic (2)
- Specialty batteries (4)
- Products made from recycled rubber
- Water-borne surface coatings (31)
- Fine paper from recycled paper
- Miscellaneous products from recycled paper (35)
- Newsprint from recycled paper
- Solvent-borne paints (7)
- Diapers (1)
- Composting systems for residential waste (1)
- Automotive fuels (6)
- Reusable utility bags (5)
- Energy-efficient lamps
- Water conserving products (5)
- Commercial car wash services
- Automobile service stations
- Autobody, collision repair, and refinishing services
- General purpose cleaners (4)
- Domestic water heaters
- Building materials: acoustical products
- Dry cleaning services
- Building materials: thermal insulation (5)
- Remanufactured printing cartridges (1)
- Engine coolant concentrate
- Adhesives
- Sealants and caulking compounds
- Photocopiers (1)
- Printing inks

Gypsum wallboard  
Driveway sealers (1)  
Photofinishing services  
Industrial and commercial cleaners  
Lithographic printing services (1)  
Toilet tissue (1)  
Kitchen towels  
Facial tissue  
Table napkins  
Hand towels  
Rechargeable consumer batteries (2)  
Office furniture and panel systems  
Recycled water-borne surface coatings  
Biodegradable, non-toxic chain and saw lubricants  
Polyethylene plastic film products (3)  
Demountable partitions  
Facsimile machines (1)  
Marine inboard  
Marine foul release coatings (2)  
Business forms and other converted paper products  
Envelopes

*Guidelines Under Development*

Biodegradable non-toxic hydraulic fluids  
Industrial and commercial cleaners  
Resilient flooring  
Coated paper

*Categories Under Consideration*

Wood shakes and shingles  
Carpets  
Carpet insulation  
Pre-finished hardwood flooring  
Asphalt shingles  
Steel-based roofing products  
Fibreboard  
Concrete-based products  
Particleboard

*Panel Review Criteria*

Clothing made from certified organic cotton  
Source reduced plastic cheese packaging film  
Organic turf management service

Source reduced plastic petri dishes  
Fire door kit for retrofit projects  
Battery powered lawnmower  
Cotton swabs  
Pressed firewood logs  
Technology for industrial laboratory extractions  
Energy efficient tires  
Laser jet-desk top printers  
Household washing machines  
Household dishwashers  
Packaging management system  
Alternative water well rehabilitation technology  
Alternative source electricity generation by utilities  
Paint and varnish remover  
Outdoor furnishings manufactured from waste-wood  
Packaging management system  
Synthetic industrial lubricant  
Flushable and biodegradable sanitary napkin  
Particleboard manufactures from an agricultural fibre  
Advanced wastewater treatment system  
Re-refined industrial lubricating oil  
Pouch packaging system for liquid milk  
Biodegradable bicycle chain oil  
Alternative source electricity generation from biomass utilities  
Residential homes  
Resin used in the manufacture of compost bags  
Remanufactured mattresses  
Outdoor community events  
Electronic equipment recovery service  
Fishing sinkers  
Component pulp  
Fibreboard manufactures from recycled resources  
Warming cooking gel  
Office facilities  
Anticorrosion chemical for vehicles  
Liquid laundry detergent and fabric softeners

In the near future, the TerraChoice website will include continuously updated information on the ECP, a listing of all ECP certification criteria documents, and directions on how to order/obtain ECP documents. The website address is: [www.terrachoice.ca](http://www.terrachoice.ca).



## CHINA'S ECOLABELING PROGRAM

### Introduction

In May 1994, the Chinese government established the China Certification Committee for Environmental Labeling Products (CCEL) to administer a third-party certification program under the direction of the China State Bureau of Technology Supervision (CSBTS) and the National Environmental Protection Agency (NEPA). The establishment of CCEL was prompted by several factors, including the 1992 UN Conference on Environment and Development, after which the Chinese government declared environmental stewardship a high priority. Trade issues also influenced the government's decision to establish a national environmental labeling program since some exports, such as refrigerators and wallpaper, had been adversely affected in the international market by the lack of such a product certification program. In fact, some provinces and domestic manufacturers had already designed their own labeling programs to address these issues.

The purpose of China's environmental labeling program is to "reduce domestic environmental stress of products by using market forces as a means to supplement mandatory environmental laws." In addition, the program strives to increase public awareness of the environmental impact of consumer products, and to promote the trade of environmentally preferable products.

### Program Summary

CCEL, chaired by the Administrator of NEPA, consists of 16 government officials and eight members from various professional disciplines and stakeholder groups including environmental science, economics, quality standards organizations, consumer associations, and environmentalists. Its role is to define and administer the policy, principles, and rules of the environmental labeling program. CCEL reports to CSBTS and NEPA, and relies on a small Secretariat, seated in NEPA, to handle the day-to-day activities of the program.

China's environmental certification process begins with proposals for product categories, which may be submitted to the Secretariat by any interested party. The Secretariat reviews the proposed product category and submits its recommendations to CCEL, which then accepts or rejects the proposal. This decision is finalized only after approval by both NEPA and CSBTS.

Once a new product category is approved, the Secretariat delegates the task of drafting the new product criteria to a private standard-setting organization. This draft is edited by the Secretariat through a multi-party consultation process involving relevant experts and manufacturers. These criteria are then submitted to NEPA for approval and release to the public.

Manufacturers may then apply for product certification. To be eligible, manufacturers must be legally registered with the appropriate government agency, meet all applicable product quality standards, satisfy national and local pollution emission requirements, and must not have been fined or punished by the national or local environmental protection agency for one year prior to the application submission.

Eligible manufacturers begin the certification process by submitting an application to their local Environmental Protection Agency. The agency conducts a preliminary review of the product and submits its findings along with the original application to CCEL. A CCEL inspection team then conducts a site visit to examine both the product and production processes. In addition, product samples are tested at a separate laboratory facility. Reports of the inspection and testing procedure, along with the application, are submitted to the Secretariat, which reviews the documents and gives its comments to CCEL. CCEL will either convene a plenary meeting or distribute the application among members to make the final decision. This decision is then approved and announced by NEPA and CSBTS.

Award recipients sign a three-year contract with the CCEL Secretariat, which grants them license to use the CCEL seal of approval, given continued environmental compliance. Compliance is ensured through annual or biannual inspections performed by the local environmental protection agency.

There are fees for the application process, site inspection and product testing, and product approval. In addition, there is an annual license fee for use of the label. This fee is calculated according to a matrix incorporating product sales, the nature of the product, and manufacturer size. Such scaling helps make the label accessible to large and small manufacturers alike.

### **Program Methodology**

Selection of product categories is based on several factors that reflect the program's goal of reducing environmental degradation. The program gives preference to products that have traditionally had significant environmental impact and for which advances in the manufacturing process can bring about the reduction of such impact. In addition, products must be closely related to people's daily lives. This condition exists for two reasons: first, the widespread exposure of frequently-used products helps to raise consumer awareness of environmental impact; second, even small reductions in the purchase of widely-used products can result in a large reduction in environmental impact. Low-toxic, low-emission, and energy-saving products that themselves stimulate the development of new technology and new products are favored, as well as products that are covered by foreign environmental labeling programs or contribute to global environmental protection.

CCEL consults other environmental labeling programs in the setting of its own product criteria. Product criteria are formulated to reflect four major considerations. First, products must meet all applicable quality, safety, and hygiene standards, as stated by law. Second, labeled products must minimize their potential environmental impact. Third, the criteria should reflect both the local conditions in China. Finally, the criteria should be easily understood by the average consumer.

## References

"*ECOLABELING: Its Implications for China.*" [Online report]. URL:  
<http://iisd1.iisd.ca/trade/cciced/ecochna.htm>

Heinke, Gary W. et al., *Final Report: Development of an Eco-label Certification Programme for Hong Kong/ RC96-19*. Hong Kong: Research Centre of the Hong Kong University of Science and Technology, June 1996.

## Product Categories

*Final Categories (as of December 1994)*

Domestic freezing appliances

Gas dispersed products

Degradable film

Lead-free automobile petroleum

Water-based paint

Toilet paper

Silks

Mercury-free, cadmium-free, and lead-free rechargeable batteries





## CROATIA'S ENVIRONMENTAL LABEL

### Introduction

Croatia's Environmental Labeling program was established to "stimulate the development of new technologies, the production and consumption of environmentally friendly products, the reduction of environmental pollution, and rational resource and energy management." The program is also intended to provide consumers with a guide to make the "best choice" in terms of environmental protection. Run by the State Directorate for Environment in Croatia, the program is positive and voluntary.

To date, Croatia's program has developed criteria for 33 product categories, and the Label has been awarded to products in 15 of these categories.

### Program Summary

Croatia's Environmental Labeling program is administered by the State Directorate for Environment and is run by an expert institution. An appointed Jury, however, makes all decisions regarding the Label. The Jury is appointed by the Director of the State Directorate for Environment, and is composed of five members, including representatives from the State Directorate for Environment, the State Bureau for Standardization and Metrology, industry, trade groups, experts in environmental protection, and non-governmental environmental associations. Each Jury member serves for two years.

The Jury selects product categories that have some adverse effect on the environment. Manufacturers can propose product categories.

Product criteria are established by the expert institution for each product category. Criteria take into consideration all stages of the product's life cycle and all possible negative impacts during every stage of a product's life, from its production to its disposal. In particular, criteria are developed so that awards can be given to products:

- that endanger the environment to a lesser extent than other equivalent products,
- that can be reused,
- that contain replaceable parts,
- that reduce harmful emissions to the environment during their use, and
- whose manufacturer uses natural resources reasonably.

The development process involves the participation of experts and public stakeholders. The Jury makes the final decision on selecting product criteria. The product criteria are valid for a specific period of time that is determined for each set of criteria. At the end of the period, the Jury reviews

the criteria and determines whether the criteria are obsolete, or if they can be extended without revision.

Manufacturers of consumer goods submit applications to the State Directorate for Environment. It is the Jury's decision as to whether to forward the application to the expert institution. The expert institution conducts an audit, before and during which the following are collected or performed: product quality certificate; list of raw materials; description of the technical process; description of technological modifications; power supply improvements; choice of raw materials; comparison between the product and similar products in the Croatian market; water resource permit and waste water quantitative analysis; analysis of the product's impact on water regarding, among other things, biodegradability; outcome of examining the working environment and equipment; description of waste disposal methods; and air quality impact assessment. From the information collected during the audit, the expert institution then issues an opinion on whether or not to award the Environmental Label. The Jury evaluates the information collected during the audit to determine whether or not the product is in line with the product criteria and valid regulations and standards. The Jury makes the final decision on awarding the Label.

## References

Preradović, Nevenka. State Directorate for Environment, Republic of Croatia. Personal communication with Abt Associates. Summer 1997.

State Directorate for Environment, Republic of Croatia. *Environmental Label of the Republic of Croatia*. Summer 1997.

State Directorate for Environment, Republic of Croatia. *List of Product Categories for Which the Specific Criteria are Available*. Summer 1997.

State Directorate for Environment, Republic of Croatia. *Specific Criteria for Product Groups for the Environmental Label of the Republic of Croatia*. Summer 1997.

## Product Categories

### *Final Categories*

- Returnable paper packaging
- Returnable glass packaging
- Returnable plastic packaging
- Returnable plastic containers
- Returnable metal packaging
- Waste paper collection
- Waste glass collection
- Waste plastic collection
- Waste metal collection

Waste rubber collection  
Waste oil collection  
Scrap paper products  
Scrap glass products  
Scrap plastic products  
Scrap rubber products  
Scrap wood products  
Carbon dioxide (CO<sub>2</sub>) from fermentation waste  
Asbestos-free clutch linings  
Asbestos-free brake linings  
Matches free from toxic substances  
Fire lighting material free from hazardous substances  
Emulsifiers and dispersers of oil spills on water, free from hazardous substances  
Hygienic litter for pets free from hazardous substances  
Funeral equipment free from harmful substances  
Retreaded tires  
Reusable ribbon cassettes  
Recovered toner cartridges  
Water dispersive polymeric coatings  
Water-based adhesives  
Lubricating oil for motor saw chains  
Linen towel on the rail  
Paper products for packaging  
Detergents



# THE CZECH ECOLABEL

## Introduction

The Czech Republic environmental labeling program was initiated by the Resolution of the Czech Republic in 1993 and was started in 1994. It organizes its basic principles around the EU guidelines. “The primary objective of the Czech Eco-labeling Program is to encourage environmental protection via the production and utilization of products which have a reduced environmental impact.” The program is voluntary in nature, and supports credibility, transparency and public participation as primary principles. It also looks to provide equal access for domestic as well as imported producers. The program, to date, has announced 17 categories of products and has awarded labels to 198 products from 29 companies.

## Program Summary

The program is composed of two primary organizing bodies: the Board of the Czech Eco-labeling Program and the Czech Ecological Institute Agency. The Board is an advisory body to the Minister of the Environment and administers the program. It is composed of experts from government, research, quality testing authorities, and environmental and consumer organizations as appointed by the Minister. The Board assesses categories and criteria for products and submits suggestions for revisions of the guidelines. The Minister then awards the right to use the ecolabel and approves guidelines. The Minister also established and financially supports the Agency. In conjunction with the testing authorities and the Czech Environmental Inspection Division, the Agency is responsible for examining applications with regard to compliance to standards.

Draft guidelines for product criteria are prepared by an ad hoc group of experts and submitted to the Board. Manufacturers are closely involved with the process in order to encourage product design and development improvements. Criteria are revised every two years.

Applicants may then submit an application to the Agency for their product. An initial registration fee is collected by the Agency. If a label is awarded, the manufacturer enters into a licensing agreement with the Agency and pays a flat fee of 20,000 CZK. During this two-year contract, the Agency ensures that the manufacturer meets the requirements.

## Program Methodology

Draft guidelines for product criteria are prepared by an ad hoc group of experts and submitted to the Board. These environmental criteria are developed using a “cradle-to-grave” assessment. Manufacturers are closely involved with the process in order to encourage product design and development improvements.

## Other Information

The Czech environmental labeling program is part of the EU environmental labeling program and works toward harmonization with other countries through the EU framework. The Czech program organized a seminar titled “Eco-labelling in the Czech Republic - Harmonisation with the European Union.” In addition, 41 percent of the companies awarded labels by the program are foreign-based.

## References

Ministry of the Environment of the Czech Republic. *Eco-labelling in the Czech Republic*. February 1997.

## Product Categories (number of awarded products in parentheses)

### *Final Categories*

- Thermal insulation made from used paper (1)
- Lubricating oil for the cutting edge of chain saws
- Textile detergents
- Water dilutable paints (20)
- Gas-fueled hot-water boilers with atmospheric burners (11)
- Gas-fueled hot-water boilers with compressed air burners (6)
- Liquid cleaning agents (1)
- Water dilutable adhesives and sealants (3)
- Hygienic paper made from recycled paper
- Graph paper made from recycled paper
- Gas-fueled flow-through hot-water boilers up to an output of 50 kW (5)
- Wood-based agglomerated materials and products
- Hot-water boilers and local solid-fuel units
- Briquettes made from wood waste (1)
- Hydraulic fluids
- Gas-fueled light and dark infra-red radiators
- Surfactant-based washing cosmetics

## THE NORDIC COUNCIL'S NORDIC SWAN LABEL

### Introduction

In 1989, the Nordic Council of Ministers introduced a voluntary and neutral seal-of-approval certification program known as the Nordic Swan. Currently, Norway, Sweden, Finland, Iceland, and Denmark are participating in the program. The program was introduced in an attempt to unify the emerging ecolabeling programs that were appearing throughout the Nordic countries. The Nordic program is noteworthy because of its novel administrative structure. The Nordic Ecolabelling Board acts under the Nordic Council of Ministers and makes final program-related decisions. The participating national organizations propose new product categories, assist the Board in establishing award criteria, grant licenses, and market the program.

The Nordic environmental label is an “independent label which guarantees a certain environmental standard. Only products which satisfy strict environmental requirements on the basis of objective assessments will be allowed to display the environmental label.” The label is intended to provide consumers with guidance in choosing products least hazardous to the environment, to stimulate manufacturers to develop products and processes that are better for the environment, and to use market forces as a complement to environmental legislation.

A self-assessment of the program found that the “Nordic Eco-Labeling system - the ‘Swan’ symbol - is a fairly successful one, commanding a high level of respect among consumers and producers.” A consumer survey conducted in December 1996 found that 80 percent of Norwegian customers knew that the Swan was the official environmental label, and 79 percent said that they prefer products labeled with the Swan. The widespread use of the Swan label on the most common cleaning products has contributed to the label’s visibility.

As of July 1997, criteria for 42 product categories had been established, proposed criteria had been sent out for review for four product categories, criteria were under development for eight, and preliminary studies were being conducted for another four. Licenses have been awarded to over 350 companies, and over 1,200 products currently carry the Nordic Swan logo. Of the licenses awarded, roughly 20 percent are from non-Nordic countries. Most of the foreign products carrying the Swan label are paper products; however, computers and photocopiers also carry the label. The number of products to which the Nordic Swan has been awarded has steadily increased over time, although when the paper criteria were made stricter in mid-1997, over 100 product licenses were withdrawn. Given that the new criteria were available six months prior to the change, about half the companies had already reapplied and re-qualified for the Swan logo.

### Recent Developments

The most important change in the Nordic Swan program is the recent addition of Denmark. Denmark has been a member of the Nordic Council since its foundation in the 1950s; however, when the Nordic Council established the Swan program Denmark was the only Nordic member of

the EU. Rather than adopting the Swan program, it chose to act as an observer and joined the newly formed EU ecolabel program instead. Because the development of the EU ecolabel program has not progressed as was anticipated, the Danish parliament decided to join the Nordic Swan program in 1997.

Another recent development is the thorough evaluation of the ecolabeling system ordered by the Nordic Council of Ministers in 1994. The results of the evaluation pointed out several inherent conflicts within the Nordic Council's system, and proposed specific changes with which to make improvements. These proposed changes included: 1) defining environmental objectives more clearly, 2) reinforcing activities at the Nordic level, and 3) improving the ability of central management to control the program's objectives.

### **Program Summary**

The Nordic Swan program is administered in Norway, Sweden, Finland, Iceland, and Denmark by national boards, coordinated by the Nordic Ecolabelling Board, which in turn acts under the authority of the Nordic Council of Ministers. The program's agency in Norway is administered as a foundation, while the Swedish, Finnish, and Danish agencies are incorporated into their national standardization organizations. The program in Iceland is housed in the Ministry of Environment. The five programs are very similar to ensure smooth operation and mutual recognition of activities among participating countries. Fees, structures, and processes are quite similar among the programs.

The national Nordic ecolabeling organizations propose product groups, and, according to the General Agreement for Nordic Eco-labelling, a pilot study is conducted to assess "the 1) qualitative and quantitative environmental problems associated with the product, 2) scope available for environmental improvements, 3) information needed by consumers, 4) requirements of commerce and industry for ecolabelling in the field, 5) expected costs of the development of criteria, and 6) product and market analyses for the Nordic market." The Nordic Ecolabelling Board makes the final decision on the selection of product groups, and determines which country will take the lead in developing the criteria.

The Ecolabelling Board usually appoints an expert group to work in an advisory capacity with the national organizations to develop the product criteria. The expert group is made up of representatives from the particular industry and consumer and environmental organizations and includes representatives from each of the Nordic countries. Once developed into a draft, the criteria are sent out for review in the Nordic countries. According to "Guidelines for Nordic Ecolabelling," "Information concerning criteria established, ... the composition of expert groups, and the state of progress of current work shall be open to the public.... The widest possible circle of interested parties should be heard in connection with all draft criteria." The criteria are to take into account environmental factors throughout the product's life, although the program considers it impossible to evaluate the total influence of a product on the environment. In addition to environmental criteria, the Swan also has a general regulation stating that manufacturers must



comply with domestic labor regulations, as well as quality and performance requirements.

The environmental protection requirements are set such that the market share of products that meet the criteria should not exceed one third of the total Nordic market. In the past, however, there have been situations that made this goal difficult to reach. At one point, the trade association of tissue paper manufacturers boycotted the Swan, and none of their member companies applied for it, even though they marketed their products' environmental qualities. Little was done on the part of the Swan program to negotiate, although the story of the boycott was in the press, and after about a year, the boycott was broken by one of the member companies.

The final set of criteria is either accepted or rejected by the Ecolabelling Board, and all decisions must be unanimous. Approved criteria are widely available in English, and are available electronically on the countries' Web sites. Once approved by the Board, a product category and its criteria are valid in all of the Nordic Council countries. Product criteria are usually valid for three years, at which point they are reviewed, taking into consideration changes in production technology and new knowledge about material inputs. The Board has the ability to cancel or modify the criteria during this period if new information is discovered.

To receive the Nordic Swan, manufacturers from within a Nordic Council country send an application to the program agency in his/her own country. Foreign manufacturers seeking an award apply to the country that developed the product category. Claims made by manufacturers are tested in independent laboratories, and manufacturers are required to perform and report the results of tests to ensure that all other requirements in the criteria are met for all labeled products. It is uncommon for products to fail because manufacturers have access to the criteria before they submit their application. Once an award has been made to a product by one country, the license to use the label is valid in any of the other participating countries, although manufacturers must pay an additional fee in each country to register their product. Follow-up inspections of products and processes are conducted to verify compliance with the award criteria. All documents submitted by the manufacturer are confidential.

Applicants for the Nordic Swan are required to pay a one-time application fee, between approximately US\$375-1,500, depending on the country. If the application is granted, licensees also must pay an annual fee in each country where the label is used. The annual fee is .04 percent of the applicant's annual sales in each country where the product is registered, with a minimum of approximately US\$750-1,400, and a maximum of approximately US\$5,500-45,000. The Nordic Swan's sliding fee scale is designed to be accessible to small and medium-sized businesses; several companies participating have five or fewer employees. Approximately half of the program's funding comes from these fees, and approximately half comes from the participants' federal governments.

Products bearing the Swan logo are also purchased at both the corporate and government level. Many companies and national and local governments have a purchasing policy requiring that products they purchase are labeled with the Swan or its equivalent.

## Program Methodology

For each set of labeling criteria, a report is produced that contains a discussion of the significant environmental impacts throughout the product life cycle and a discussion of the criteria themselves. The lead country for the labeling criteria may contract the evaluation of the environmental impacts to a consultant or academic expert. As a result of the evaluation of the Nordic program and the recommendations by the Nordic Council of Ministers, there is now more effort to include each of the participating countries in the development of criteria. There is also more effort, such as through the use of written product category environmental evaluations and draft criteria, to increase transparency and participation by other stakeholders in the process.

For example, for the criteria for furniture, the report discussed each of the major components of furniture (wood, fiberboard, metal, plastic, glazing), the manufacturing of furniture, including the use of adhesives and coatings, and the associated environmental impacts of each life cycle stage.

Following are the types of criteria for labeling of furniture products that were developed to address the significant environmental impacts:

**Wood:** The criteria require the applicant to state the type of wood used and its place of origin. This requirement will lead to criteria for sustainable forestry, which will be developed in the future.

**Fiberboard:** Wood-based board must satisfy the Nordic criteria for environmental labeling of fiberboard panels, which primarily deal with formaldehyde emissions.

**Plastic:** Additives to plastic materials shall not be based on cadmium, lead, mercury or other materials on a restricted list.

**Metals:** Halogenated organic solvents shall not be used in the processing or surface treatment of metals. Metals, with the exception of smaller parts as screws, hinges and mountings, shall not be plated with cadmium, nickel, chrome, and their compounds. Metal paint shall not contain pigments and additives based on certain heavy metals or contain high solvent content.

**Glass:** Lead glazing is not permitted.

**Adhesives/coatings:** The criteria prohibit adhesives or coatings that require health warnings in any Nordic country because they are classified as allergenic, toxic, carcinogenic, mutagenic or damaging to reproduction. There are also restrictions on free formaldehyde content and on other listed hazardous substances.

## Other Information

The Nordic Ecolabelling Board is a member of GEN and most of the Nordic countries are participating with the development of ISO draft standards. Through its work with GEN and ISO, the Board hopes to increase the coordination with other ecolabeling programs.

The Board is also working with the EU to further develop the EU ecolabel scheme. According to Norway's information officer, it is Norway's official policy that they will "give up the Swan label if and when the EU ecolabel is able to replace it." The EU ecolabel will be considered a success when 80 percent of the public prefer EU labeled products over Swan labeled products; products in "central" categories like paper and detergents carry the EU ecolabel; and manufacturers apply for the EU ecolabel more than for the Swan. Norway's information officer does not foresee a difficult transition from the Swan to the EU if it is based on the aforementioned market pressures. The information officer also reports that the EU also believes that national and regional labels should be phased out over the next five years. This non-market based transition could be more problematic, especially depending on the relative strength of the EU ecolabel program at that time.

## References

About the Swan label (Norway). [Online: Web]. Cited 8 September 1997. URL: <http://www.interface.no/ecolabel/english/index.htm>

Backman, Mikael. Lund University, International Institute for Industrial Environmental Economics. Personal communication with Gary Davis. November 1997.

Danish Environmental Protection Agency (Denmark). [Online: Web]. Updated 1996, cited 5 September 1997. URL: <http://www.mst.dk/depa/index.htm>

Finnish Standards Association (Finland). [Online: Web]. Updated 4 September 1997, cited 8 September 1997. URL: <http://www.sfs.fi/summary.htm>

Global Ecolabel Network. *GENews*. March 1997.

Konsument verket - KO. *The Consumer and the Environment; Results of a survey into awareness of the environment amongst Swedish consumers*. Konsumentverket & Eurika Research AB. Sweden. 1996.

Kankaanpää, Anne. SFS-ECOLABELLING, Finland. Personal communication with Abt Associates. Summer 1997.

Nordic Council of Ministers. *The Nordic Swan; Your environmental choice*.

Nordic Council of Ministers. *General Agreement for Nordic Eco-labelling*. 5 October 1994.

Nordic Council of Ministers. *Guidelines for Nordic Eco-labelling*. 24 January 1996.

Nordic Council of Ministers. *Nordic Eco-labelling; Scheme and Evaluation*. 1996.

Nordic Ecolabelling Board. *Environmental strategy*. 2 February 1997.

Nordic Ecolabelling Program. *Nordic Ecolabelling of Wooden Furniture*. 31/1.2 19 September, 1996.

Nordic Ecolabelling; The Swan (Sweden). [Online: Web]. Updated 7 April 1997, cited 8 September 1997. URL: <http://www.sis.se/Miljo/ecolabel.htm>

Nordic Environmental Label (Norway, Sweden, Finland & Iceland). [Online: Web]. Updated 26 March 1997, cited 8 September 1997. URL: <http://www.interchg.ubc.ca/ecolabel/nordic.html>

Organization for Economic Co-operation and Development, *Case Study on Eco-Labelling Schemes*. Paris. 30 December 1997.

SFS-ECOLABELLING. *The Environment Deserves an Award; Nordic Environmental Label*. 1997.

SFS-ECOLABELLING. *Nordic Environmental Labelling; Status of Licenses and Criteria Development*. June 1997.

Stokke, Jan Erik. Information Officer, Ecolabeling Norway. Personal communication with Abt Associates. Summer 1997.

#### **Product Categories** (number of awarded products in parentheses)

##### *Final Categories*

Adhesives (3)

All purpose cleaners (24)

Automatic dishwashing detergents (10)

Building materials: chipboard fibre board and gypsum board (8)

Batteries, Primary (5)

Batteries, Rechargeable (6)

Car care products (57)

Chain lubricants (1)

Chemical deicers

Closed toilet systems (1)

Coffee filters

Composters (12)  
Copying machines (3)  
Correction fluids  
Detergents for sanitary facilities (12)  
Diapers/nappies (6)  
Diapers Textile  
Dishwashing machines  
Dust binding agents  
Female sanitary products  
Flooring materials (7)  
Floor care products  
Graphic products  
Grease proof paper  
Hand dishwashing detergents (4)  
Tissue paper (2)  
Lawnmowers (9)  
Light sources  
Marine engines  
Newsprint paper  
Oil burners & oilburner/boiler combinations (5)  
Paper envelopes (12)  
Personal computers (2)  
Printed papers (50)  
Printing papers (46)  
Printers & Telefaxes  
Refrigerators, freezers  
Shampoo & Soap (2)  
System for towels in dispensers (1)  
Textile detergents (33)  
Textiles (4)  
Tissue paper (2)  
Toner cartridges (14)  
Wallcoverings  
Washing machines (1)  
Wooden furniture and fitments (6)  
Writing instruments (1)

*Criteria Under Review*

Dustbinning agents for roads  
Folders and ring binders (Fin)  
Packaging paper (Sw)  
Windows (Fin)  
Forestry, sawmill products (Sw)

*Criteria Under Development*

Audiovisual equipment  
Boats (Fin)  
Boat care products  
Concrete (Sw)  
Industrial degreasing (Sw)  
Heating systems for solid fuels (Sw)  
Refrigerating and heat pump plants (Sw)  
Tires (Fin)  
Water and sewage pipes (Sw)  
Water taps with fittings  
Wood fired furnaces (Sw)

*Preliminary Studies*

Sealing agents  
Services (Sw)  
Telephones (Fin)

## EUROPEAN UNION ECO-LABEL PROGRAMME

### Introduction

On March 23, 1992, the Council of Ministers of the European Community (EC) adopted a regulation that created a European Union (EU) “eco-label award scheme.” The EU Eco-label program is intended to “promote the design, production, marketing and use of products which have a reduced environmental impact during their entire life cycle, and to provide consumers with better information on the environmental impact of products.” (Commission of the European Communities, 1996.) The program is an element of a broader EU strategy to “promote sustainable production and consumption.”

The EU Eco-label is run by the European Commission and administered at the national level by Competent Bodies, which are representative organizations chosen within EU member states. Currently there are Competent Bodies in 17 countries.<sup>3</sup> Eight of the member states participate in their own environmental labeling program, while other national programs rely strictly on the EU Eco-label.<sup>4</sup> Currently, the EU program is being revised (the revision process is explained below). The proposal for the revision envisions full complementarity between the EU Eco-label and the national labels with regard to those products for which there are EU criteria.

To date, criteria have been published for 11 product groups and 12 others are in the development process. The Eco-label has been awarded to 182 products, which corresponds to 40 licences awarded to 22 manufacturers and one importer. The EU Eco-label program considers it too early to assess the market effects of the Eco-label, given that it is still developing and has yet to gain visibility.

### Recent Developments

The EU Eco-label program is currently undergoing a major revision of Regulation 880/92. While the program has evolved considerably since it was created in 1992, it is apparent to the European Commission that there is a need to “streamline and improve the approach, methodologies, and working procedures in order to increase its effectiveness, efficiency and transparency.” (EC Newsletter on the EU Eco-label, 1/97) According to the *Eco-label Revision, COM (96) 603 final, SUMMARY*, the current program needs to be revised because:

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<sup>3</sup> Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom, and Norway. Norway and Iceland have Competent Bodies but cannot vote because they are not EU members, but members of European Economic Area (EEA).

<sup>4</sup> Austria, France, Germany, Netherlands, and Spain have their own ecolabeling programs. Denmark, Finland, and Sweden participate in the Nordic Swan. Iceland and Norway participate in the Swan as well, but are not member states.

1. the present Eco-label program is considered to be too bureaucratic;
2. the program needs to be clarified, streamlined, and simplified in order to achieve greater market penetration;
3. there is international pressure to better incorporate trade principals such as transparency, non-discrimination, and use of internationally recognized standards; and
4. the proliferation of national ecolabel programs needs to be to curbed, since it can lead to internal market distortions and consumer confusion.

The following are among some of the changes that the Commission proposed in the revision:

1. establishment of an independent European Eco-label Organization to develop criteria, thus taking the political process out of the eco-label scheme;
2. introduction of a graduated label with one “flower” representing the achievement of a baseline standard, and two or three representing an improvement;
3. introduction of substantive provisions for ensuring compatibility with international trade principals;
4. increased “complementarity” between the EU and the national programs in the EU, and introduction of a ceiling for the annual fee and a reduced fee for small and medium-sized businesses;
5. ability of non-European producers to apply directly to the scheme; and
6. ability of retailers to apply for products under their own brand name.

Before being adopted, the proposal must be approved by both Parliament and the Council of Ministers. The approval process is iterative, and will require compromises and negotiations. The European Parliament is currently preparing comments on the proposal, at which point the proposal and comments will be sent to the Council of Ministers for comments. A representative from the EU Eco-label program reported that the proposed changes could be adopted by the end of 1998; however, there is no schedule. The representative pointed out that the revision process is quite slow, due to the numerous institutions, industry representatives, and government bodies that are involved, as well as to the wide range of views about the EU Eco-label that must be considered.

One of the aims of the EU revisions is to create conditions favorable to ultimately establishing a single ecolabel in the European Community. According to the EU Eco-label program, it is not likely that the EU Eco-label without programmatic revisions will “supersede national schemes in the long run,” unless “positive action” is taken to stop the proliferation of national programs. Even though national programs have contributed to environmental improvements, they limit the market value of the EU Eco-label; the co-existence of national ecolabels, private ecolabels, and the EU Eco-label is causing confusion in the marketplace. The EU Eco-label program is proposing that over the next five years, national programs phase out the separate labeling of product categories that are covered by the EU Eco-label program. The EU representative noted that the full transition to a single European ecolabel would take much more time.



## Program Summary

Several bodies are currently involved in the development to the EU Eco-label program. The proposed changes would greatly simplify this process. Under a revised Regulation, the European Commission will be responsible for the adoption of the Eco-label product groups through Commission's Decisions published in the *EC Official Journal*. The Commission facilitates the program operations and seeks guidance from and consensus among all the other parties. Competent Bodies (representative organizations within each EU member state) are designated in Member States to administer the program at the national level. The Committee of Competent Bodies meets every two to three months and before decisions are made. Interest groups participate in these meetings. The Consultation Forum provides stakeholder input, and is composed of Community-level representatives of five interest groups: industry, commerce, consumer organizations, environmental organizations, and trade unions. There are 14 members in the Forum. The Regulatory Committee, chaired by a non-voting representative of the Commission, has final approval of criteria for product categories and settles any objections made during the award process.

Proposals for new product categories are accepted from any interested party. The selection of product categories is usually initiated by the Commission. The Commission conducts a feasibility study to assess the suitability of the proposed product group, which is evaluated by the ad hoc working group. The ad hoc working group meets at key stages of the process, and is composed of representatives from Competent Bodies, interest groups, and the Consultation Forum.

To develop product criteria, the Commission conducts a market survey to understand the market, and takes an inventory of the impacts of the product on the environment. The impacts are quantified objectively on a "cradle-to-grave" or life-cycle basis using the indicative assessment matrix shown below. These impacts are then evaluated in an environmental impact assessment, which involves a life-cycle assessment (LCA). (The European Commission has issued guidelines for applying LCA.) Based on this analysis, product criteria are proposed. EU's goal is that the product criteria are strict enough so that ecolabeled products represent only 5 to 30 percent market share. The proposed criteria are presented to the Consultation Forum and voted upon by the Regulatory Committee, although the Commission makes the final decision on adopting the criteria. Criteria are valid for three years, at which point they are re-evaluated.

Competent Bodies accept applications from manufacturers of products that are produced or first marketed in their country, and from foreign manufacturers who first import into the EU through their country. Results of independent testing must be submitted with the application, and testing fees are to be paid by the applicant. Awards given to products must be approved by all Competent Bodies, via the Commission. Competent Bodies award the ecolabels within their country, and they must monitor that the ecolabels are properly used.

An application fee of 500 ECUs (~US\$550) is required to cover administration costs, and, if the product receives the award, an annual licensing fee is calculated as 0.15 percent of the annual volume of sales within the EC. These are guideline figures; Competent Bodies have the discretion to set actual fees at levels 20 percent greater or smaller than the guideline figures.

## **Program Methodology**

To promote consistency in the use of LCA in the Eco-label scheme, the European Commission has issued Guidelines for the Application of Life Cycle Assessment in the EU Eco-Label Award Scheme, prepared by the so-called “Groupe des Sages,” a group of European LCA experts. First, the guidelines make it clear that “LCA does not replace, or eliminate the need for other considerations and processes within the decision-making procedure aimed at setting eco-label criteria.” LCA, according to the guidelines, is “used to identify key environmental aspects for the product group considered and provide quantified data on the range of such impacts.” Other assessments are also necessary to determine the criteria, including the market share of the product, the technical and economic feasibility of meeting the criteria, and the ability of the criteria to achieve maximum overall environmental improvement.

The proposed approach for criteria development has not yet resulted in any product criteria, but the following examples illustrate the manner in which the studies and criteria development are proceeding under the new guidelines.

### **Example: Converted Paper Products**

The contract to develop the draft criteria for labeling converted paper products was awarded in late 1995 to a Danish consulting firm. Converted paper products include envelopes, stationary, notebooks, and account registers as the principal product categories. The consultants prepared a market and feasibility survey in early 1996, which was reviewed in April 1996 by the ad hoc working group of experts that had been assembled by the EC. The ad hoc working group decided that an extended market survey should be prepared in order to define as many product subcategories for the labeling criteria as possible in order to widen the environmental benefits of the label. This extended market survey was completed in October 1996 and identified ten product subcategories within the overall category of converted paper products.

From this market study a goal and scope were defined for a life-cycle inventory that was completed in October 1996. It was difficult defining a functional unit that would serve as the basis for LCA of several diverse subcategories of products. The functional unit recommended was 1 kg of paper used for the further manufacturing of the products. The LCA performed stopped at this boundary and did not develop quantitative data on production processes beyond the production of paper.

The EC and the consultants originally intended to gather primary data from the product

manufacturers, but these manufacturers and their trade associations were unable or unwilling to provide the data for such a diverse range of product subcategories. Instead, the consultants relied upon publicly available databases for data on the significant manufacturing processes involved in the life-cycle of paper. The LCA report issued in October 1996 was more of a compilation of these process data than an actual LCA, because it did not combine the processes and process data into the production of a functional unit of 1 kg of paper.

The ad hoc working group met again in the fall of 1996 and could not come to consensus on the functional unit that would apply to all of the product subcategories. There was a concern that the proposed functional unit would focus more on the process of paper making than on the finished products. As a result of the lack of consensus, one product subcategory was chosen, envelopes, for further study and development of labeling criteria. Envelopes were chosen because they are a well-defined product subcategory and are produced and consumed in greater quantities than any of the other subcategories. While it was suggested by the ad hoc working group that plastic envelopes should be considered in the product category, it was not feasible to develop a market study and it was not feasible to develop a functional unit for evaluation. The LCA study did include some data concerning plastic envelopes to allow for comparison to paper envelopes.

Once the product category was narrowed to paper envelopes, the functional unit was defined as standard-sized envelopes with a clear plastic window. The consultants defined the goal of the LCA as “semi-quantitative,” because it was not possible within the time and resources available to compile data for all the products and substances involved in the production of envelopes and it was impossible to define certain inputs during the manufacturing stage (e.g., the amount of ink used to print on the envelope) in terms of the functional unit of the envelope. The quantitative data were mostly related to the pulp and paper process, whereas the qualitative information was mostly related to the chemicals used when converting paper to envelopes and to the specific properties of substances that can affect the recycling of paper envelopes. Recycled paper as an input and recycling as an end-of-life management method were included in the LCA study.

Meetings were held with five envelope producers during the LCA phase to gain a clear understanding of the process of manufacturing and to collect some specific data. A meeting was also held with Greenpeace International, and written comments from the American Forest and Paper Association were also taken into account.

Although life-cycle data on some of the materials used in envelopes, such as glues, were not gathered, it was still necessary and possible to address these materials in the development of criteria. Glues, for instance, can contain toxic substances and can also significantly affect recyclability of envelopes. Lists of substances contained in these glues were made as part of the study.

The LCA report discussed in detail each stage of the life cycle of envelopes and identified the key environmental features for each. Then an impact assessment was performed by categorizing key inputs and outputs into impact categories and identifying impacts as local, regional or global. The

impact categories addressed were: energy consumption (e.g., purchased electricity, feedstock energy in raw material); consumption of raw materials (e.g., water, wood, recycled paper, fossil fuels); eutrophication and pollution of streams and lakes with organic matter (e.g., Chemical Oxygen Demand - COD); toxicity of halogenated organic discharges to water (e.g., Adsorbable Organically bound Halogens - AOX); global warming--emissions of CO<sub>2</sub>, etc.; acid rain--emissions of SO<sub>2</sub>, NO<sub>x</sub>; and substances affecting recycling of paper products.

Labeling criteria were proposed to address these life-cycle impacts, which included the following: requirement to use recycled paper or wood from sustainably managed forests as raw material; substances used for surface coatings, sizing, and glueing should be re-pulpable when the paper is recycled; restrictions on substances used for glues, coatings and inks due to toxicity; the envelope should be de-inkable; plastic films should not be used as coatings; plastic windows should be either re-pulpable or filterable when the paper is recycled; limits on releases of COD and AOX to water from the pulp and paper production; limits on emissions of CO<sub>2</sub>, SO<sub>2</sub>, and NO<sub>2</sub> to air for pulp and paper production; limit on percentage waste from cutting of envelopes; limit on energy consumption in pulp and paper production.

#### Example: Shampoos

The EC contracted with the consulting firm to perform the feasibility and market study and LCA for shampoos in late 1995. The feasibility report, delivered in April 1996, was based on a review of the industry and consumer literature, interviews with company representatives and trade association representatives, and a review of available life-cycle data for major ingredients of shampoos (surfactants). The report recommended proceeding with development of labeling criteria for liquid shampoos, excluding professional shampoos, dry or mousse shampoos, and shampoos sold only by prescription. Because the amount of shampoo per use varies so much with the user, the consulting firm recommended that the functional unit be based upon the main characteristic of shampoos, their detergent power.

The feasibility study and recommendations were discussed in the ad hoc working group in the spring of 1996. Because there was no reliable test available to develop a functional unit based upon the detergent power of shampoos, the ad hoc working group decided to base the functional unit on the dry organic content of shampoos per average dose, which was defined as 3 grams of dry organic matter. The consultants then prepared an LCA study based on this functional unit to be used to develop the labeling criteria.

The data collection for the LCA study was made difficult by lack of industry participation. The industry's lack of participation stemmed, at least in part, from a disagreement with the EC over whether a practical functional unit could be established for the development of criteria for labeling. As a result, the consultants focused the life-cycle inventory on the major ingredients of shampoos, surfactants, and on the packaging, and relied upon existing LCA data for the study. Not surprisingly, the use stage predominated for energy consumption and air emissions, especially when the consultants took into account the use of hot water for washing and rinsing and the use of

a hair dryer for drying the hair. Based upon the available surfactant life-cycle inventory data, the consultants concluded that differences in surfactant production impacts were dwarfed by the use stage impacts. The firm also concluded that packaging type was significant principally in the end-of-life stage when incineration was included as a waste management method for certain plastics.

Applying life-cycle impact assessment to the inventory results, the consultants recommended that criteria for labeling be set to address the following impacts: energy and water consumed during use--consumer guidance on the bottle could recommend lowering water temperature, for example, or the use of water conserving devices; packaging waste generation--decrease primary packaging through refills or by increasing recycled content of bottle; water pollution during use--criteria to address biodegradability, bioaccumulation, and nitrogen content; and dangerous ingredients--criteria to restrict certain toxic substances.

### **Other Information**

The EU Eco-labeling program is actively participating in ISO draft standards negotiations. The proposed changes to the EU program are designed in part to ensure compatibility with the ISO standards for environmental labeling. When ISO standards are finalized, the EU program will incorporate them into their standards. In addition, steps have been taken to ensure full access, non discrimination (EU and non-EU parties will be “treated on an equal footing”), and transparency for foreign interests (largely late in the process). No mention is made of possible conflicts between a life-cycle-based product evaluation and GATT’s prohibition of trade restrictions based on processing and production methods (PPMs). The EU is not a member of GEN, but may request to become a member shortly. Several of the member countries are members of GEN.

In an effort to make the EU Eco-label program transparent and to increase its visibility, the following information is published in the *Official Journal of the European Communities*: Commission decisions on product groups, product criteria, a list of products for which the Eco-label has been awarded, the names of the licensees, and the names and addresses of the Competent Bodies. In addition, a quarterly newspaper is published by the Commission that provides “an update of the work in progress for each product group,” as well as the names of the Competent Bodies and the members of the Consultation Forum (OECD, 14).

The EU Eco-label program does not currently have a program for small and medium-sized businesses; however, it is accessible to them via a sliding fee scale. As mentioned above, the proposed revision would include provisions to reduce the annual fee for small and medium-sized businesses.

In addition to the Eco-label program, the EU is going to introduce a directive for end-of-life electronic equipment. Initially it will address the electronics industry. It has not been decided, however, if the directive will follow the published draft directive for end-of-life vehicles. The planning group will begin working on the draft in fall of 1997 and hopes to present the draft to the

Member States and industry later in the fall.

## References

Aksel Bagh, John, dk-Teknik. Personal communication with Gary Davis. 23 April 1997.

Butzkamm, Rainer. European Commission, Brussels. Personal communication with Abt Associates. Summer 1997.

Butzkamm, Ranier, and Olivier Luansi. European Commission, DGXI. Personal communication with Gary Davis. April 24, 1997.

Ecobilan. *European Ecolabelling for Shampoos: Feasibility Study*. April 1996.

Ecobilan. *European Ecolabelling for Shampoos: Inventory, Environmental Impact Assessment*. Feb. 1997.

Etienne, Roger. Ecobilan. Personal communication with Gary Davis. 25 April 1997.

Eco-label (EU). [Online: Web]. Cited 16 January 1997. URL: <http://www.ns.ec.gc.ca/g7/eco-ur.html>

European Commission. *Commission Information on Eco-Labeling: Procedural Guidelines for the establishment of product groups and ecological criteria*, Issue No. 6. June 1994.

European Communities, Commission of the, *Eco-label Revision; COM (96) 603 final; SUMMARY*.

European Communities, Commission of the, *EU Eco-label Awards*. 14 May 1997.

European Communities, Commission of the, *Proposal for a COUNCIL REGULATION (EC) on a revised Community eco-label award scheme; COM (96) 603 final*. Brussels: 11 December 1996.

European Commission, prepared by the Groupe des Sages. *Guidelines for the Application of Life Cycle Assessment in the EU Eco-label Award Scheme*. 1997.

European Commission, Environment, Nuclear Safety & Civil Protection. Several pages on eco-label.[Online: Web]. Cited 2 July 1997. URL: <http://europa.eu.int/en/comm/dg11/dg11home.html>

Global Ecolabel Network. *GENews*. March 1997.

H.A. Udo de Haes, et al. *Guidelines for the Application of Life-Cycle Assessment in the EU Ecolabelling Programme*, Leiden, The Netherlands. May 1994.

Heinke, Gary W. et al., *Final Report: Development of an Eco-label Certification Programme for Hong Kong/ RC96-19*. Hong Kong: Research Centre of the Hong Kong University of Science and Technology, June 1996.

Jones, Michael R. UK Ecolabelling Board. Personal communication with Abt Associates. January 1997.

Organization for Economic Co-operation and Development, *Case Study on Eco-Labeling Schemes*. Paris. 30 December 1997.

*Pulp & Paper*. "EU's new 'eco-label' called trade barrier." October 1996: 19-20.

UK Ecolabelling Board. *UK Ecolabelling Board Newsletter: Ecolabel Criteria*. No. 10. August 1996.

UK Ecolabelling Board. *UK Ecolabelling Board Newsletter*. No. 11. April 1997.

Wheeler, David. "EC Ecolabelling myths." *Chemistry and Industry*. 5 April 1993.

## **Product Categories**

### *Final Categories*

- Washing machines
- Soil improvers
- Toilet paper
- Paper kitchen rolls
- Laundry detergents
- Single-ended light bulbs
- Indoor paints and varnishes
- Bed-linen and T-shirts
- Double-ended light bulbs
- Copying paper
- Refrigerators

### *Criteria Under Review*

- Dishwashers (being revised)
- Footwear
- Cat-litter

### *Study Underway*

Bed mattresses  
Batteries for consumer goods  
Floor-cleaning products  
Detergents for dishwashers  
Shampoos  
Rubbish bags  
Converted paper products

*Study Temporarily Suspended*

Growing media  
Insulation materials  
Hair sprays

*Preliminary Phase of Study*

Personal computers  
Textile products



## FRANCE'S NF-ENVIRONNEMENT MARK

### Introduction

France's national, voluntary ecolabeling program, the NF-Environnement Mark (Norme Française Environnement), has two functions: first, to fulfill the need for reliable information on the environmental attributes of a product, and second, to recognize and reward companies that take environmental attributes into consideration when making a product. The NF-Environnement Mark is a seal-of-approval program aimed at certifying products that have a reduced negative impact on the environment. Development of the label began in 1989. However, because of initial opposition from industry, the program was not fully operational until 1992. The main administrative body for the NF-Environnement Mark is the AFNOR (Association Française de Normalisation,) the standards institute of France.

As a relatively new program, there have been only a few product categories for which product criteria have been established. Currently, the NF-Environnement Mark can be awarded to products in six product categories. There are over 300 products that carry the NF-Environnement Mark with the majority of these in the paints and varnishes (160) and garbage bag categories (100), because these were two of the first categories established. The number of eco-certified products in the paints and varnishes category is expected to drop once criteria for this category are revised.

Despite being a relatively new program, the awareness of ecolabeling in France is growing. In 1996, AFNOR asked CREDOC, one of France's largest national polling agencies, to survey 2,000 French households (representative of the population in France). The purpose of the survey was to characterize consumers' opinions on ecolabeling and environmental products. According to the survey, 63 percent of the respondents said that there is a lack of quantitative and qualitative information about "green" products and 92 percent of those surveyed said that they preferred products with less packaging. Of those surveyed, 54 percent said that they would be willing to pay up to 10 percent more for ecological products. The program hopes that "consumer leaders," those who are aware of the NF-Environnement Mark and ecolabeling in general, will spread the word to others about ecolabeled products (Bøeglin, 1997).

### Recent Developments

On June 24, 1992, work on NF-Environnement Mark was suspended by the AFNOR pending a re-evaluation of its methodology. Originally, the NF-Environnement Mark planned to use a multi-criteria matrix similar to Blue Angel and the EU Eco-label. Products were assessed using a systematic life-cycle assessment (LCA), which looked at products from "cradle-to-grave" (i.e., amount and types of raw materials used, production, transportation, effects of consumption, and disposal), to evaluate their overall environmental impacts at each of these stages. However, because of the time-consuming nature and costs associated with LCA, AFNOR decided upon a modified life-cycle analysis approach, called the "New Simplified Procedure," to develop criteria and to evaluate products to receive the label (Bøeglin, 1997). This new procedure uses a semi-

qualitative life-cycle assessment for the product, and identifies the “key stages” in the product’s life cycle that have the most significant environmental impacts. This new process is iterative based on both qualitative and quantitative data. The “New Simplified Procedure” was adopted to make the NF-Environnement Mark less expensive and more available to small and medium-sized businesses and industries.

NF-Environnement Mark plans to coordinate its efforts with other European programs, “both through the process of harmonization of standards and through its participation in European reciprocal recognition agreements” (General Rules, 1992). As a result of this coordination of efforts, the product criteria for paints and varnishes were approved on June 3, 1992, based on a study originally conducted for the EU Eco-label. NF-Environnement Mark is currently not a member of the Global Ecolabelling Network (GEN) for financial and logistical reasons. However, AFNOR is considering becoming a member soon to take advantage of the information exchanged through GEN membership. AFNOR participates regularly in meetings and exchanges with other ecolabeling programs on trade issues, standards development, and program implementation.

### **Program Summary**

Four groups are involved in the NF-Environnement Mark program: the NF Environmental Label Committee (Comité de la Marque), composed of 18 representatives from various stakeholders, including industry, manufacturers, wholesalers, consumer and environmental protection associations, and the French Ministry for the Environment; the ADEME (French Energy Management and Environment Agency); the AFNOR (the French Institute for Standards); and other stakeholders particularly interested in the product category.

The NF-Environnement Mark can be awarded to consumer goods and intermediate products. Theoretically, anyone can propose new product categories. In practice, however, industry representatives or environmental authorities such as ADEME, typically propose products that they feel may be suitable for the ecolabel. These proposals are collected by AFNOR and submitted to the Label Committee, who then chooses the product categories for the ecolabel. Based on environmental evaluations using the “New Simplified Approach,” the Label Committee, decides if the overall product group(s) in which the proposed product(s) belong, would be good candidates for the NF-Environnement Mark.

Draft product criteria, or as they are known, the “Réglement Technique” (Technical Rule), include all the specific guidelines (environmental, product performance, advertising, etc.) which manufacturers must meet to be awarded the NF-Environnement Mark. Once finalized by the Committee and approved by the General Director of AFNOR, the criteria are published in the *Journal Officiel* (France’s equivalent of the United States Federal Register), and applications for the NF-Environnement Mark are accepted. Product criteria are usually re-evaluated every three

years, but may be evaluated sooner if there are new breakthroughs in technology relating to the product category. Only the garbage bag and paints and varnishes product categories have reached their three-year revision periods -- the other four product categories have been so recently established that they still have another one to two years before their product criteria are re-considered.

Applications for the NF-Environnement Mark are sent to the General Director of AFNOR. The manufacturer must pay a flat-rate registration fee of 420 Francs (approximately \$2,500 US) to cover the costs of processing the application. In addition, the manufacturer must repay the costs of verifying that the product conforms to the Technical Rules, as well as pay a site visit fee, an administration fee, and compliance test fees. In addition, an annual royalty payment (0.1 percent of the product sales) is payable for the right to use the NF-Environnement logo. If a manufacturer is found to be mis-using the NF-Environnement Mark, AFNOR may apply sanctions on the product and/or may withdraw the manufacturer's right to use the ecolabel.

### **Program Methodology**

Once proposals for products categories are made and collected by AFNOR, environmental evaluations based on the "New Simplified Approach" are made by the Label Committee, who decides if the overall product group(s) in which the proposed product(s) belong, would be good candidates for the NF-Environnement Mark. Though a full LCA is not conducted, information from other programs' LCAs, where available, and information from producers are used in evaluating a product's suitability for the label. In addition, the program follows SETAC guidelines in its evaluations.

When developing product-specific criteria, products are assessed to determine their environmental impacts, based on multiple ecological factors, (e.g., the impact of the products' wastes on the environment -- to air, water, and soil). Once identified, these impacts are quantified for setting threshold levels (e.g., limits on toxicity of chemicals, VOC content, hazardous materials content, etc.). Products are also assessed on the following: energy use, raw material extraction and use, emissions during production, product uses, potential for recycling, disposal, product ingredients, type of wastes generated, environmental and health and safety hazards, and durability as well as real duration of use. Additionally, the NF-Environnement Mark conducts a generic environmental impact analysis when developing product criteria.

The NF-Environnement scheme invites stakeholders from various organizations to participate in all stages of criteria development. For example, a working group composed of representatives from industry, retailers, environment, and consumer NGOs, AFNOR, and if needed, experts from the concerned product sector, are involved in drafting the Technical Rule. Foreign companies are also invited to participate in the draft criteria development but must first express their interest in participating in the process. They may then be given the option of participating in the criteria development process and will at least be told what the draft criteria are and be invited to provide their comments. For example, several foreign garbage bag and vacuum cleaner manufacturers

were involved in the criteria development for these categories.

### **Other information**

Although possession of the NF-Environnement Mark is not an official requirement for procurement, some distributors of paints and varnishes, and/or retail stores, require that their suppliers provide at least one line of product that carries the NF-Environnement Mark. Additionally, certain municipalities and local authorities have specified that the garbage bags they purchase must bear the NF-Environnement Mark.

Because the NF-Environnement Mark is a relatively new program, there have been no studies to determine overall trade and market effects. The NF-Environnement Mark has not yet developed product criteria for products imported from developing countries. The only foreign products that have been awarded the French ecolabel have been products manufactured by European companies. Because the NF-Environnement Mark is a relatively new program, it has not yet gained international recognition, and information about the program has not been available internationally -- in fact it is still in the early stages of recognition domestically.

### **References**

Bœglin, Nadia, AFNOR, personal communication with Abt Associates, May 1997.

Organization for Economic Co-operation and Development, *Case Study on Eco-Labeling Schemes*. Paris. 30 December 1997.

Association Française de Normalisation (AFNOR), 1997, *Fact sheet: La Preuve par NF-Environnement*.

Association Française de Normalisation (AFNOR), February, 1997, *Information File on the NF-Environnement Mark*.

Association Française de Normalisation (AFNOR), April, 1997, *La Marque NF-Environnement*.

ADEME (French Energy Management and Environment Agency), *Background information and statistics from the CREDOC survey (1996)*.

Association Française de Normalisation (AFNOR), 1992, *General Rules Applicable to the NF-Environnement Label*.

Davis, G.A., *The Use of Life Cycle Analysis in Environmental Labeling*, US Environmental Protection Agency, Office of Pollution Prevention and Toxics, EPA/742-R-93-003, September,

1993.

Proia, Patricia, AFNOR. Personal Communication with Abt Associates (Gary Davis). April, 1997.

AFNOR. *Information File on: The NF-Environnement Mark*, February 1997.

Etienne, Roger, Ecobilan. Personal communication with Abt Associates (Gary Davis). April, 1997.

AFNOR. *Marque NF-Environnement "Aspirateurs Traineaux" Reglement Technique*. AFNOR 207, March, 1996.

**Product Categories** (number of awarded products in parentheses)

*Final Categories*

- Paints and varnishes (160)
- Garbage bags (100)
- Carpet glues
- Vacuum cleaners
- Soap-saving washing machine balls
- Garbage compressors

*Categories Under Review*

- Furniture
- Scouring solvents/powders
- Containers
- Photography developing equipment

*Categories Under Consideration*

- Pharmaceuticals
- Agro-foods
- Services
- Automotive sectors



## GERMANY'S BLUE ANGEL

### Introduction

Germany introduced the Blue Angel program in 1977, making it the first country to implement a national ecolabeling program. The Blue Angel was launched by the Federal Minister of the Interior and the Ministers for Environmental Protection of the Federal States. The German government views its ecolabeling program as a “soft instrument” of environmental policy, since the program cannot establish binding requirements or bans, and because participation in the program is completely voluntary. The Blue Angel is a seal-of-approval program, and relies on information, motivation, and a commitment to the environment from both manufacturers and consumers.

The primary goals of the Blue Angel program are 1) guiding the consumer in purchasing quality products with fewer adverse environmental impacts, 2) encouraging manufacturers to “develop and supply environmentally sound products,” and 3) using the ecolabel as a “market-oriented instrument of environmental policy” (Umweltbundesamt, 1990). As the oldest ecolabeling program, the Blue Angel program has served as a model for many other ecolabeling programs in existence around the world today.

The Federal Minister for the Environment attributes the success of the Blue Angel to “the growth of environmental awareness on the part of consumers and producers” (Umweltbundesamt, 1990). In a 1988 survey of 7,500 German households, 79 percent were at least familiar with the ecolabel, and 68 percent correctly linked the ecolabel with the concept of environmental protection. Similar opinion polls have been performed on a regular basis, showing that the Blue Angel is perceived as a reliable ecolabel.

The Blue Angel program has been and continues to be popular among manufacturers and consumers. Compared to current levels, the program grew slowly at first, issuing only 500 ecolabels in 33 product categories as of 1984. By mid-1993, however, the ecolabel appeared on 3,503 different products in 75 categories. As of April 1997, 921 manufacturers (or importers) have been awarded the Blue Angel for 4,135 products in 88 product categories. Approximately 17 percent of these awards were given to non-German companies.

### Recent Developments

Since the program’s inception, criteria development has become increasingly more complex. As technological innovations and ideas about environmental protection and pollution prevention have progressed, criteria have been modified in order to incorporate these changes. Whereas previously only one or two factors may have been considered when developing criteria, multiple environmental attributes (e.g., hazardous substances, emissions, pollution prevention and safety)

are now addressed. The overall process by which criteria are developed, however, has not

changed significantly since 1993 (Breier, 1997).

Pilot projects and preliminary research are currently underway to develop product criteria for numerous product groups (e.g., electrical appliances and products, products for do-it-yourself and handicrafts, household chemicals and alternatives, heating technology, consumer and industrial products). Interestingly, the pilot project for the furniture made from rattan and jute product category is being conducted in cooperation with developing countries like Bangladesh and India. Once developed, criteria for this product group will be unique in that they are for imported products.

Germany does not foresee making major revisions to the Blue Angel program to make it more innovative. Part of the success of the Blue Angel program is based on its history and tradition and manufacturers' familiarity with the program. For these reasons, major revisions to the program are not planned (Breier, 1997). Germany has recently joined the Global Ecolabelling Network (GEN), however, as a way to improve harmonization and to obtain and exchange information about other ecolabeling around the world.

### **Program Summary**

The Blue Angel program is administered by three organizations: the Jury Umweltzeichen (Environmental Label Jury), the German Institute for Quality Assurance and Labeling (RAL), and the Federal Environmental Agency (Umweltbundesamt). The Environmental Label Jury is made up of representatives from industry, the scientific and business communities, environmental organizations, consumer organizations, trade unions, and churches. The RAL is a non-profit standards organization that acts as the administrative body for the Blue Angel program.

The process of developing and awarding the Blue Angel ecolabel has three steps. First, product categories are proposed (typically by manufacturers). From these proposals, the Federal Environmental Agency and the Jury choose suitable product categories for the Blue Angel. Each year an average of 150 product categories is proposed; typically, only six are selected as suitable product categories for the ecolabel.

Once product categories are selected, the Federal Environmental Agency drafts criteria for each product group. It takes between six months and one year to draft the basic product criteria. Criteria are typically revised every three years. If there are major technology or innovative breakthroughs in the product category, criteria may be re-assessed prior to the end of the three-year period.

Draft criteria are forwarded to RAL, which organizes "expert hearings" to address technical questions regarding the draft criteria. Representatives from industry, manufacturing, consumer and environmental organizations, and, occasionally, scientists and representatives from testing institutes, are invited to ask questions and make comments on the draft criteria. Representatives from foreign companies are also welcome to make suggestions and comments at the hearing.



Comments from the expert hearing are taken into consideration when the Federal Environmental Agency revises and the Label Jury finalizes the criteria. The results are published in press reports of the Federal Minister for the Environment, Nature Conservation, and Nuclear Safety. RAL published the final basic criteria.

In the last step, manufacturers submit applications to become certified to use the ecolabel on particular products. Compliance with criteria is verified by statements from the manufacturer, testing by independent facilities, and data and product information sheets. If everything is in compliance with the basic product criteria, RAL forwards the application to the Federal Environmental Agency and the federal state in which the manufacturer is located. A contract is signed for the use of the ecolabel, for a duration of four years. If during these four years, the Jury revises product criteria, then manufacturers must re-apply for the contract for those products. Applicants must pay an initial application fee of DM 300 (\$170.00 US), and an annual fee based on estimated annual sales of the labeled product. In addition, users of Blue Angel must also contribute to an advertising fund for the program. All fees are paid to RAL.

### **Program Methodology**

Producers come forward to the Blue Angel program and make product proposals. However, unlike many other ecolabeling programs, the Blue Angel does not conduct an impact analysis when choosing product categories. Characteristics of the manufacturing process used to produce the product are of less importance for Blue Angel certification. The program's reasoning for excluding earlier stages of the product life cycle is that Germany's environmental protection laws and regulations address the reduction and avoidance of environmental damage during the production stages. Instead, when choosing product categories, the Blue Angel considers the following: transportation and distribution costs, product uses, potential for the product to be reused, maintenance costs, recyclability, final disposal, and the product's ingredients and materials restrictions.

When developing draft award criteria, the Blue Angel considers previous literature and studies relating to the product category as well as other programs' life-cycle assessments of the category. Additionally, the program may also conduct its own independent tests and studies and often obtains information from participating producers themselves about the product category. Draft criteria are based on the potential environmental damage the products may have during usage and disposal. A series of environmental and other factors is assessed. This series includes: the amount of toxic and/or hazardous substance in the product; the emissions to air, water, and soil; noise pollution; waste prevention, waste reduction and/or recycling opportunities at each stage; amount of natural resources used; the safety of the product; and, finally, the minimum requirements for the product's performance. The Blue Angel follows SETAC guidelines when developing its award criteria.

## Other Information

Recently, the Blue Angel has served as a way to identify environmentally preferable products in Germany. Many public procurement guidelines in local states and municipalities suggest buying Blue Angel-certified products, or at least to consider the criteria developed for product categories when making procurement decisions.

It has been suggested that ecolabeling programs can act as a barrier to trade for imported goods, when product criteria relate to production stages. Because Germany's Blue Angel program does not include production *process*-related criteria, but instead concentrates on the final environmental impact of the product, this aspect of the program is viewed as avoiding a potential trade barrier. Many of Germany's award criteria do have minimum recycled content requirements, however, which are difficult to meet for many exporters to Germany. In this respect, many foreign countries (e.g., Brazil, who is faced with these minimum requirements for their paper packaging) see these requirements as trade barriers. Any manufacturer, domestic or foreign, may apply for the Blue Angel ecolabel as long as they meet the specified product criteria.

## References

Breier, Nicola, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Bundesministerium für Umwelt), personal communication with Abt Associates, 1997.

Federal Environment Agency (Umweltbundesamt), April 1997, *Information Sheet on the "Environmental Label": Current Facts and Figures*.

German Institute of Quality Assurance and Labeling (RAL), (Deutsches Institut für Gütesicherung), and the Federal Environment Agency (Umweltbundesamt), November 1996, *The Environmental Label Introduces Itself*.

German Institute of Quality Assurance and Labeling (RAL), (Deutsches Institut für Gütesicherung), and the Federal Environment Agency (Umweltbundesamt), June 1997, *Umweltzeichen, Environmental Label, German "Blue Angel": Product Requirements*.

Federal Environment Agency (Umweltbundesamt), 1994, *Das Stellt Umweltzeichen Sich Vor*.

Federal Environment Agency (Umweltbundesamt), 1990, *Twenty Arguments Against the Environment Label... [20 Argumente gegen das Umweltzeichen...und was man davon zu halten hat]*.

Organization for Economic Co-operation and Development, *Case Study on Eco-Labeling Schemes*. Paris. 30 December 1997.

## **Product Categories** (number of awarded products in parentheses)

### *Final Categories*

- Retreaded tires (4)
- Returnable bottles (90)
- Low waste hair sprays, deodorants, and shaving foams
- Sanitary paper made from recycled paper (182)
- Low-emission oil burners (84)
- Low-pollutant paints (1,345)
- Powder paints
- Salt-free blunting spreading material (46)
- Recycled paper (315)
- Zinc-air batteries (16)
- Potting containers and similar mould parts made from recycled material (6)
- Sound-proofed glass collection bins for noise-sensitive areas (16)
- Waste water-poor car-washing plants (17)
- Environmentally sound pipe cleaners (14)
- Reusable packing for food production (1)
- Reusable packing for transportation (19)
- Products made from recycled plastics (68)
- Products made from waste rubber (14)
- Water-saving flushing cisterns (46)
- Electronically operated shower facilities (7)
- Products free from insecticides for indoor pest control and prevention (24)
- Wall paper and ingrain wall covering made from recycled paper (109)
- Wall paper covering paper and plastic materials
- Building materials made from recycled paper (5)
- Halogen-free cooling and insulating liquids for electrical equipment (4)
- Low-formaldehyde products from wooden materials (for indoor use) (105)
- Low-emission gas burners (86)
- Combination boilers and circulating water boilers for gaseous fuels (34)
- Combined burner/boiler units with gas blast burner (14)
- Low-noise mopeds (2)
- Water-saving flow restrictors (31)
- Water-saving flushing valves (4)
- Soil meliorators and soil adjuvants made from compost (43)
- Combined oil burner/boiler units (62)
- Solar-energy products and mechanical watches (34)
- Rapidly biodegradable chain lubricants for power saws (94)
- Building materials predominantly made of waste glass (3)
- Lithium batteries free of mercury and cadmium
- Environment ticket in public transport (17)
- Highly heat-insulating multi-layer window glass (15)

Low-noise construction machines (191)  
Low-noise compost choppers (32)  
Reusable ribbon cassettes and refillable toner cartridges (38)  
Photoconductor drums for laser printers (1)  
Recycled cardboard (368)  
Thermal techniques (hot air) for pest control of ligniperdous insects (7)  
Low-noise and low-soot municipal vehicles with diesel drive (18)  
Low-noise and low-soot municipal vehicles with gas drive (1)  
Building materials and gypsum made from recycled materials  
Low-emission and energy-saving gas fired condensing boilers (59)  
Low-emission and waste reducing copiers (135)  
Rapidly biodegradable lubricants and forming oils (45)  
Unbleached hot-filter paper (18)  
Low-pollutant fire extinguishers  
Lead-free seals (2)  
Cadmium-free hard-solder (7)  
Low-waste, resource-saving text marker (5)  
Component-system detergents (1)  
Independent burning gas heaters and flued-bed built-in appliances with atmospheric burners (18)  
Newspaper printing paper (consisting predominantly of recycled paper and bleached paper without chlorine) (30)  
Solar collectors (17)  
Low-pollutant nail varnishes  
CFC-free and energy saving refrigerators and freezers  
Low-emission chipboard (3)  
Low-waste and low-water pollutant towels in dispensers (21)  
Computers (73)  
Rapidly biodegradable hydraulic fluids (27)  
Low-emission gas burners (14)  
Electronic ballasts for fluorescent lamps (5)  
Tooth brush with exchangeable heads (6)  
Low-noise and low-emission chain saws (5)  
Sewage plant-compatible sanitary additives (8)  
Printers  
Recyclable video and audio cassettes (1)  
Electrical appliances for hand drying (3)  
Mercury-free medical temperature sensors

*Categories Under Consideration*

Household appliances (including combi-appliances)  
Rechargeable consumer batteries  
Halogen-free electric cables and wires  
Cadmium-free infrared lamps  
Television sets  
Coffee machines  
Mobile sound-reproduction sets with headphones (walkmen)  
Commercial refrigerators and freezers  
Appliances of office communications  
Gas stove and electric cookers  
Low-noise and low-emission motor-lawnmower  
Electric-equipment  
Low-solvents special coatings  
Dispersion paints in returnable containers  
Graffiti cleaners  
Construction materials made of recycled material for use in building construction  
Low-emission paint-spraying guns  
Heat-insulation materials made of renewable resources  
Biological pest control agents  
Disinfectants  
Technical devices as an alternative to sanitary additives  
Biodegradable motor oil for two stroke engines  
Electronically controlled circulating pumps  
Heat cost distributor/heat quantity meter  
Products made from jute  
Products made from rattan  
Tabular Plastic containers for non-beverage uses  
Satchels  
Flame retardants  
Easy de-inkable and dyes for printing containing less harmful substances  
Retrofitable and low-waste mug oil filters for cars



## GERMANY'S GREEN DOT PROGRAM

### Introduction

In 1991, Germany established the Ordinance on the Avoidance of Packaging Waste (Packaging Ordinance). According to the Packaging Ordinance, domestic and foreign manufacturers and distributors are required to take back all transport packaging such as crates, drums, pallets, and styrofoam containers (i.e., primary packaging) and recycle or reuse these materials. In 1992, these regulations were expanded to include all secondary packaging. Accordingly, manufacturers, distributors, and retailers are now required to take back and recycle secondary packaging (e.g., cardboard boxes, blister packs, and other product packaging such as that used to prevent theft, for protection, and for promotional purposes) from consumers. Since 1993, however, the Ordinance was further expanded to include *all* types of consumer packaging used to contain and transport goods from the point of sale to consumption. The most recent regulations created an option that exempts manufacturers from these regulations.

Specifically, the Packaging Ordinance states that manufacturers, retailers, and distributors (both domestic and foreign) may be exempt from taking back packaging if they participate in an established national waste management program. Such a program had been in existence in Germany since 1990, under the Duales System Deutschland GmbH (Dual System of Germany). The Duales System is a non-profit organization set up to collect, sort, and recycle post-consumer packaging from both households and small businesses throughout the country. By participating in the Duales System program, manufacturers may label their products with the Green Dot. A Green Dot indicates to the consumer that the manufacturer of the product participates in the program, and that instead of returning the packaging to the manufacturer or distributor, the packaging should be collected, sorted, and recycled through the Duales System program.

The new packaging laws in Germany have been successful in reducing packaging and encouraging the use of recycled and re-fillable packaging. Foreign companies have expressed concern, however, that these laws are a possible trade barrier. The claim has also been made that Germany is developing and implementing these packaging laws without consultation from or concern for the European Community and its goal for a Single European Market.

### Recent Developments

The program reports that there have been no major changes in the methodology by which the Green Dot is granted since 1995.

### Program Summary

Although the Green Dot operates as a response by industry and trade associations to avoid individual take-back regulations, its overall goal is the prevention of excess, unnecessary waste. In this regard the Green Dot fee structure acts as an incentive for manufacturers to reduce the amount

of packaging they use for their products in the design of products and packaging. Manufacturers wishing to obtain the Green Dot must pay a license fee to the Duales System. Fees are based on the type and weight of the packaging materials. In general, the heavier and more difficult it is to recycle the packaging, the higher the license fees. Fees vary according to the packaging materials, with plastics having the highest fees and natural materials and glass having the lowest fees. License fees range from about DM 3.00/kg to DM 0.15/kg (\$1.70 US to \$0.08 US).

The Duales System collects glass, paper, cardboard, and lightweight materials such as polystyrene, plastic, beverage containers, composites made of a mixture of materials, aluminum, and tin-plate. The Duales System has established two types of collection systems, which can be modified to accommodate existing local and regional collection systems. The first, and most widespread, is the curbside system where consumers collect Green Dot packages (except glass, paper, and cardboard) in the yellow bags or bins provided to their households. The bags/bins are placed on the curbside to be collected during the regular garbage pick-up. Glass, paper, and cardboard are collected separately in special bins/containers set up in the neighborhood -- glass is often separated according to color. In the curbside system, the consumer does the basic initial sorting of the packaging. The alternate system is the "bring" system where consumers bring all their waste packaging to central collection stations. Under the "bring" system all packaging is sorted by Duales System employees into different bins, which are set up for the different packaging materials.

Once collected, the materials are sorted by waste management companies under contract to the Duales System. Once the materials have been sorted, they are ready to be shipped to recycling facilities. According to the Duales System Deutschland GmbH, the recycling goals set by the Packaging Ordinance have been met since the Green Dot program began. Since 1992, one year after the Packaging Ordinance went into effect, the weight of packaging consumed (i.e., not for recycling) in Germany has steadily declined. Because of the take-back requirements set by the Ordinance, and the license fee structure, manufacturers have been motivated to reduce the weight of their packaging in order to reduce their eventual recycling costs.

### **Program Methodology**

The Duales System collects glass, paper, cardboard, and lightweight materials such as polystyrene, plastic, beverage containers, composites made of a mixture of materials, aluminum, and tin-plate. These product categories were chosen based on evaluations of their environmental impacts, as well as their potential for reuse and recyclability. The Duales System establishes criteria for these product categories, which manufacturers must adhere to for their packaging materials in order to be part of the program. That is, packaging made with paper products must meet certain standards set by the program in order for that packaging to be awarded the Green Dot, and therefore be accepted for recycling through the program. Product criteria are based on previous studies conducted for



these product categories, as well as information from other programs' life-cycle assessments for the categories, independent testing, and information from producers themselves. Criteria are peer-reviewed, and peer-reviewed critiques and Duales System's responses to them are available to the public.

### **Other Information**

Unless companies participate in the Green Dot program, they are required to take back their packaging according to the Packaging Ordinance. This take-back burden is far greater for companies that ship their products long distances to Germany -- they conceivably pay the transportation costs of shipping the packaging back to the country of origin. Many exporting countries, particularly developing countries, may not have the infrastructure or the technical ability to meet all the packaging standards set by Germany. One alternative that foreign companies may opt for is hiring a German company to overcome the cost burden or to meet the standards. For example, the German company would be responsible for packaging the imported good(s) in Germany so that they comply with local requirements. In addition, the company would take back the returned packaging.

Although foreign products are not required to carry the Green Dot, many manufacturers exporting to Germany claim that the domestic demand for the Green Dot label places imported goods at a market disadvantage. (European Union based importers can also apply for the Green Dot.) Additionally, distributors and retailers may shy away from foreign products without the Green Dot because otherwise the responsibility of recycling the packaging falls on the distributors/retailers.

### **References**

Federal Government of Germany, 1991, *Ordinance on the Avoidance of Packaging Waste (Packaging Ordinance - Verpackungsverordnung - VerpackVO) of 12 June, 1991.*

Duales System Deutschland GmbH, March 1996, *Recycling Data - Techniques and Trends.*

Duales System Deutschland GmbH, May 1996, *Changes and Developments - Plastics Recycling Today.*

Duales System Deutschland GmbH, December 1996, *Info-Grafik: Green Dot License Fees.*

Duales System Deutschland GmbH, April, 1997, *Press Information: Green Dot Presents 1996 Materials Mass Flow Verification.*

Duales System Deutschland GmbH, January, 1996, *Life-Cycle Analysis on Recycling and Recovery of Post-Consumer Plastics.*

Bernhardt, K., 1992, *Germany's New Packaging Laws: The "Green Dot" Arrives*, Business

America, vol. 113, no. 4, pp. 36-37.

Cotter, M. J., Henley, J. A. Jr., 1995, *Germany's "New" International Strategic Weapon: Environmentalism*, *Multinational Business Review*, vol. 3, no. 1, pp. 93-97.

## INDIA'S ECOMARK

### Introduction

As part of an effort to improve environmental quality and to increase environmental awareness among industries and consumers, the Indian Parliament initiated a voluntary ecolabeling program known as the Ecomark in February 1991. The Ecomark is a government operated seal-of-approval program for environmentally-preferable consumer products. The Ministry of Environment of Forests (MoEF), with the technical advice of the Central Pollution Control Board (CPCB), manages the program. Unlike many other international ecolabeling programs that are independent, India's Ecomark is tied with the BIS's product quality standards. In order to be Ecomark certified, products must meet these product quality standards, as well as product-specific environmental criteria set by the Ecomark program. In meeting Ecomark requirements, manufacturers will also have both the BIS's quality standards label on their products.

The objectives of the Ecomark program are fivefold: 1) to provide manufacturers and importers an incentive to reduce the adverse environmental impacts of their products, 2) to reward genuine initiatives by companies to reduce the adverse environmental impacts of their products, 3) to assist consumers in becoming environmentally responsible in their daily lives by providing them with information on environmental impacts that they can incorporate in their purchasing decisions, 4) to encourage citizens to purchase products that have fewer environmental impacts, and 5) to ultimately improve the quality of the environment and encourage sustainable management of resources.

The Ecomark label is seen as a "movement of consumers" and is therefore given exclusively to consumer products. Interestingly, even though (as of January 1997) sixteen product categories had been selected for the Ecomark, only one product, in the detergent product category, has been awarded the Ecomark. So far, however, there are no products available on the market with the ecolabel; the manufacturer of the detergent product that had been awarded the Ecomark did not market the product with the ecolabel. According to Dr. Sudhir K. Ghosh, Member Secretary of the Ecomark Technical Committee, "Indian industries are not coming forward to get eco-certification of their products, though they are involved in the process of criteria development." Some attribute this to the costs involved in applying for the Ecomark and the numerous regulatory requirements manufacturers must meet before being awarded the ecolabel. Other reasons may include industries' concerns about the Ecomark program, which are outlined below.

### Recent Developments

The program reports that there have been no significant changes in the methodology for determining award criteria since the beginning of the program. Due to the lack of response from manufactures (and consumers) regarding ecolabeling, however, the Ministry of Environments and Forests has recently (August 1997) launched a market survey for ecolabeled products.

## **Program Summary**

There are three committees involved with product category selection, criteria development, and award of the Ecomark. First, an inter-ministerial Steering Committee in the Ministry of Environment & Forests determines the product categories to which an Ecomark may be granted. The Committee is also in charge of promoting of the labeling scheme to manufacturers and consumers. Once the Steering Committee has made proposals for product categories, a Technical Committee in the Central Pollution Control Board determines the specific product to be included under the Ecomark scheme.

The Technical Committee is the central committee for the Ecomark scheme and constitutes sub-committees for the development of Ecomark criteria for each proposed product category. The Technical Committee provides technical assistance and recommendations to the Steering Committee for finalizing product categories, and is also in charge of developing product specific criteria, based on life-cycle assessments, wherever possible. Once criteria are finalized, the Bureau of Indian Standards and/or the Directorate of Marketing translates the product criteria into Indian Standards, assesses and certifies the products, and coordinates (via testing and contractual arrangements) with manufacturers wishing to use the Ecomark label on their products.

Manufacturers wishing to obtain the license to use the Ecomark label on their products submit applications to the Bureau of Indian Standards and deposit a non-refundable fee approximately Rs. 500 (\$14.00 US) for each product. The applicant is responsible for any testing and inspection costs, if required. In addition there is a usage fee, based on the annual production of the product, which is determined by the BIS. If the manufacturer is found to be in compliance with the award criteria, the BIS draws up a contract for use of the Ecomark. The label is initially granted for one year, but there is the option to renew the license for the Ecomark label for a fee of Rs. 300 (\$8.30 US). If a manufacturer illegally uses the Ecomark, without BIS certification, they are subject to punishment as per provision of the Bureau of Indian Standards Act of 1986.

## **Program Methodology**

Once specific products are selected for the Ecomark, product criteria are developed. In general, previous literature and other programs' life-cycle assessments are used in conducting a simplified life-cycle assessment that examines products in terms of their main environmental impacts. These include: the product's potential for generating less pollution than other comparable products; whether the product is recycled, recyclable, or made from recycled materials or whether it is biodegradable; and whether it makes significant contributions to saving non-renewable resources. Products are assessed specifically on their use, potential for reuse and recyclability, environmental impact during final disposal, and their ingredients or their materials restrictions. India, however, does not follow SETAC guidelines in its LCA. The Ecomark Technical Committee may also plan

to incorporate the International Standards Organization (ISO) 14020 guidelines and general principles once these are finalized. Draft criteria are peer-reviewed and peer-review critiques are available to the public.

Furthermore, certain general requirements have to be met in order to grant the Ecomark label. First, products must meet the Bureau of Indian Standard's product quality, safety, and performance standards. Second, manufacturers of the product must provide evidence that they are in compliance with India's Water, Air, and Environmental Protection Acts and, if applicable, with the Prevention of Food Adulteration Act of 1954 and the Drugs and Cosmetics Act of 1940. Third, the product must display a list of all the critical ingredients in descending order of quantity present. Fourth, the manufacturer may opt to display (on the packaging) the criteria upon which the Ecomark label is based. Fifth, instructions on the product's proper use, performance, and disposal may be shown on the product's packaging as well.

### **Other Information**

The overall response to the Ecomark program within India itself has been quite limited and manufacturers are hesitant to apply for the Ecomark label. Several factors are seen as possible causes for this hesitation. First, the Ecomark scheme is a self-financing program, requiring manufacturers to pay for the application, testing, licensing fee, and renewal costs involved in certification. Some estimates indicate that these costs can amount to a 10 percent increase in a manufacturer's production costs -- which are not guaranteed to be returned in increased profits. Second, products have to comply to BIS's quality standards before being able to apply for the Ecomark. The BIS standards add another layer of regulation and approvals for manufacturers, which are perceived as a burden with few immediate benefits.

Additionally, industry has complained that India's Ecomark has not done enough to involve it in product criteria development. Industry feels the Indian Government has "rushed through" with the Ecomark. Industry feels that the labeling program will not help environmental improvement if criteria concentrate on single issues, or if they are based on other programs that do not take the local situation into account. Industry also says that the labeling program inhibits innovation that comes with consumer goods production and can, therefore, be a hindrance to environmental improvements. Finally, industry feels that because of the lack of consumer awareness of environmentally preferable products, the Ecomark program may send consumers the "wrong" message by indicating to consumers that non-Ecomark labeled products are not environmentally safe.

Indian exporters feel that many of the product categories chosen for Ecomark, with the exception of textiles and certain food items, do not reflect India's major export products for which an Ecomark might be of value. Several manufacturers have, in fact, adopted the ecolabeling standards of their importing customers' countries in order to operate in those markets. The textile and leather products sectors (two of India's largest exports) have made efforts to conform to ecolabeling standards in EU countries such as Denmark and Germany. Such conformance has been possible

through bilateral support from these foreign governments. In response, the Indian Government is now in the process of developing award criteria for the leather and leather products categories.

With regard to trade, the Indian Ecomark program does recognize the increasing popularity of ecolabeling schemes around the world, and the Ecomark Steering Committee recognizes that, “whilst there is a need for greater transparency, voluntary ecolabeling schemes should not be brought under the scope of the technical barriers to trade agreements.” As a result, the Indian Government stresses that the Ecomark program is a “purely voluntary scheme open to all manufacturers, both domestic and foreign.” According to the Ecomark Technical Committee, in order to make the scheme more globally transparent, much of the information on the Ecomark can be found on the World Wide Web (<http://www.nic.in/envfor/cpcb/cpcb.html>). The site was created by the Central Pollution Control Board in collaboration with the National Information Centre in India.

The Indian government has already prohibited the handling of 70 “azo” dyes, in response to new regulations by Germany and the EU in place as of early 1996. About 70 percent of dyes manufactured and used in textiles in India contain ‘azo’ dyes, and about 25 percent (190) of these have been banned in Germany and the EU. Germany and the EU are two of India’s largest markets for garments and textiles (10 percent of India’s textiles and textile goods exports go to Germany and 50 percent are sold to the EU as a whole). These new regulations are likely to affect India’s exports in these sectors.

To help exporters understand these new regulations, the Indian Government has set up committees in charge of information dissemination to trade and industry, legal measures, research and development, and identification of substitutes. The committees have asked trade and research associations, export promotion councils, state governments, and other textiles-related organizations, to produce outreach materials (e.g., pamphlets, leaflets, publications, videos, advertisements in daily publications, workshops, and seminars), in both English and local languages, to provide manufacturers with information regarding the regulations.

India’s Ministry of Environment and Forests has issued restrictions on manufacturing of the 190 banned dyes, as well as placing these dyes on a list of restricted imports under India’s Export-Import policy. In addition, a provision in the Textiles (Development and Regulations) Order of 1993 will be included specifying which toxic or harmful dyes and chemicals should not be used in the manufacturing of textiles. In addition, a list of the banned dyes, a list of safe substitutes, product related eco-standards, and a list of guidelines for manufacturing environmentally preferable textiles have been distributed.

The Department of Chemical Technology at the University of Bombay, the Technology Institute of Textiles and Sciences, and other research institutions are requested to identify toxic chemicals and dyes to be phased out from textile manufacturing. Additionally, numerous laboratories have been set up throughout textile centers in the country to perform tests on the banned dyes and to find possible alternatives.

Finally, in an effort to achieve harmonization and mutual recognition with other ecolabeling programs, the Indian Ministry of Commerce presented a paper at the “Seminar on Trade Effects of Eco-labelling” in Bangkok, Thailand, in early 1997. The Ministry suggested forming an organization, called the Asian Environmental Network (AEN), similar to the Global Ecolabelling Network (GEN) but specifically for the Asia Pacific region. They proposed that AEN could be set up for better exchange and dissemination of information about ecolabeling, and to work toward greater harmonization among ecolabeling programs in Asia. The Ministry of Commerce suggested that AEN could set up generic ecolabeling standards for the Asia Pacific Region, as well as provide technical assistance to countries trying to further develop or who are trying to set-up ecolabeling programs. Also, information on mutual recognition, equivalency, new technologies, new products, and regional protocols could be disseminated via a newsletter or on the Internet. AEN is still in the development stages, however, and has not yet been formally established.

## References

Dr. Sudhir Ghosh, Additional Director and Member Secretary, Ecomark Technical Committee. Personal communication with Abt Associates. November, 1997.

Bhat, A. N., *Ecomark Issues and Role of Indian Industry*, National Seminar on Green Purchasing and Ecolabeling.

Ministry of Commerce, January/February, 1997, Seminar on Trade Effects of Eco-Labelling - *India: National Experience on Eco-Labelling*, Bangkok, Thailand.

Central Pollution Control Board, 1997, *Ecomark: A Scheme on Labelling of Environmentally Friendly Products*.

Central Pollution Control Board, *Ecomark Scheme of India*, Ecomark Homepage, <http://www.nic.in/envfor/cpcb/cpcb.html>.

Singh, Y.P., and Phalgumani, G.R., 1995, *Meeting Eco-requirements for Export: Example of Indian Textiles*, International Trade Forum, no.3, pp. 12-15.

Ministry of Environment and Forests, Department of Environment, Forests and Wildlife, 1991, Resolution, published in *The Gazette of India*, no. 71, part II, section 3, sub-section i, New Delhi, Thursday, February 21.

## **Product Categories**

### *Final Categories*

- Soaps and detergents
- Paper
- Food items
- Lubricating oils
- Packaging materials/packages
- Architectural paints and powder coatings
- Batteries
- Electrical/electronic goods
- Food Additives
- Wood substitutes
- Cosmetics
- Aerosols Propellants
- Plastic Products
- Textiles

### *Categories Under Development*

- Leather and Leather products
- Fire extinguishers
- Household pesticides



## JAPAN'S ECOMARK

### Introduction

The EcoMark program, the second oldest ecolabeling program after Blue Angel, was started in February 1989 as a positive seal-of-approval program to "disseminate information on the environmental aspects of products and to encourage consumers to choose environmentally sound products." The program is implemented by the Japan Environment Association (JEA), a non-governmental organization, under the guidance of the Environment Agency. As of June 1997, the program has issued 2,031 awards in 69 product categories.

Two studies have been conducted to evaluate the influence of the EcoMark. Both indicate that the EcoMark is becoming well known. The first was a survey of local governments, distributors and companies with EcoMark-approved products, conducted by the JEA in the Spring of 1991. More than half of the companies who had acquired the logo did so to improve their corporate image, citing also "requests from customers and increased sales." Almost all local governments were aware of the program, compared to only 40 percent of distributors. The other study, a 1990 public opinion poll conducted by the Prime Minister's Office, found that 22.3 percent of the respondents said that they were familiar with the EcoMark. By 1993, this rate had jumped to 53 percent.

### Recent Developments

The EcoMark program has undergone several changes in the past few years. First, the number of awards has actually decreased. Two product categories have been eliminated: spray containers not containing CFCs, abolished December 1993; and cans with stay-on tabs, abolished June 1995. In addition, consolidation of the pulp and paper industries has resulted in a decrease in the number of paper brands receiving awards (decreasing number of paper companies leads to decreases in the number of paper brands). The program has recently added two product categories, printing ink and recycled suitcases, to its list. Because the program seeks to label a small percentage of products within a product category, categories can either become more stringent or be abolished altogether if the labeled product market share is too large. The EcoMark program is in the process of revising 16 product category criteria to become more stringent based on new manufacturing procedures. It is expected that more currently labeled products reapplying for the label will fail, limiting the market share of awarded labels to only those products meeting the very highest environmental standards.

The program has also revised its methodology for selecting product categories and awarding labels. Originally, the EcoMark program based selection on the finished products' attributes, and did not incorporate the manufacturing processes of individual products within a category. In this way the logo was used more to call attention to products that were part of "an ecological lifestyle," than to weigh the relative impacts of consumer products throughout the life cycle. The process was also generally not open for comment from the public. These procedures were revised in March 1996 to

conform to the draft ISO 14024 standards. The program now employs the use of life-cycle analysis, consults with related parties, and provides for public review of draft criteria.

### **Program Summary**

The EcoMark Secretariat is located within the Japan Environment Association, as are the two committees (the Promotion Committee and the Expert Committee) responsible for administering the program. The Secretariat sets up a working group of experts and concerned persons for each product category under consideration. This group then establishes draft criteria using life-cycle analysis, which are publicized in *EcoMark News* for 60 days for public comment. The draft criteria are submitted, with the incorporated suggestions, to the Promotion Committee (composed of specialists in environmental conservation, administrative agencies, consumer groups, and relevant enterprises), which then approves or rejects the criteria.

Once award criteria have been set, confidential product applications are accepted. Manufacturers must supply relevant information to the Expert Committee (composed of experts in environmental impact assessment), but the Committee may request further testing by a third party. If a product is awarded a label, a two-year contract is signed with the JEA. While JEA does not directly monitor for misuse, it relies on other manufacturers, administrative organizations, and consumer organizations to inform it of possible instances of misuse.

Unlike most environmental certification programs, the fee charged for use of the award is based on the retail price of the product, not the number of units sold or the market share. The annual license fee is between 40,000 (348 USD) and 100,000 yen (870 USD). Additionally, the Japanese program is unusual in that there is no application or advertising fee.

### **Program Methodology**

As mentioned above, the Japanese EcoMark program recently changed its methodology to incorporate life-cycle assessments, specifically a life-cycle matrix, which considers the environmental impacts within each stage of the product life cycle. This change was made as a response to draft labeling standards being developed by the International Organization for Standardization (ISO). In assessing products, the EcoMark utilizes literature and other programs' life-cycle assessments, as well as independent testing and studies and information from participating producers. Additionally, information about product criteria from other programs may also be adopted by the Japanese EcoMark program, where applicable. Japan does not follow SETAC guidelines in their life-cycle-analysis.

Once product selection by the EcoMark office and the Expert Committee is completed, the EcoMark office sets up ad hoc working groups for each product group to develop labeling criteria. Product selection is based on proposals from manufacturers as well as the use of a political process in consideration with the environmental impacts of the product. Product criteria, based on the life-cycle matrix approach and at each stage of the product's life cycle, considers the following factors:

extraction and processing of raw materials; manufacturing, transportation, and distribution of the product; the product uses; potential for reuse; potential for recycling; and emission of wastes, toxic substances, and harmful pollutants.

### **Other Information**

The program is open to participation by small and medium sized businesses; more than 75 percent of the manufacturers awarded are small or medium in size.

JEA is a member of GEN, which it finds very useful, not only for information exchange but also for assisting ecolabeling programs worldwide with program information and for the removal of unnecessary trade barriers. When criteria are being developed and revised, JEA collects data on all criteria in similar product categories via the GEN database and uses these to guide its development. In accordance with the draft ISO 14024 standards, existing criteria are revised within three years (16 of the 69 current award criteria are in the revision stage).

EcoMark has a strong relationship with procurement programs. For example, the central government is in the process of establishing guidelines for green procurement and references the EcoMark as one possible source of information. Some of the more progressive local governments have already established green procurement guidelines and also reference the EcoMark.

According to JEA, the program has not been involved in any critical trade conflicts to date. In fact, JEA has shown initiative in addressing trade issues before a conflict can arise. For example, in 1996, JEA made a concerted effort to get input from the US on the trade implications of developing product categories for personal computers and copy machines. By including the US in its process, it hoped to avoid any trade conflicts.

Similar to the ecolabeling program, the Green Purchasing Network (GPN) was created in February 1996. The GPN is sponsored by the Environment Agency of Japan, and consists of organizations committed to reducing stress on the environment by promoting green purchasing. Thus far, 425 companies, 107 local governments and government agencies, and 97 non-profit organizations are members. The GPN establishes purchasing guidelines in product categories, publishes annual guidebooks concerning the environmental impact of products, publishes a quarterly newsletter, and conducts meetings. Although the GPN program and the EcoMark are independent of each other, the GPN has a significant influence on the EcoMark.

### **References**

US Environmental Protection Agency. Correspondence with Japan Environment Association. November 1996.

Hashizume, Shigeyuki, *The EcoMark System*, Converttech Japan, 1994.

Hashizume, Shigeyuki, Japan Environment Association. Personal communication with Abt Associates. Summer 1997.

Hashizume, Shigeyuki, Japan Environment Association. Presentation of the Japanese EcoMark. Global Environmental Labelling Network Annual Meeting. September, 1997.

Japan Environment Association. Green Purchasing Network background documents. August 1997.

Japan Environment Association. *The Eco Mark Program*.

Japan Environment Association. *The Eco Mark System*. September 1991.

Japan Environment Association. *Certification Criteria for Eco Mark Products*.

Japan Environment Office. EcoMark Office. *Offset Printing Ink*. Product Category No. 102 for the EcoMark Program. July 1997.

**Product Categories** (number of awarded products in parentheses)

*Final Categories*

- Spray products not containing CFC's (abolished)
- Triangle strainers for kitchen sinks (16)
- Strainers for kitchen sinks (28)
- Filter bags for kitchen disposal (155)
- Absorbents for used cooking oil (34)
- Composting containers (30)
- Magazines and books on environmental problems (20)
- Toilet paper using 100 percent recycled paper (85)
- Returnable containers (11)
- Containers for collecting used bottles (0)
- Soap made from used cooking oil (47)
- Products made from used lumber (25)
- Products made from used plastic (211)
- Cans with stay on tabs (abolished)
- Recycled paper for office use (102)
- Recycled paper for printing (237)
- Recycled paper for stationary (137)
- Recycled paper for packaging (184)
- Hot water supply systems using solar energy (3)
- Cellulose sponges (39)
- Cloth diapers for infants (44)

Products made from used tires (33)  
Thermal insulation for buildings (3)  
Tissue paper using recycled paper (11)  
Biodegradable engine oil for two-cycle engines (7)  
Products using solar battery modules (2)  
Straw matting (9)  
Flow-reducing valves and water-saving faucets (13)  
Soundproof and vibration proof mats (3)  
Blast furnace and fine powder slag and blast furnace cement (7)  
Refillable containers (60)  
Unbleached coffee filters (10)  
Paint containing no aromatic hydrocarbon compounds (87)  
Filters for cooking oil (6)  
Boards made from waste wood (51)  
Waste can collectors (7)  
Drainage fixtures for rainwater dissipation (7)  
Storage tanks for rainwater (0)  
Packing materials made from recycled pulp (35)  
Wallpaper, fusuma paper and shoji paper made from recycled pulp (36)  
Filter bags of recycled paper for vacuum cleaners (7)  
Tiles and blocks made from waste material (12)  
Household gloves of natural rubber (22)  
Unbleached clothes, bed linen, and towels (32)  
CFC recovery systems for air conditioners (2)  
Biodegradable hydraulic oil (10)  
Biodegradable lubricant oil (18)  
Cloth shopping bags (20)  
Multi-pass thermal transfer ribbons (1)  
Wooden products made of culled logs and small-diameter logs (13)  
Textiles made of waste fibers (15)  
Briquettes made of waste (2)  
Low-waste printers for business machines (5)  
Replaceable ink cartridges and ribbon cassettes (3)  
Resource conserving containers for edible oils (12)  
Recycled paving materials (4)  
Fancy sound-absorption panels of iron-slag mineral wool (5)  
Laminated fiberboard of recycled pulp (7)  
Combustion apparatus using waste cooking oil (0)  
Buffer materials made of culled logs and used timber (0)  
Vegetation supporting concrete paving blocks (1)  
Energy saving gas leak detectors (2)  
Load-stabilizing devices for energy conservation (4)  
Products made from recycled cullet (14)

Building materials of fly ash (1)  
Clothing made of used PET resin (10)  
Inert-gas smothering systems and apparatuses using no ozone-layer depleting gases (3)  
Easily repairable office chairs (7)  
Low-benzene gasoline for vehicles (2)  
Agricultural mulch sheeting of recycled pulp (1)  
Solar-powered clock or watch (1)

## **SOUTH KOREA'S ECO-MARK**

### **Introduction**

According to the South Korean Ministry of the Environment (MOE or Ministry), rapid industrialization and urbanization during the last three decades and South Korea's rapid economy growth may have contributed in deteriorating the country's environmental conditions. As a result, the Korean government established "Harmony between Environment and Development" as a main policy goal of the country, with emphasis on pollution prevention and resource management. To realize this policy, the Korean Ministry of the Environment launched its ecolabeling certification program, known as "Eco-Mark," on June 1, 1992. Eco-Mark is a voluntary program that awards a seal of approval to environmentally preferable products. It is primarily intended to encourage companies to promote the design, production, marketing, and use of products that have reduced environmental impact, as well as to provide consumers with information to make environmentally sound purchasing decisions.

Between 1993 and 1994, the number of Eco-Mark product categories increased from 12 to 36, and within those categories the number of products awarded the Eco-Mark label increased from 96 to 219.

### **Recent Developments**

Korea recently (as of June 1997) became one of the newest members of the Global Ecolabelling Network (GEN).

### **Program Summary**

The Korean Eco-Mark program is administered by the Korean Ministry of Environment. New product category suggestions are directed to the Ministry's Technology Development Division. This Division makes the final decision as to which product categories are suitable for the Eco-Mark. The Ministry then drafts the award criteria with technical assistance from the Korean Academy of Industrial Technology (KAITECH). The draft criteria are released to the public for comments during public hearings. Based on the comments received, criteria are revised and finalized.

Once criteria are finalized and released to the public, manufacturers wishing to obtain the Eco-Mark can apply to be eco-certified. A "practical committee" within the Korean Environmental Labelling Association (KELA), (who handles manufacturers' applications) is in charge of awarding the label to companies wishing to obtain eco-certification for their products that meet the prescribed award criteria.

Once the product fulfills the criteria, it is eligible to receive the Eco-Mark. In addition to the initial application fee of 30,000 won (\$33 US), the user of the Eco-Mark must pay an annual fee ranging from 300,000 won to 1,000,000 won (\$330 US - \$1,090 US), based on the product's annual sales (more expensive goods command a higher fee). This fee, collected by the KELA, is used to maintain the Eco-Mark program as well as to increase public awareness of environmental issues.

### **Program Methodology**

The Eco-Mark program has found that, in practice, the significant data requirements of the life-cycle assessment approach typical for determining award criteria are difficult to meet. The Korean Eco-Mark's approach to product certification is therefore based on defining the single most important environmental impact for each product category.

### **References**

United Nations Council on Trade and Development (UNCTAD), International Trade Division, Trade and Environment Section, 1993. *Eco-labelling and International Trade: Preliminary Information from Seven Systems (Draft)*, Geneva, Switzerland, May 19.

Korean Environmental Labelling Association (KELA), *The Eco-Labelling Program in Korea -- Its administrative structures and procedures*, Eco-Mark Homepage, <http://www.gcc.go.kr/ehome/ecomark.html>.

### **Product Categories**

#### *Final Categories*

- Products made from recycled paper
- Toilet paper
- Products made from recycled plastic
- Cloth diapers for babies
- Non-asbestos brake lining and clutch facing
- Filters for kitchen sinks
- Non-bleached and non-dyed towels
- Valves for adjusting flow and water saving-type faucets (including water saving tops)
- Packaging materials using wastes
- Soap made from waste edible oils
- Bricks made from waste lime
- Construction materials made from waste glass
- Products made from used tires
- Bulb-type fluorescent lamps
- Cloth shopping bags



Construction materials made from waste stone powder  
Biodegradable engine oil for two-cycle engines  
Biodegradable hydraulic oil  
Bricks made with inorganic sludge  
Palette made with waste wood  
Water-economizing toilet stool  
Low sulfur petroleum  
Building materials using remnants from burning  
Blast furnace cement  
Returnable can collectors  
Refillable containers  
Water-economizing fittings for toilets stools  
Biodegradable sponges  
Machines for recycling used antifreeze  
Gravel made of waste materials  
Oil filters  
Electricity saving low mercury fluorescent bulbs  
Plastic containers with same material log attached  
Solar water heaters  
Low pollution ferro-concrete pipe  
Energy efficient refrigerator with no CFCs



## MALAYSIA'S PRODUCT CERTIFICATION PROGRAM

### Introduction

The Product Certification Program, Malaysia's national environmental labeling program, was launched in 1996 by the Standards and Industrial Research Institute of Malaysia (SIRIM). It is a single-attribute, seal-of-approval product certification program. As of March 1997, SIRIM's certification activities were delegated to a fully-owned subsidiary, SIRIM Quality Assurance Services (SIRIM QAS). This delegation was undertaken to avoid any conflicts of interest with SIRIM's other activities, namely testing, research, standards development, and measurement services. SIRIM consults regularly with the Ministry of Environment, which is in charge of Malaysia's overall environmental policy. Although SIRIM is not directly under the auspices of the Ministry of Environment, SIRIM strives to coordinate its programs with Malaysia's official environmental policy in this way.

SIRIM plans to develop (by 1998) certification criteria for lighting and appliance energy-efficiency, as well as detergent biodegradability. To date, however, its only fully-developed product criteria, published in July of 1996, are for CFC-free refrigerators. The impetus for developing these criteria was the Montreal Protocol, which called for the phasing out of CFC usage worldwide. The Malaysian government responded by imposing a deadline of 1999 for the complete phaseout of CFC use. However, Malaysian refrigerator manufacturers that had developed CFC-free refrigerators before the deadline found themselves suffering from market share declines attributable to the higher prices they had to charge for the more expensive CFC-free technology. These manufacturers sought the certification to help consumers differentiate among manufacturers' environmental performance and to encourage consumers to support the CFC-free technology despite the higher prices. One large domestic manufacturer has had its entire product line certified. SIRIM is currently working to certify a second manufacturer's refrigerators. Because of the 1999 phaseout, however, it is expected that the CFC-free certification will become obsolete and will eventually be phased out as well.

### Program Summary

Selection of product categories begins when a request for a product category is submitted by the public. Though anyone can request product categories, manufacturers wishing to promote their own products are usually the ones submitting requests. Certification requests may be prompted by demand in either the domestic or export market. Most Malaysian refrigerators, for example, are bought and sold domestically. However, the requests for detergent biodegradability labeling and lighting and appliance energy-efficiency labeling were driven by Malaysia's large export market. SIRIM then selects product categories based on market presence and potential benefit, determined through discussions with both consumers and manufacturers.

Product criteria are established by an internal committee of SIRIM professionals who consult foreign certification programs for information on similar products. These criteria are then presented to a government-appointed advisory board composed of various stakeholders including the government, professional bodies, and trade associations. Through a consensus-based decision-making process, the criteria are revised and released, officially launching the certification program. After their release, the criteria can be revised again at any time by the advisory board, which meets at least three times each year.

Participation in the program is completely voluntary and open to both domestic and foreign-made products (although, to date, no submissions have been made from foreign producers). SIRIM evaluations require an at-cost fee, and include both product testing at SIRIM's in-house lab, and site visits to assess the manufacturing process.

Upon certification, manufacturers receive a certificate listing the manufacturer's name, the certified product's brand and model, and details of its main components. The certificate also specifies the type of certification issued. The certificate allows holders to print the certification category (e.g., "CFC-Free") on product labels. Certificate holders are subject to continued surveillance through annual inspections by SIRIM, to ensure that certified products continue to satisfy the requirements of the certification program.

### **Program Methodology**

SIRIM's product certification program is a single-attribute, seal-of-approval program. Product categories are submitted by the public (including manufacturers) and chosen based on market demand for product certification, as assessed through periodic discussions held with consumers and manufacturers. Product criteria are based on a single environmental attribute, such as being CFC-free, energy-efficient, or biodegradable. The certification process involves both on-site inspections and product testing by SIRIM employees.

### **Other Information**

In a separate environmental management system (EMS) certification program, SIRIM has made reciprocal arrangements with two foreign certification programs in the interest of companies who export to or from Malaysia. One arrangement is with the Japanese Audit and Certification Organization for Environment (JACO), with whom SIRIM conducts joint facility inspections for EMS certification. Since many Japanese companies have Malaysian branches, this arrangement reduces the expenses for Japanese and Malaysian inspectors conducting EMS certification. SIRIM has another arrangement with the Canadian Standards Association (CSA) in which Malaysian companies, inspected by SIRIM according to CSA standards, are granted the CSA's EMS certification. This arrangement is highly beneficial to Malaysian manufacturers because of the

large volume of Malaysian exports to North America. This system makes it possible for Malaysian companies to obtain EMS certification that is more widely recognized in North America where they conduct the bulk of their business, without the expense of flying CSA inspectors from Canada to Malaysia.

Malaysia has had significant involvement in ISO activities, having been a member of ISO Technical Committee 207 since 1994 and also a member of each of the three sub-committees, of which SC3 deals with environmental labeling. The Malaysian ISO delegation consists of a 16-member committee, including one SIRIM representative.

A number of industries, namely textiles, timber, dyeing, rubber, and electronics, have developed private industry-specific environmental management certification programs. The private Malaysian Timber Industry Board has also proposed a timber certification program and conducted a limited pilot program. National labeling standards for such products may be developed by SIRIM in the future, though there are no concrete plans to do so as of yet.

## **References**

Heinke, Gary W. et al., *Final Report: Development of an Eco-label Certification Programme for Hong Kong/ RC96-19*. Hong Kong: Research Centre of the Hong Kong University of Science and Technology, June 1996.

Raj, Rajinder, General Manager of SIRIM QAS. Personal communication with Abt Associates, Summer 1997.

SIRIM. *Certification of CFC-Free Freezers and Refrigerators*. August 1997.

## **Product Categories**

### *Final Categories*

Refrigerators

### *Under Development*

Detergents

Appliances

Lighting fixtures



## THE NETHERLANDS' STICHTING MILIEUKEUR

### Introduction

The growing interest in environmental issues throughout the 1980s in the Netherlands encouraged the Ministry of Housing, Physical Planning and Environment, and the Ministry of Economic Affairs to create the “Stichting Milieukeur,” an independent foundation for voluntary environmental labeling, in 1992. Prior to the creation of the Dutch ecolabel, the government had established the Environmental Advertising Code to discourage the use of false environmental advertising claims. The Stichting Milieukeur (the Environmental Review Foundation) built upon the public policies that are the basis of the Environmental Advertising Code by creating a seal-of-approval program.

The Stichting Milieukeur is made up of representatives from government, consumers, manufacturers, and retail, trade, and environmental organizations. Although the EU, of which the Netherlands is a member, has an ecolabel program, the Dutch government proceeded with its own program to better accommodate goods and services unique to the Dutch market. It retains ties to the EU program, however, as a Competent Body. As of October 1997, the Stichting Milieukeur has set and published award criteria for 50 product groups, and has awarded the Milieukeur to 16 of these groups. The Milieukeur has also been awarded to foreign companies in the copy paper and chairs product categories.

### Recent Developments

The Stichting Milieukeur has not changed much since its inception. The primary change has been an increase in reliance on market trends. More emphasis is being given to products categories that have a strong market presence where competition for an award can have the greatest environmental gain, for example, paper hand dryers, cotton hand dryers, and toner cartridges.

### Program Summary

Although the program was founded and is supported by the Dutch government, the Stichting Milieukeur operates the environmental labeling program independently. The Milieukeur Board, assigned the essential role in selecting product categories and establishing award criteria, is composed of representatives from the government and manufacturers, consumers, retail trade, and environmental organizations that founded the Milieukeur. In addition to the Board, a certifying institution, recognized by the Board and requested by the manufacturer submitting the product for evaluation, is responsible for testing potential products based on a life-cycle assessment and assessing whether or not a product meets the defined standards.

The first phase in the award process is coordinated by the Stichting Milieukeur. Manufacturers, consumer groups, trade associations, or any other interested party can submit a request for the creation of a new product category to the Stichting Milieukeur. The board may then approve or

reject this application based on a screening study, which may be contracted to an outside company, that determines the expected environmental gain associated with the product category. Criteria are developed only for product groups in which there are clear differences in environmental quality among products in the same category. If the product category is judged to have the potential for environmental gain, a certifying institution uses a “cradle-to-grave” approach to establish the environmental burden of products in the product group. If this study suggests that the environmental gain will be significant, proposed award criteria for the product groups are discussed in a hearing with involved parties. The Stichting Milieukeur then decides whether to adopt the product category and its associated criteria. Product categories are reviewed every one to three years, and have been updated based on new technologies and changes in manufacturing processes.

Once the criteria for the product category are approved and published, individual manufacturers and importers may submit a product for individual certification to a certifying institution. If a product meets specifications, the certifying institution awards the applicant the use of the logo and signs a contract. All of these processes are confidential. An initial fee of 1,000 guilders (\$505 US) is collected, and then an annual fee of 1.5 percent of sales of the product is required for use of the certification. Products are audited every 12 months by the certifying institution to ensure compliance.

### **Program Methodology**

As mentioned above, manufacturers, consumer groups, trade associations, or any other interested party can submit a request for the creation of a new product category to the Stichting Milieukeur. Product categories are evaluated on their potential environmental impacts. Once product categories are chosen, product criteria are developed using a life-cycle-analysis approach. The Stichting Milieukeur does follow SETAC guidelines in its life-cycle assessment.

When selecting product categories and developing criteria, the Stichting Milieukeur takes into account information from literature and studies relating to the product category, as well as other programs’ previous life-cycle-analysis findings. The Stichting Milieukeur also may conduct its own independent testing and studies, and will also obtain information pertaining to the product category from participating producers. In developing its award criteria, the entire “cradle-to-grave” of a product’s life cycle is taken into account and the product is assessed in terms of: the impacts of raw material extraction and processing, the manufacturing of the product, transportation and distribution of the product, the product uses as well as its potential for re-use, recyclability, wastes during disposal, the product ingredients, and, finally, the environmental performance during the production process.



## Other Information

One of the more unique aspects of the Stichting Milieukeur is that it established award criteria for several food categories, including fruits, meats, dairy products, vegetables, and grains. To date, the Stichting Milieukeur is the only environmental labeling program that has established criteria for food as well as non-food categories. They made this decision based on the results of a study that indicated a need for labels on food products.

Although the government uses environmentally-labeled products for procurement on an informal basis, the Stichting Milieukeur is not involved in any formal arrangements with government or retailer procurement programs. Retailers do not preferentially select environmentally-labeled products, but do respond to consumer demand.

The Stichting Milieukeur is a Competent Body in the EU environmental labeling program. They are aware of and employ ISO standards, though these standards do not now play a strong role in the program's activities. They are not a member of GEN.

The Stichting Milieukeur reports that it actively works toward transparency and harmonization. It has a formal arrangement with Scandinavia's Nordic Swan and Germany's Blue Angel, two of the more developed programs. The three programs share ideas and jointly develop criteria for products (for example, toner cartridges and chain oils), allowing for more efficient criteria development and operation.

## References

Brenninkmeijer, Helga. Stichting Milieukeur. Personal communication with Abt Associates. Summer 1997.

Luykx, Elvira. Stichting Milieukeur. Personal communication with Abt Associates. Summer 1997.

Stichting Milieukeur, *The Dutch Ecolabel: Added Value for Products and the Environment*.

Stichting Milieukeur, Background Documents, 1996.

## Product Categories (number of awarded products in parentheses)

### *Final Product Categories*

- Adhesive label
- Automatic car-wash
- Board and card games
- Bottom organic household waste bin
- Car care products

Cat litter (18)  
Central heating systems  
Chain forms  
Chairs (1)  
Cleaning and product recycling of industrial gloves  
Clothes  
Coffee filters  
Coffee makers  
Copying paper (6)  
(Concrete) Pavement tiles  
Envelopes  
(Smooth) floor covering  
Footwear  
Furniture (with the exception of chairs and other seating)  
“Green Funds”  
Hand dryers (paper)  
Hand dryers (cotton)  
Handshowers  
Offset cleaning agents  
Offset paper  
Paints  
Personal computers  
Ring binders/organizers (5)  
(Other) seatings with exception of chairs  
Refrigerators  
Television sets  
Toilet paper (2)  
Toilet chemicals  
Toner cartridges  
Window products (curtains, etc.)  
Writing materials (1)  
Writing paper (17)  
Apple/pear (1)  
Barley/beer  
Bread (3)  
Flowers and pot-plants  
Mushrooms  
Onions  
Pepper (1)  
Porcmeat  
Potatoes (30)  
Sprouts, leek, broccoli, cauliflower, headed cabbage, carrot, strawberry  
Sugarbeet

Tomato, cucumber, courgette, aubergine, melon  
Wheat (1)

*Categories Under Development*

Duvets/pillows

Carpets

Chain oil

Other concrete paving products

Paint cleaners

Dairy products

Meat

Sugar



## **NEW ZEALAND'S ENVIRONMENTAL CHOICE**

### **Introduction**

New Zealand officially started Environmental Choice New Zealand, a voluntary seal-of-approval program, on July 10, 1990. The stated objectives of the program are: to provide an incentive for manufacturers and importers to reduce the environmental impacts of products sold in New Zealand; to recognize the genuine actions by companies to reduce the adverse environmental impacts of their products; to provide a clear, credible and independent guide to consumers wishing to take account of environmental factors in their purchase decisions; to encourage consumers to purchase goods that have lower environmental impacts; and, ultimately, to improve the quality of the environment and to encourage the sustainable management of resources. Product category criteria have been published for 18 product categories. They are all currently under review. Revised criteria are expected to be published toward the end of 1997.

### **Recent Changes**

There has been a significant change in the organizational structure of New Zealand's environmental labeling program. On July 1, 1997, Telarc (the Testing Laboratory Registration Council, or the Council) New Zealand, the organizational body administering the environmental labeling program, was restructured. A new separate company with its own Board of Directors, Telarc Limited, was established to provide all certification services. The accreditation activities are now operating under a new trading name, International Accreditation New Zealand.

### **Program Summary**

Environmental Choice New Zealand is administered by the Testing Laboratory Registration Council (the Council) under a formal memorandum of agreement with the Minister for the Environment. The Council's operational unit, International Accreditation New Zealand, is the New Zealand accreditation authority for laboratories and inspection bodies, and manages Environmental Choice New Zealand. The Council is a statutory body which operates independently on a user-paid, non-profit basis.

The Environmental Choice Management Advisory Committee (ECMAC) is an independent committee appointed to advise the Council on the operation of the program. ECMAC includes individuals appointed to provide broad representation from manufacturing, retailing, packaging, environmental, academic, and consumer interests. ECMAC also includes a representative from the Ministry for the Environment.

ECMAC is responsible for choosing suitable product categories for Environmental Choice New Zealand. Once ECMAC has decided upon a product category, it sets up a Task Group specific to that product category to develop criteria. After the Task Group has completed a draft of the criteria specifications, ECMAC releases the document for public comment. The public comment period

lasts for at least 60 days. The Task Group's responses to these comments are not made available to the public; only the background papers on product specification developments are made accessible to the public. The Task Group then takes these comments and revises the Specification, after which the document is referred to ECMAC. ECMAC, in turn, recommends the requirements to the Council. The Council then decides whether to approve the specification for publication.

Product suppliers, which may include manufacturers, importers, wholesalers, and retailers, may apply for a license to use the Environmental Choice New Zealand label as soon as a product category specification has been published. A life-cycle approach is used to analyze whether the product satisfies the criteria. Environmental Choice New Zealand may require product testing performed by an accredited laboratory, and/or examination of the relevant manufacturing records to verify that a product meets the product category specification. If the Environmental Choice assessor is satisfied that a particular product complies with the requirements, the applicant is granted a license to use the program's label. Applicants pay an application fee (\$1000), and, if a product is accepted, an annual licensing fee as well. Licensing fees are calculated on a sliding scale depending on the sales volume for that product, and run between \$1,000 and \$5,000.

License holders are subject to payment of fees and continued compliance, which is monitored by Environmental Choice New Zealand throughout the period. Licenses are renewed annually. Environmental Choice New Zealand gives license holders notice before revising product category specifications and 12 months, if necessary, to adjust to new requirements. As of January 1997, three companies have been granted licences. These licenses cover over 50 separate paint and carpet products.

### **Program Methodology**

ECMAC is responsible for choosing suitable product categories for Environmental Choice New Zealand. A Task Group is then set up by ECMAC for each product category to develop criteria. In choosing product categories, the environmental impacts of the potential categories, stakeholder votes and advice from ECMAC, and suggestions from producers are all taken into account. A life cycle approach is used to analyze whether the product satisfies the criteria, which takes into account every stage of the product's life cycle, from "cradle-to-grave." Factors such as raw material use, product uses, recyclability, potential for reuse, product ingredients, and environmental performance of the production process are all taken into consideration. Similar to other environmental labeling programs, Environmental Choice New Zealand also uses literature, other programs' LCAs, independent testing and studies, and participating producer's suggestions when developing their product criteria. Finally, Environmental Choice New Zealand uses generic environmental impact assessments in developing its criteria. It does not, however, follow SETAC guidelines in its LCA.

## Other Information

Because Environmental Choice New Zealand uses a sliding scale of licensing fees, it is able to accommodate the needs of small and medium sized businesses.

In setting up Environmental Choice New Zealand, the government wanted to ensure that the program be credible, practical, independent, nonpartisan, and comparable to other programs such as Canada's Environmental Choice Program. To harmonize and coordinate with other programs, Environmental Choice New Zealand has aligned its procedures with the requirements of: the ISO 14020 and ISO 14024 guidelines; the Global Ecolabeling Network guidelines; and the World Trade Organization, Technical Barriers to Trade Agreement, Code of Practice. Product criteria developed by other programs are considered when Environmental Choice New Zealand product specification documents are prepared. Additionally, Environmental Choice New Zealand is in the process of exploring specific opportunities to recognize local conditions, such as regulatory requirements, affecting other labeling programs as well as products manufactured outside New Zealand.

Environmental Choice New Zealand reports that it has not had any trade conflicts to date.

## References

Environmental Choice New Zealand. *Published Specifications*. July 1997.

Environmental Choice New Zealand. *Schedule of Fees - 1997/8*.

Heinke, Gary W. et. al. *Final Report: Development of an Eco-label Certification Programme for Hong Kong/ RC96-19*. Hong Kong: Research Centre of the Hong Kong University of Science and Technology, June 1996.

Russ, Marje. International Accreditation New Zealand. Personal Communication with Abt Associates. September 1997.

## Product Categories (number of awarded products in parentheses)

### *Final Categories*

- Zinc air batteries
- Carbon zinc batteries
- Lead acid batteries
- Recycled plastic products
- Laundry detergents
- Machine dishwashing detergents
- Hand dishwashing detergents
- Re-refined lubricating oil

Paints (41)  
Fine papers  
Newsprint and derived products  
Sanitary paper products  
Moulded paper products from recycled paper  
Macerated paper products from recycled paper  
Recycled papers  
Wool pile carpets (14)  
Wool-rich pile carpets



## SINGAPORE'S GREENLABEL

### Introduction

The Ministry of the Environment (ENV) in Singapore launched its ecolabeling program, the “GreenLabel,” in May 1992 to “promote green consumerism” among Singapore's citizens. The GreenLabel was formed as part of Singapore’s “Green Plan,” which is the country’s overall environmental management plan. The GreenLabel is a voluntary seal-of-approval program and is open to both Singaporean and foreign companies that meet the specified product criteria. According to the Ministry of the Environment, the GreenLabel is designed to raise consumer awareness of products that exert comparatively fewer impacts on the environment, and to raise environmental awareness in general. In addition, the GreenLabel is designed to provide an incentive for “manufacturers to account for the environmental impact of their products, and to design and supply environmentally benign products” (Ong, 1997).

Singapore’s GreenLabel program cites several measures as evidence of its success in increasing environmental awareness among consumers. In a 1994 survey of 1,600 households, 50 percent of respondents said that they recognized the GreenLabel. Of these, 78 percent recognized the GreenLabel as a signature of environmentally preferable products. A significant number of those surveyed said that they would pay up to 10 percent more for environmentally preferable products. Thirty percent of those surveyed said that they consider a product’s environmental attributes as part of their purchasing decision process.

When the GreenLabel program began in 1992, award criteria were released for only five product categories. As of June 1997, the program covered 26 product categories broadly classified into ten product groups. As of March 1997, 702 products carry the GreenLabel. These products are produced by 137 different manufacturers.

### Recent Developments

The GreenLabel program reports that since the program’s inception in 1992, it has adopted the methodology for determining award criteria as outlined below. The program reports that there have been no significant changes in this methodology since the program began.

### Program Summary

The GreenLabel program is administered by the Environmental Health Department under the Ministry of the Environment. The ENV Secretariat receives proposals for new product categories from the public and industry. In addition, it is the Secretariat that receives and processes applications for the GreenLabel from manufacturers, collects fees, responds to inquiries about the program from the public and applicants, produces newsletters on the GreenLabel program, and provides information about the program to the media.

Draft product criteria are developed by separate Technical Workgroups (one for each product category) consisting of experts with knowledge of the manufacture, distribution, usage, and disposal of products in the category under consideration. Once draft product criteria have been developed by the Technical Workgroup, an Advisory Committee, consisting of representatives from industry, academia, statutory organizations, and environmental groups, assists the Secretariat in endorsing the most appropriate product criteria for the GreenLabel. These draft criteria are released to the public and industry for comment.

As well as being peer reviewed, the public and industry have a 30-day period in which to provide comments on the draft product criteria. The Secretariat collects these comments and forwards them to the Advisory Committee for review and consideration. The finalized criteria are forwarded to the Approving Board (consisting of senior staff members from the Ministry of the Environment) for final approval. Although the public comments and the Advisory Committee's responses are not published, once approved, the Secretariat publishes the final criteria and manufacturers are then allowed to apply for the GreenLabel.

Manufacturers with products that meet the specified product criteria are equally eligible to apply for the GreenLabel. Applicants are given application kits that lay out the terms and conditions for product approval and for the use of the GreenLabel. Compliance with the final criteria are verified through quality control and production record checks, as well as testing of sample products in accredited laboratories. An approved product is granted a license to carry the GreenLabel logo for three years. Product criteria are reviewed every three years in order to keep up with the latest technological developments associated with the product category. If major revisions to the product criteria are made at this time, manufacturers may be required to have their products re-tested to ensure that they comply with the revised criteria.

The GreenLabel is open to both domestic and foreign manufacturers wishing to become eco-certified in Singapore. This is especially important for Singapore, since the majority of products available in Singapore are manufactured overseas. As a result, it is important for ENV to encourage and convince foreign manufacturers to apply for and use the GreenLabel on their products before shipping them to Singapore. Foreign companies often employ agents or distributors in Singapore to work with them to apply for the GreenLabel. The Ministry of the Environment has made suggestions that an international and/or regional body should be set up to initiate information exchange and to promote methods of mutual recognition; however, a formal proposal of this nature has not been made.

ENV bears all the administrative costs of the program so fees are kept low in an effort to encourage as many manufacturers as possible to apply for the GreenLabel. If a company applies for certification of a product within one year of the date of release of the final criteria for that product category, it does not pay any fees for the first five years. If the application is made a year or more

after the release of the final criteria, fees are waived for a period of only three years. Other than the certification fees, most of which are waived, the manufacturer is required to pay for product testing.

### **Program Methodology**

When the ENV Secretariat receives proposals for product categories, it determines their suitability for the GreenLabel by evaluating the environmental impacts of the categories. Once product categories are selected, award criteria are drafted. Award criteria are based on a simplified life-cycle assessment, which assesses the environmental impacts of the “few most important parameters” for each product category. Instead of examining every impact that a product exerts on the environment, from cradle-to-grave, the Singapore program isolates and studies the most important environmental concerns for the country. For example, products may be assessed on their potential impact on water and energy resources, since Singapore is not self-sufficient in either of these areas. Or the assessment may be based on solid waste disposal impacts, since Singapore has very limited solid waste disposal capacity. Award criteria may also be based on literature and environmental studies on the product categories’ impacts on the environment, other programs studies and award criteria, previous life-cycle assessments that may have been conducted by other programs, and participating producers’ input and knowledge about the product categories. Additionally, the product use, its ability to be recycled, and its ingredients are considered when developing award criteria.

### **Other Information**

Singapore’s Ministry of the Environment intends to review the GreenLabel criteria once the International Standards Organization’s (ISO) 14020 standards for ecolabeling are finalized. However, the Ministry, does not believe that the GreenLabel scheme will undergo major restructuring based on its review of the current ISO 14020 draft documents.

The GreenLabel program is non-revenue-generating; therefore, media promotion of the program is done on a relatively limited basis. The major form of promotion for the program is actually through the manufacturers themselves. Manufacturers who apply for the ecolabel are required to use it on their certified products. Licensees’ advertisements are the main vehicle for spreading the word about the GreenLabel. Advertising promotes the manufacturer’s products as being environmentally preferable, adding value to the products, and is of benefit for the program. ENV also publishes *The Resource Conservation Bulletin*, which provides regular updates on the program. The GreenLabel is also promoted during Singapore’s annual “Clean and Green Week” held in schools and youth fairs.

## References

Dr. Peck Thian Guan, Deputy Director, Environmental Technology Centre, Singapore Productivity and Standards Board. Personal communication with Abt Associates. July, 1997.

Mr. Alvin Ong, Ministry of the Environment. Personal communication with Abt Associates. August, 1997.

Ministry of the Environment, "*Make the GreenLabel Your Choice: A Guide to the Singapore Green Labelling Scheme.*"

Ministry of the Environment, *Resource Conservation Bulletin*, July, 1996.

Dr. Peck Thian Guan and Mr. Tan Choon Seng, *The Singapore Eco-Labelling Scheme*, January/February, 1997

## Product Categories

### *Final Categories*

- Stationary Paper
- Hygiene Paper
- Printing Paper
- Office Automation Paper
- Carbon-zinc battery
- Alkaline battery
- Compact fluorescent lamp (integral)
- Compact fluorescent lamp (modular)
- Standard laundry powder detergent
- Concentrated laundry powder detergent
- Laundry liquid detergent
- Dishwashing detergent
- Floor cleaner
- Washing machine
- Correction fluids/tapes
- Hair-spray/gel/mousse
- Deodorant sticks/rollers/spray
- Shaving foams and creams
- Computer system unit
- Computer monitor
- Computer system with 'built-in' monitor
- Precast concrete products ( )
- Bricks (made from waste or recycled materials)
- Tiles/Ceramics (made from waste or recycled materials)

Solar cell powered calculators  
Solar cell powered watches

*Categories Under Consideration*

Air conditioners  
Refrigerators  
Freezers



## **SPAIN'S AENOR - MEDIO AMBIENTE**

### **Introduction**

The Medio-Ambiente ecolabeling program in Spain was developed in 1993 by the Spanish Association of Standardization and Certification (AENOR). AENOR, a privately-run organization, acts as the Competent Body for awarding the European Union ecolabel in Spain (as part of the EU scheme). AENOR is a member of the Global Ecolabeling Network (GEN) and participates in the development of the International Standards Organization (ISO) ecolabeling standards. The program is voluntary, and aims to promote the production of environmentally preferable products and to provide information about the environmental impacts of available products. To date, criteria have been set for three product categories: paints and varnishes, polyethylene bags for waste, and polyethylene bags for the supermarket. In total, 14 labels have been awarded for positive environmental attributes.

### **Recent Developments**

Spain's ecolabeling program has changed little in its first three years of operation. Its rates of product category definition and award criteria development are, however, increasing. Product groups for which criteria development is very close to being completed include: paper products, solar plates for solar lighting, photocopy machines, and cleaning products for cars. Additionally, AENOR is working on criteria for vacuum cleaners, TVs, glass materials, tiles, and wood/metal transporting materials.

AENOR notes increased retailer interest. With the growing interest of retailers in Spain's ecolabel, this area could develop in the near future. Because the program is fairly new, however, associations with procurement programs, either formal or informal, have not been developed.

### **Program Summary**

Product groups and criteria are suggested by manufacturers and consumers and are selected by AENOR based on market studies. They are then forwarded to the AENOR Environmental Certification Technical Committee. This committee is composed of members of interested parties, including manufacturer associations, consumer associations, ecological groups, test laboratories, and control and inspection bodies. The criteria are then developed and approved by the Committee. Criteria are reviewed every three years. AENOR reported that any interested party may participate throughout the entire process.

Once award criteria are established, applicants may submit an application to the AENOR environmental division. AENOR audits the applicant and sets up testing by an accredited laboratory (selected by the Spanish Accreditation Body). If the review is favorable, the application is passed on to the Environmental Certification Technical Committee. If there are no objections, the Committee approves the application and awards the label. All application information is kept

confidential until an award is given, when applicant information becomes public. The applicant is responsible for an initial fee of about \$700, which includes all testing and audit fees. Once awarded use of the label, the applicant then pays 0.1 percent of its annual sales to AENOR, as well as the fees for an annual compliance audit (the cost of this audit depends on the size of the producer's facilities).

### **Program Methodology**

A life-cycle analysis is conducted for each potential product group, taking account of impacts from raw materials selection to product disposal.

### **Other Information**

AENOR is sensitive to small and medium sized businesses, as reflected in its percentage-based fee system, which allows companies with smaller sales to incur smaller ecolabeling costs. In fact, the majority of products currently labeled in Spain are manufactured by small companies.

As mentioned above, AENOR is a member of ISO and GEN, and is the Competent Body for the EU. AENOR bases its criteria on ISO standards and is a participating member in continuing standard development. It believes that GEN is a very good organizing body, especially for increasing the role of mutual recognition in ecolabeling. With GEN offices in Sweden, Japan, and the US, AENOR feels that GEN has strength in an international forum. In an effort to increase coordination among programs, AENOR is participating in a study conducted by the Danish Environmental Protection Agency about European ecolabels.

According to AENOR, the organization has not encountered any trade issues or conflicts.

### **References**

AENOR, *AENOR-Medio Ambiente Eco-Label*.

Tejera Oliver, Jose Luis, AENOR. Personal communication with Abt Associates. Summer 1997.

### **Product Categories**

#### *Final Categories*

- Paints and varnishes
- Polyethylene bags for waste
- Polyethylene bags for supermarkets



*Under Development*

Paper products, including envelopes and folders

Solar plates for solar light

Photocopy machines

Cleaning products for cars

Vacuum cleaners

Televisions

Glass materials

Tiles

Wood/metal palates for transporting materials



## **SWEDEN'S GOOD ENVIRONMENTAL CHOICE**

### **Introduction**

Sweden's Good Environmental Choice program was founded in 1990 by the Swedish Society for the Conservation of Nature (SSNC), Sweden's largest environmental organization. The environmental certification program is private, positive, and voluntary, and has evolved into a product and shelf labeling program from what was originally a guide to environmentally sound shopping published by the Society in 1988. In 1989, the Swedish Cooperative Federation (KF), one of Sweden's largest retailers, initiated a shelf labeling program that encouraged the purchase of goods recommended by the Society's guide. By the end of 1989, the two other largest Swedish retailers, ICA and Dagab, joined with KF in sponsoring an ecolabeling scheme that became the Good Environmental Choice Program.

Good Environmental Choice has criteria for 17 product categories and has approved 1,139 products to date.

### **Program Summary**

The Society for the Conservation of Nature administers the Good Environmental Choice program, although some of the program functions are performed by the Board of the program. The Board is composed of three representatives from the Society for the Conservation of Nature (one of whom is the chairman with a casting vote), as well as three trade representatives (one from each of the sponsoring retailers).

The Board is responsible for selecting the product categories.

The Society for the Conservation of Nature develops criteria for each product category. Criteria are based on single attributes. The Society does not attempt to perform a life cycle analysis (LCA) to determine product criteria because it believes that unequivocal judgments, upon which LCA is based, are not possible, even given "unlimited time and resources." For this reason, the program has decided to concentrate its efforts on "things that can be changed now." The criteria are written and approved independently of the Board, although in this process the Society may consult universities, public authorities, and occasionally private businesses.

To have a product approved by the Good Environmental Choice program, manufacturers must declare the ingredients of their products to the Society. In certain cases, more information is required, such as the emissions of a product during production. Instructions of the required information are available from the Society. Approved products are included in the register of Good Environmental Choice products that is published by the Society, and are also identified by program shelf labels in supermarkets of the three retailer sponsors. Because costs are borne by the Society and the participating retailers, manufacturers are not required to pay a fee to have their products listed in the register or displayed on the Good Environmental Choice shelves. A

manufacturer may also choose to print the Good Environmental Choice falcon logo on their product, in which case they must apply for a licence from the Society and pay a fee of SEK 5000 (US\$664) for the first product, and SEK 1500 (US\$200) for any additional products.

### **Program Methodology**

The Good Environmental Choice program selects product categories and qualifying criteria. After analyzing a resource impact matrix for a particular product category, the most important aspect (e.g., bleaching for paper products) is identified as the basis of the criteria. The program does not attempt to perform a life-cycle assessment (LCA).

### **Other Information**

The Swedish Society for Nature Conservation began working in 1992 with the Swedish Confederation of Professional Employees (TCO), the National Board for Industrial and Technical Development in Sweden, and SEMKO (a tester and certifier of electrical products), to develop environmental labels for personal computers. The goal of the labeling program is to influence technical developments in the field of information technology, as well as make it easier for companies to choose good equipment from the environmental standpoint. The first stage of the program development created TCO'92, a label for computer monitors. The more recent program, TCO'95, provides a label for complete personal computers (monitors, system unit, and keyboards). The label for used for TCO'95 shows the falcon emblem from the Swedish Society for Nature Conservation.

### **References**

Swedish Society for Nature Conservation. *Bra Miljöval; Products approved as Good Environmental Choice*. 18 June 1996.

Swedish Society for Nature Conservation. *Good Environmental Choice; Environmental Criteria*. 24 May 1996.

Swedish Society for Nature Conservation. *Good Environmental Choice; Environmental Criteria for [various product categories]*. 1995.

TCO, Swedish Confederation of Professional Employees. *TCO'95 Certification; Requirements for environmental labelling of personal computers*. Second Edition. Stockholm, Sweden. 12 April 1995.

## TAIWAN'S GREEN MARK PROGRAM

### Introduction

The Green Mark Program was launched in 1992 by Taiwan's Environmental Protection Administration as a voluntary and positive ecolabeling program. The mission of the Green Mark is to "promote the concept of recycling, pollution reduction, and resource conservation." The program is currently administered by the Environment and Development Foundation (EDF), a private institution.

The objectives of the Green Mark are to guide consumers in purchasing "green" products, and to encourage manufacturers to design and produce them. The Green Mark expects to meet these goals through the following steps: selecting "environmentally benign" products to meet domestic demands; developing criteria; encouraging the public to consume Green Mark products, which will in turn stimulate their production; and participating in international activities such as ISO and GEN.

As of September 1997, The Green Mark Program had developed criteria for 41 product categories (two more are nearly complete) and had certified 451 products. Of the current 102 licensees (companies with one or more certified product), four are foreign-based -- two from the United States, one from Indonesia, and one from Singapore. These foreign-based licenses are for mercury-free batteries, detergent, and water-saving cisterns.

### Recent Developments

Until recently, the Industrial Technology Research Institute (ITRI) acted as the Implementation Body of the Green Mark program; however, it was replaced by the Environment and Development Foundation (EDF). EDF was created for the following reasons. First, because ITRI provides consulting services for both the Environmental Protection Administration (EPA) and the Ministry of Economic Affairs (MOEA) and is considered their "technical arm," it is viewed by the public as a government-funded private organization. In contrast, it is hoped that EDF will be viewed as a more impartial, private organization. Second, the EPA hopes to gradually decrease its control and funding of the Green Mark program; it is anticipated that independent operation will help the program to become self-sufficient over the next five years. Third, because EDF is independent, it can be more flexible than ITRI in international cooperation activities. In the future, ITRI will give both technical and administrative assistance to EDF.

The effectiveness of the Green Mark Logo in the marketplace is unclear. The Logo is reported to be well known within the industrial sector, and many manufacturers are enthusiastic about applying for it. They would like to see the program expand the number of product categories. Among licensees surveyed, nearly 80 percent reported that the Logo is helpful for their company image, and 72 percent said it is helpful for promoting business. Despite these positive views,

several non-profit environmental groups are unsatisfied with the Green Mark Logo's low visibility among consumers. A 1996 ITRI survey shows that only 40 percent of the general public recognize the Logo, and only 30 percent of them report having bought labeled products.

## **Program Summary**

The Green Mark is overseen by Taiwan's EPA and managed by EDF. The program is reviewed by the Review Committee, which has representation from the government, non-governmental organizations, academia, and other stakeholders. Other groups involved in the process are the manufacturers who receive the Green Mark Logo, and stakeholders such as manufacturers associations and consumer and environmental groups.

As the managers of the Green Mark Program, EDF is responsible for selecting product categories. To do so, it performs an annual survey of experts, industrial associations, and NGOs. EDF also collects information on product criteria, criteria scope, the major environmental concerns, and sometimes test methods, from foreign ecolabeling programs. Among the attributes considered during the review of proposed product categories are: threat to environmental quality; cannot be replaced by an existing "environmentally benign" product category (e.g. mercury-containing batteries can be replaced by mercury-free batteries); have less environmental impact than similar products; and cannot have any adverse effects on health and safety of humans. In addition, there must be a sizable number of domestic and foreign manufacturers. Proposed categories must be approved by the Review Committee.

EDF is also responsible for developing product criteria. The development process follows three guiding principals:

1. Product criteria should take into consideration Taiwan's local environmental conditions by accounting for such problems as insufficient water and electricity supply, and a landfill shortage, by including Green Mark criteria for low water and/or electricity use, or products that produce less pollution.
2. Between twenty and thirty percent of manufacturers must be able to meet the criteria with "reasonable" process modifications.
3. Criteria are compared with criteria from other ecolabeling programs.

Non-environmental attributes are addressed generally; it is the responsibility of manufacturers to be in compliance with environmental and "other related regulations," such as quality, safety, and industrial hygiene. As an example, the criteria for "Compost" cites the Council of Agriculture's specific regulation on compost regarding functional characteristics, among other things. Proposed criteria are submitted to a technical group convened for each product category. Criteria are announced at public hearings with manufacturers, government agencies, and experts. Finally, the proposed criteria are approved by the Review Committee. EDF usually develops six product criteria every year.

EDF is currently in the process of redesigning the product criteria review process. The Review Committee consists of 21 members with very diverse opinions, and decision-making has become difficult. Furthermore, the group meets only once every two months to review the product criteria. A smaller committee is under consideration to ease meeting logistics and to reach consensus decisions more quickly.

To be considered for the Green Mark Logo, manufacturers must provide documentation about both the company in general, as well as the specific product. Importers can apply for the Green Mark Logo if they can certify that they have had no significant environmental performance problems during the year prior to the application date. Documentation must include test reports completed by accredited laboratories on all quantifiable and measurable requirements in the criteria. Applicants must also submit signed statements regarding other qualitative or nonmeasurable requirements, for example, certification that a particular chemical was not used in the product's formulation. EDF reviews the submitted documents from manufacturers, conducts an audit, samples and inspects the product, makes a recommendation for award, and monitors the use of the Green Mark Logo.<sup>5</sup> The Review Committee is responsible for awarding the Logo. The award is valid for two years, and the licensee may re-apply, following all requirements set forth in the guidelines. No licensee has ever failed to qualify upon renewal.

Although it is the responsibility of the licensee to ensure that they remain in compliance with Logo requirements, EDF conducts a follow-up site test with a random 20 percent of the licensees. EDF also performs on-site investigations when EPA notifies them of a possible label misuse. Another way that the Green Mark Program ensures that the label is used correctly is through market sampling on the part of non-governmental organizations, as well as EDF and ITRI staff. EDF reports that most instances of misused labels have been in advertising.

Currently, EDF collects only an application fee from applicants, although it plans to begin collecting annual fees next year. The application fee is approximately US\$715 for new applications, and approximately US\$535 for renewals. The Green Mark program's funding is mainly from the EPA. Its budget increased from \$70,000 in the initial years to \$363,000 in the past four years, and is expected to be \$500,000 in fiscal year 1997.

The number of products approved for the Green Mark Logo has increased over the years, with the exception of a significant drop in 1996 when the category "products using CFC substitutes" was discontinued. This category was no longer necessary when all products in it, such as refrigerators and air conditioners, changed to CFC substitutes. Products bearing the Logo are not only purchased by retail consumers, but by industry as well. Industrial products include cement, insulation material, and bricks. According to the Program Director, Taiwan should have a

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<sup>5</sup> EDF can invite experts and scholars to assist with product inspections.

“Government Procurement Policy” within the next few years, which would require government agencies to buy Green Mark products or products with equivalent environmental attributes. Taiwan will give a “price preference” of 10 percent for such products, meaning that the government will pay up 10 percent more for a product with specific environmental attributes.

## **Program Methodology**

The Green Mark program is beginning to incorporate the concept of life-cycle assessment (LCA) into its product criteria development. Taiwan adopted LCA because ISO 14204 requires that Type I ecolabeling programs use “Life Cycle Consideration” when developing product criteria. This approach differs from the early stages of Green Mark’s product criteria development, when criteria were often simple and based on one attribute, such as a preference for cloth diapers because they reduced inputs into the solid waste stream. Because of the complexity of LCA, however, the Green Mark program uses only simplified LCA techniques, using the matrix in ISO 14024 to make qualitative judgments regarding the environmental attributes associated with each product. As an example of the simplified LCA approach, when the criteria were developed for compact fluorescent lamps, the following attributes were considered: the amount of mercury discharged upon disposal, the level of electricity conserved, the volume of waste lamps disposed, and the nature and quantity of toxic materials used in the manufacturing process.

When selecting product categories, EDF evaluates environmental impacts of potential categories, uses a political process of voting, and selects categories when producers come forward voluntarily. The following have been considered in the development of product criteria: extracting and processing raw materials, manufacturing, transportation and distribution, product uses, reuse, recycling, final disposal, and ingredient or materials restrictions. The development process includes collecting information from literature, other programs, and participating producers. Proposed criteria are peer reviewed, but the critiques are not available to the public. The Green Mark Program does not conduct an impact assessment, but does follow SETAC guidelines.

## **Other Information**

The program is accessible to all small and medium sized businesses, and although the Program does not have a program to encourage their participation, half of the licensees are small or medium sized.

Taiwan is an active member of GEN and is working closely with other ecolabeling programs on ISO draft standards. In addition, Taiwan has finalized a mutual recognition agreement with TerraChoice in Canada. One problem encountered during the negotiations was that Green Mark requires recycled content tissue paper to be 100 percent domestically recycled. To facilitate the agreement, “domestically” was deleted from the standard. Taiwan is also working with TerraChoice on establishing a mutual recognition framework and process. The goal is to establish a system that “enables reciprocal acceptance of tests, inspections, conformity assessment, administrative procedures, and, where appropriate, environmental criteria.” According to the



March 97 issue of *GENews*, such a system would include a set of guiding principals incorporating international trade agreements and ISO standards, and would deal with transparency and open access, as well as mutual confidence and respect; flexibility to deal with “different ecosystem sensitivities, products, values, priorities and marketplaces in different countries;” and cooperation mechanisms.

In an effort to expand the awareness of the Green Mark Program, the program participated in the five-day National Environmental Protection Week held in January 1997. The Green Mark booth exhibited products bearing the Green Mark Logo. It received over 200,000 visitors during the exhibition. On a more regular basis, the Program educates the public about new product criteria by way of announcing them in the newspaper, distributing a quarterly journal to over 3,000 industrial and governmental sector recipients, and posting updates on its Internet Web site (<http://www.greenmark.itri.org.tw>).

## References

Yu, Ning, Ph.D. Environment and Development Foundation, Taiwan, ROC. Personal communication with Abt Associates. Summer 1997.

Global Ecolabel Network. *GENews*. March 1997.

Green Mark Program, Taiwan, ROC. [Online: Web]. Updated 26 March 1997, cited 10 September 1997. URL: <http://www.interchg.ubc.ca/ecolabel/taiwan.html>

Industrial Technology Research Institute. *Green Mark; The Environmental Labelling Program in Taiwan, Republic of China*. January 1996.

Industrial Technology Research Institute. *List of Green Mark Product Categories*. 30 June 1997.

Green Mark Program, Taiwan, ROC. [Online: Web]. Cited 10 September 1997. URL: <http://www.greenmark.itri.org.tw>

## Product Categories (number of awarded products in parentheses)

### *Final Categories*

- Products made from recycled plastic or waste rubber (15)
- Office use papers from recycled paper (2)
- Toilet papers from recycled paper (1)
- Stationery papers from recycled paper (33)
- Packaging papers from recycled paper (41)
- Portland blast furnace cement (3)
- Thermal insulation materials for building (5)
- Mercury-free batteries (15)

Products using solar energy battery  
Cloth diapers (1)  
Water-based paints (13)  
Products made from recycled wood (6)  
Products using substitute for CFCs [dropped] (82)  
Beverage cans with stay-on tab (39)  
Refilling pouch (4)  
Single flush cisterns (96)  
Personal computers (2)  
Monitors (16)  
Printers  
Reusable shopping bags (2)  
Electric motorcycles  
Compact fluorescent lamps  
Washing machines (29)  
Laundry detergents (1)  
Dish-washing detergents for handwash  
Non-bleached towels  
Dual-flush water saving cisterns (2)  
Household refrigerators and freezers (30)  
Household air conditioners (13)  
Compost (1)  
Building Material Made from Recovered Wastes (1)  
Agricultural-use products from degradable plastics (new)  
Packaging-use products from degradable plastics (new)  
Sanitary products from degradable plastics (new)  
Consumer products from degradable plastics (new)  
Non-asbestos friction material (new)  
Tooth Brushes with Replaceable Heads (new)  
Glow Starter for Fluorescent Lamps (new)  
Water-saving Faucets/Devices (new)  
Water Conserving Dual-flush Cistern Retrofit Devices (new)

*Guidelines Under Development*

Shower heads  
Stabilizers

## THAILAND'S GREEN LABEL SCHEME

### Introduction

The Thai Green Label Scheme was initiated by the Thailand Business Council for Sustainable Development in October 1993. It was formally launched by the Thailand Environmental Institute (TEI) in association with the Ministry of Industry in August 1994. The scheme awards a seal of approval to products meeting its criteria, and is voluntary in nature.

The program was developed with three objectives in mind: to provide reliable information and guide customers in their product choices; to create an opportunity for consumers to make environmentally conscious decisions and thus create a market incentive for manufacturers to supply environmentally sound products; and to reduce environmental impacts that occur during manufacture, use, consumption and disposal of products. To date, the program has developed product criteria for nine product groups. The Green Label has been awarded to 41 products to date in seven of the nine product categories.

### Recent Developments

The program reports that it has not undergone any significant changes since its inception.

### Program Summary

The Thai Green Label is composed of several committees. The Thai Green Label Board is the overarching entity responsible for making all major decisions, including deciding on basic strategies, selecting product groups for consideration, deciding on criteria, deciding on the structures and levels of fees, and deciding on supporting activities. Its members are appointed by the Minister of the Ministry of Industry.

The Board is supported by two groups: the Technical Subcommittee and the Secretariat (TEI and The Thai Industrial Standards Institute-TISI). The Technical Subcommittee develops proposals including product criteria, test methods, and the requirements for applicants. A new subcommittee is established for each product category, composed of experts from relevant institutes, industry, and environmental groups. The Secretariat organizes meetings and prepares materials to be discussed by the Board.

The general public presents proposals for product groups to the Secretariat, which are then submitted to the Board. Once the Board decides on the product categories, it sets up a technical subcommittee to work on the criteria. The Secretariat is then responsible for submitting the final proposal to the Board, which decides on the criteria and announces the decision to the public. The criteria are developed on the basis of a life-cycle review and are reviewed every two years. The draft criteria are made available to the general public upon request. The public can provide comments on the draft criteria. Responses and critiques to these comments are not published.

Once award criteria have been set, product applications are accepted. TEI examines applications to make sure that all criteria are met, and then passes them along to TISI for further investigation. Once criteria fulfillment has been determined, TEI registers the application and enters into a contract with the manufacturer. An application fee of 1,000 Baht (\$29 US) is collected from the applicant, and then another fee of 5,000 Baht (\$144 US) is collected once the product has been awarded the label. TEI is responsible to ensure that the label is not misused.

### **Program Methodology**

When choosing product categories, the Green Label uses “life-cycle-considerations” which evaluate products based on their environmental impacts at each stage of the product’s life-cycle. Additionally, a political process and stakeholder and legislative body votes are used to chose product categories. When product categories are selected, the product criteria are drafted.

Information for draft criteria are obtained from independent studies and testing, participating producers, and other programs’ previous LCAs. In fact, the Green Label maintains contact with ecolabeling programs in Singapore, the EU, and Japan, and have adopted some of these programs’ criteria in establishing its criteria. Criteria take into account product uses, potential for reuse, potential for recycling, ingredients, resource use, and wastes generated during final disposal.

### **Other Information**

The Thai Green Label program is accessible to both small and medium sized business. The Thailand Industrial Standards Institute is a member of ISO, and a representative attends ISO meeting on a regular basis. The Green Label program maintains contact with the German, Singapore, EU and Japan ecolabeling programs. Germany has, in fact, helped them to form their program. The program does not report any trade conflicts to date, with regard to the Green Label. Thailand is not a member of GEN.

### **References**

Green Label Thailand. Product Category Summary. July 1997.

Green Label Thailand. *A Guide to the Thai Green Label Scheme*. August 1997.

Heinke, Gary W. et. al. *Final Report: Development of an Eco-label Certification Programme for Hong Kong/RC96-19*. Hong Kong: Research Centre of the Hong Kong University of Science and Technology, June 1996.

## **Product Categories**

### *Final Categories*

- Products made from recycled plastics
- Energy-saving fluorescent lamps
- Environmentally sound refrigerators
- Low-pollutant emulsion paints
- Water-economizing flushing toilets
- No mercury-added dry-cell batteries
- Recycled paper
- Low-energy air conditioners
- CFC-free sprays

### *Guidelines Under Consideration*

- Environmentally sound detergents
- Energy-saving motors
- Water-economizing closing faucets
- Products made from non-bleached cloth



# US PROGRAMS

## RECHARGEABLE BATTERY LABELING

### Introduction

During the early 1990s, many in the rechargeable battery industry sought to create a nationwide battery collection and recycling program. This voluntary industry initiative was impeded, however, by differing state battery labeling and waste management requirements. One type of battery waste might be subject to differing regulations, depending on the state in which it was generated. In particular, differing waste management requirements stemmed in part from the Resource Conservation and Recovery Act (RCRA) of 1976, which regulates the management of hazardous wastes such as used rechargeable nickel-cadmium batteries. In May of 1995, EPA sought to remedy the situation by promulgating the Universal Waste Rule which, among other things, eased the regulatory burden on businesses that generate batteries and certain other hazardous wastes by streamlining some of the most stringent provisions of the hazardous waste regulations. The Rule only took effect, however, when states formally adopted it into their own regulations. As of May 1996, only 32 states had done this, resulting in differing requirements across states and further complicating efforts to implement a nationwide recycling program. Subsequently, the Portable Rechargeable Battery Association (PRBA) pushed for the *Mercury-Containing and Rechargeable Battery Management Act* (the Battery Act), which was signed into law on May 13, 1996. The goal of the Battery Act was twofold: to reduce the mercury content of consumer batteries and to encourage battery recycling. As part of the latter goal, the Act made the Universal Waste Rule effective immediately in all 50 states. In addition, it specified national uniform battery labeling requirements for the collection, storage, and transportation of batteries covered by the Battery Act. Covered batteries include rechargeable nickel-cadmium batteries, certain small sealed lead-acid batteries, and certain rechargeable consumer products powered by such batteries.

### Program Summary

Battery labeling under the Battery Act is unlike most other environmental labeling programs. As a mandatory program, it is dedicated not to product quality differentiation like most labeling programs, but to promoting recycling efforts following product use.

The Battery Act requires that each regulated battery (rechargeable nickel-cadmium batteries and certain small sealed lead-acid batteries) or rechargeable consumer products without an easily removable battery manufactured at least one year after the Act's enactment, bear the following labels:

- (1) 3 chasing arrows or a comparable recycling symbol.
- (2) On each regulated nickel-cadmium battery, the chemical name or abbreviation "Ni-Cd" and

the phrase "BATTERY MUST BE RECYCLED OR DISPOSED OF PROPERLY."

(3) On each regulated lead-acid battery, "Pb" or the words "LEAD," "RETURN," and "RECYCLE," and if the regulated battery is sealed, the phrase, "BATTERY MUST BE RECYCLED."

(4) On each rechargeable consumer product containing a regulated battery that is not easily removable, the phrase, "CONTAINS NICKEL-CADMIUM BATTERY. BATTERY MUST BE RECYCLED OR DISPOSED OF PROPERLY." or "CONTAINS SEALED LEAD BATTERY. BATTERY MUST BE RECYCLED.", as applicable.

(5) On the packaging of each rechargeable consumer product, and the packaging of each regulated battery sold separately from such a product, unless the required label is clearly visible through the packaging, the phrase "CONTAINS NICKEL-CADMIUM BATTERY. BATTERY MUST BE RECYCLED OR DISPOSED OF PROPERLY." or "CONTAINS SEALED LEAD BATTERY. BATTERY MUST BE RECYCLED." as applicable (Public Law 104-142, Section 103)

Alternative labels can be certified by EPA if they convey the same information or conform to a recognized international standard created for the same purpose as the regulation. The Battery Act also gives EPA the authority to impose similar labeling requirements on other classes of rechargeable batteries, should they be deemed toxic and harmful when disposed of through land disposal or incineration.

EPA was designated the official administering agency of the Battery Act. Within EPA, specific responsibilities have been delegated to various offices and divisions. Enforcement issues are handled by the Office of Enforcement and Compliance Assurance, while the Office of Solid Waste (OSW) is responsible for many of the other tasks. Specifically, OSW's Municipal Information and Analysis Branch has been assigned responsibility for interpreting the labeling and easy removability requirements of the act. Its responsibilities also include reviewing applications for alternative labels, as well as petitions for exemptions from the easy removability requirements.

### **Program Methodology**

All regulated batteries and certain rechargeable battery-containing products must be labeled according to Section 103 of the Battery Act. Though some of these regulated product categories are established by the law, the Battery Act does allow EPA to include other classes of batteries should they be deemed toxic and harmful to human health and the environment when incinerated or disposed of in landfills. In this way, the setting of product categories beyond that established by the Act is left to EPA. Labeling criteria are set by the Battery Act however, since EPA can only certify alternative labels if they convey the same information as the labels specified in the regulations. With regulated products labeled, individual product evaluation does not occur.



## Other Information

In December 1995, the International Electrotechnical Commission (IEC) published International Standard IEC 1429 for the labeling of batteries with a Moebius loop (three chasing arrows, established by ISO 7000-1135 as the international recycling symbol) and chemical symbols indicating the electrochemical system of the battery. IEC 1429 hasn't been adopted by the American National Standards Institute (ANSI) as a voluntary US standard. In promoting the Battery Act, however, US rechargeable battery manufacturers recognized that it would be advantageous to comply with IEC 1429 in the interest of wider consumer recognition and reduced burden on manufacturers seeking to comply with both domestic and international standards.

## References

Bagby, Jefferson. President, Global Labeling International Limited. Personal communication with Abt Associates. Summer 1997.

Bleacher, Sam. Portable Rechargeable Battery Association. Personal communication with Abt Associates. Summer 1997.

England, Norm. Portable Rechargeable Battery Association. Personal communication with Abt Associates. Fall 1997.

Fishbein, Bette. *Extended Product Responsibility: A New Principle for Product-Oriented Pollution Prevention*. University of Tennessee, Center for Clean Products and Clean Technologies, June 1997.

Lindsay, Clare. Office of Solid Waste, EPA. Personal communication with Abt Associates, Summer 1997.

Mooney, Saskia and Howrey and Simon. Personal communication with Abt Associates, Fall 1997.

Nogas, Susan. Municipal Information and Analysis Branch of the Office of Solid Waste, EPA. Personal communication with Abt Associates, Summer 1997.

*The Mercury-Containing and Rechargeable Battery Management Act*, Public Law 104-142.

## Product Categories

Toxic rechargeable batteries (e.g. nickel-cadmium and certain small sealed lead-acid batteries)  
Rechargeable consumer products without easily removable batteries



## **THE CHLORINE FREE PRODUCTS ASSOCIATION (CFPA)**

### **Introduction**

During the early 1990s, environmental campaigns against the use of chlorine bleaching in paper manufacturing prompted some manufacturers to seek alternative methods of paper processing. Wishing to publicize the use of such alternative methods, paper and pulp manufacturers interested in chlorine-free bleaching established the Chlorine Free Products Association (CFPA) in March of 1994 as a non-profit trade association dedicated to the elimination of chlorine-based chemistry in manufacturing processes. Supported primarily by pulp and paper manufacturers and associated businesses, CFPA's activities are focused on advocating totally chlorine-free (TCF) processing, educating consumers on chlorine processing alternatives, and developing markets for TCF manufacturers. On June 9, 1997, CFPA announced the development of a certification program for the pulp and paper industry. It is also in the process of developing a certification program for recreational and drinking water purification.

### **Program Summary**

The CFPA pulp and paper certification program is completely voluntary and examines the bleaching chemistry used in paper mills, bleach plants, and/or de-inking facilities. Facilities whose bleaching processes are free of chlorine and chlorine compounds may be certified. While hired technicians perform the actual site visit, CFPA staff set the criteria for chlorine-free processing based on standard TAPPI (Technical Association of the Pulp and Paper Industry) processes used in the pulp and paper industry. The manufacturing plant is visited biannually to ensure compliance with TCF standards. Though CFPA itself is funded by member dues, there are unpublished evaluation fees associated with the certification, which must be renewed annually.

For the pulp and paper industry, CFPA has developed two logos for use on paper products. "Totally Chlorine Free" logos are reserved for virgin fiber papers that have been produced without the use of pulp bleached with chlorine or chlorine compounds. "Processed Chlorine Free" logos are for recycled content papers and indicate that any virgin fiber is totally chlorine-free and that the recycled content, though it may have originally undergone chlorine bleaching, was not re-bleached with chlorine-containing compounds when recycled. The logo also ensures that a minimum of 20 percent post-consumer waste was used. Once certified, companies may use the proper CFPA logo in ads and on retail products. Certified pulp manufacturers may provide their logos to distributors who market or process their chlorine-free goods, but they are responsible for the correct use of the logo. Any use of the logos must be registered with CFPA. CFPA also asks certified facilities for annual sales reports so that they can track the market success of CFPA's certified products. Two facilities are currently certified. The pulp and paper industry is the first to use the logo, but others will use it soon, except water purification.

## **Program Methodology**

CFPA's selection of product categories is done through environmental impact evaluation, political processes, and manufacturer initiative. Product criteria are developed through a published peer-review process. Product criteria address manufacturing processes, product uses, reuse, recycling, ingredient or materials restrictions, and the environmental performance of production processes. Both manufacturers' input and impending studies serve to inform the selection of product categories and the setting of product criteria.

## **Other Information**

As part of its efforts to promote chlorine-free processing, CFPA has been involved in efforts to obtain federal procurement preference for chlorine-free papers under President Clinton's 1993 executive order 12873. This executive order directs federal agencies to purchase "environmentally preferable" products, a designation whose current definition does not include chlorine-free papers. The development since 1993 of several chlorine-free papers that meet federal specifications helps argue for inclusion in the federal government's procurement program.

## **References**

Beaton, Archie. Executive Director, Chlorine Free Products Association. Personal communication with Abt Associates. Summer 1997.

Chlorine Free Products Association. *Guide to TCF & PCF Papers*. 1997.

"CFPA Works to Broaden 'Environmentally Preferable' Designation." *CFPA Today* Spring 1997: 2.

Chlorine Free Products Association. *Use of TCF/PCF Logos 1997 Certification Program*. June 9, 1997.

Chlorine Free Products Association. *A New Association was Formed to Promote TCF Technology and Products*. March 16, 1994.

## **Product Categories**

### *Final Categories*

Virgin fiber paper

Recycled content paper

*Categories Under Consideration*

Drinking water purification

Recreational water purification



## **US ENVIRONMENTAL PROTECTION AGENCY'S CONSUMER LABELING INITIATIVE**

The Consumer Labeling Initiative (CLI) is a voluntary cooperative effort to foster pollution prevention, empower consumer choice, and improve understanding by presenting clear, consistent, and useful safe use, environmental, and health information on household consumer product labels. The CLI was created by the US Environmental Protection Agency (EPA) to reach out to consumers, the chemical industry, trade associations, and environmental and public interest groups to determine what information is needed on consumer product labels, and how that information should be presented. It is one of several EPA efforts resulting from the President's goal to "Reinvent Government." The CLI has been highlighted as a prototype for the Agency due to its innovative research process, one that brought together a cross-section of stakeholders and successfully worked to gather input from diverse points of view. The CLI research and policy formulation began with work groups that included EPA, federal and state government staff, representatives from the United States' leading chemical companies, public interest organizations, and other stakeholders. These groups worked together to ensure that the CLI would be as useful as possible and that results could be used productively by everyone involved at the government, industry, and consumer level.

The CLI is a multi-phased pilot project focusing on indoor insecticides, outdoor pesticides, and household hard surface cleaners, some of which are FIFRA certified, meaning that they are registered antimicrobials or disinfectants. Phase I of the project involved a qualitative consumer research study, a review of comments solicited through a notice in the Federal Register, and a literature review of relevant publications and reports of studies. Phase I research findings were categorized into three areas: 1) labeling issues not requiring further validation; 2) labeling issues requiring further development or statistical validation; and 3) education, policy planning, and coordination issues. EPA has already implemented a number of interim label recommendations based on Phase I findings. These include encouraging producers to: print telephone numbers on product labels, use common names instead of formal chemical names, list "Other Ingredients" instead of "Inert Ingredients," and use "First Aid" instead of "Statement of Practical Treatment."

Phase II of the CLI will include quantitative and secondary research, as well as education activities and policy planning and coordination activities. The research study will focus on consumer comprehension, attitudes, behavior, and satisfaction regarding labeling, as well as an evaluation of labeling alternatives. Education activities will be aimed at consumers and will emphasize the importance of reading the label. Through the policy and coordination activities, EPA will investigate issues relating to ingredients, health and safety, and product storage and disposal.





## **THE RAINFOREST ALLIANCE - ECO-O.K. CERTIFICATION PROGRAM**

### **Introduction**

The Rainforest Alliance is an international nonprofit organization dedicated to the conservation of tropical forests. Founded in 1987, its mission is to develop and promote economically viable and socially desirable alternatives to the destruction of rainforests, an endangered, biologically diverse natural resource.

In 1991, the Rainforest Alliance created a labeling program called ECO-O.K., that specifically targets agricultural products grown at the expense of tropical ecosystems. The program has developed standards for bananas, coffee, and oranges, and is in the process of developing standards for cocoa and cane sugar. They aim to promote sustainable production of these products in the rainforests of Latin America. To date, ECO-O.K. has certified 5 farms for oranges, 3 farms for coffee, and close to 100 farms for bananas.

### **Program Summary**

Anyone can suggest an agricultural product to the Rainforest Alliance as a possible category. Rainforest Alliance then evaluates the potential impact of the product and decides whether to develop criteria. Certification criteria are developed by a team of producers (farmers), scientists, conservationists, representatives of government agencies, and other stakeholders. Criteria are determined by scientific and community issues, and vary based on specific community needs.

Once criteria have been determined, certification begins with a field evaluation by ECO-O.K. technicians. The technicians document changes that must be made to meet criteria. After the grower has made the changes, the technical team returns to the farm to prepare a detailed report which is then passed on to a review board for approval or rejection. If approved, the product receives the ECO-O.K. seal of approval, distinguishing the labeled product from other retail products in the marketplace. Audits are conducted annually to ensure compliance.

### **Program Methodology**

As mentioned above, anyone can suggest an agricultural product to the Rainforest Alliance as a possible category. Once Rainforest Alliance evaluates the potential impact of the product, it proceeds on whether to develop criteria. Criteria are determined by scientific and community issues, and vary based on specific community needs. The certification criteria for the ECO-O.K. project are unique compared to many of the other programs included in this report, in that they measure social as well as environmental responsibility. The specific guidelines for each of these criteria are extensive, involving many restrictions for each category. Although criteria have been developed for bananas, coffee and oranges, the criteria for oranges are not yet available in English.

Listed below are the basic principles to which any certified farm must comply. These standards are used regardless of crop or country of production.

*Conservation:*

- No deforestation of new farms
- Protect wildlife and native plants
  - no hunting
  - special protection for threatened or endangered species
  - Use native plants in buffer zones
- Conserve forest patches and take measures to improve them as wildlife habitat
- Protect streams and enact special protection for wetlands and riparian areas
- Mandatory canopy cover over coffee and cocoa
- No negative impacts on nearby parks and refuges
- Conserve watersheds

*Community*

- Fair and just treatment of workers
- Adherence to local labor laws and to ILO conventions
- The right to organize and join worker representative groups
- Fair and reasonable working hours within context of the local labor economy
- No racial discrimination
- Age restrictions on hazardous jobs
- Work should not interfere with education for children
- Safe and sanitary working conditions
- Dignified housing for workers living on the farm, including access to potable water
- Access to latrines, washrooms, and potable water
- Access to health care, including regular, mandatory, medical checkups for workers who apply agrochemicals
- Complete analysis of working areas to prevent accidents
- First aid and fire suppressants readily available
- Security measures, including proper safety equipment and secure storage of agrochemicals
- Clean and orderly working environment
- Good neighbor policy toward nearby communities
- Respect for cultures and beliefs
- Always a fair price and a green premium where possible

*Cultivation:*

- Soil conservation
- Vegetative cover

Compost and recycle organic wastes  
Planting on contours; vegetative erosion barriers  
Minimal use of fertilizers, only when warranted by soil analysis  
Crops planted only on suitable areas according to national land-use and soil analysis maps  
Water conservation and reutilization  
Pollution control, including processing plants and mills  
Comprehensive waste management to reduce, reuse and recycle  
Minimal and strictly managed use of pesticides

### **Other Information**

The Rainforest Alliance has not experienced any trade issues. It states that trade issues tend to be minimized because it is a voluntary, non-government, non-profit program.

As explained above, ECO-O.K. is a certification of sustainable operating practices. However, in the European Union, the use of the word “eco” is legislatively restricted to mean “organic.” The ECO-O.K. label is therefore not used, for instance, on Chiquita brand bananas in the EU even though its farms are certified.

### **References**

Holst, Eric. The Rainforest Alliance. Personal Communication with Abt Associates. Summer 1997.

Rainforest Alliance. Brochure. September 1997.

Rainforest Alliance. *The ECO-O.K. Coffee Certification Project*. March 1997.

Rainforest Alliance. ECO-O.K. Update Documents. May 1996.

Rainforest Alliance. *Agricultural Certification Program, Better Bananas, General Production Standards*. August 1997.

Rodriguez, Sabrena. The Rainforest Alliance. Personal Communication with Abt Associates. Fall 1997.



## HVS ECO SERVICES' ECOTEL® CERTIFICATION

### Introduction

The ECOTEL® Certification is a third-party seal of approval awarded by HVS Eco Services to hotels and motels that "demonstrate a heightened level of environmental sensitivity." HVS Eco Services, an environmental consulting firm serving the hospitality industry, created the ECOTEL® Certification in November 1994 and has since awarded the certification to less than 5 percent of the hotels that have applied.

The ECOTEL® Certification was developed in response to a heightened level of environmental consciousness among travelers, as illustrated by the US Travel Data Center's studies, which show that 87 percent of consumers claim to support environmentally-oriented travel companies. Demand for eco-tourism prompted both travelers and hoteliers to wonder what aspects and what level of environmental performance were considered "good." The ECOTEL® Certification helps establish a benchmark for environmental performance, as well as a way for hotels' own environmental claims to be independently verified.

According to HVS Eco Services, undergoing the ECOTEL® evaluation can help to highlight potential environmental and conservation opportunities that can result in significant cost savings. In addition, some ECOTEL®s (certified hotels) are reporting increases in bookings for meetings and room reservations since attaining the certification.

### Program Summary

The ECOTEL® Certification consists of a five-globe rating system where each globe represents a different category of environmental performance: solid waste management; energy management; water conservation and preservation; employee education and community involvement; and legislative compliance and native land preservation. Hotels can be evaluated in any of these categories, although most choose all five. Hotels need only one globe to be considered an "ECOTEL®". Physical facilities and operating procedures are evaluated according to HVS Eco Services' criteria which were developed in consultation with such hospitality and environmental organizations as The Rocky Mountain Institute, The Ecotourism Society, Certified Utility Consultants, and Cornell University's School of Hotel Administration. HVS Eco Services reports that its criteria are reviewed and updated quarterly as well as in response to periodic technological innovations. Although the criteria are proprietary information, evaluated hotels are briefed on which specific certification requirements they failed to satisfy. Based on the evaluation, hotels can be awarded an ECOTEL® Globe Award for each qualifying category.

The ECOTEL® evaluation process begins with a preliminary telephone interview to determine whether a hotel is a viable candidate for certification. The hotel might be asked to submit to HVS Eco Services documentation regarding its environmental program, or to describe specific

environmental projects. Once a basic level of environmental performance is determined, an on-site inspection is then performed by HVS Eco Services personnel who inspect the physical plant and conduct interviews with management, employees, and possibly the local community. Management and employee perspectives help to give evaluators a realistic picture of the hotel operations, while interviews with the local community are conducted as part of their evaluation for the "employee education and community involvement" and the "legislative compliance and native land preservation" globes.

ECOTEL<sup>®</sup> evaluates hotels according to a three-tiered scoring system in which the first round addresses the most basic standards of environmental performance, the second awards points for more advanced levels, and the third gives points for outstanding environmental programs. Hotels must earn all of the first-round points, but only 75 percent of the second-round points. Third-round points are bonuses that count toward the second-round requirement. This variable scoring system was created to allow for the individuality of different environmental programs, while ensuring a minimum performance level. In addition, the scoring system is adapted for each hotel's size and location. At the end of every evaluation, whether or not certification is granted, hotel management is presented with a Justification Rating summarizing the results of the evaluation, as well as an Environmental Action Plan describing methods to improve and ensure the longevity of the hotel's environmental program.

Certified ECOTEL<sup>®</sup>s undergo scheduled inspections every two years, as well as surprise visits to ensure continued environmental performance. ECOTEL<sup>®</sup> Certification can be revoked at any time if there is substandard performance.

The ECOTEL<sup>®</sup> Certification conveys a number of promotional benefits upon its recipients, including a license to use the ECOTEL<sup>®</sup> logo in signage and marketing. HVS Eco Services promotes its member hotels through regional and international events highlighting the ECOTEL<sup>®</sup>s, feature stories in international travel magazines, and exhibitions at international conferences. ECOTEL<sup>®</sup>s are listed in a referral system, a number of international travel directories, and the ECOTEL<sup>®</sup> Internet Directory. HVS Eco Services also provides information and ongoing consulting to certified hotels on environmental products and services, environmental conferences, and industry events.

ECOTEL<sup>®</sup> evaluations are completely voluntary; hotels must request to be reviewed. The ECOTEL<sup>®</sup> program was originally funded largely by HVS Eco Services' consulting practice. HVS Eco Services now requires an evaluation fee starting at \$1,000. Fees are based on the size of the hotel and are negotiable to accommodate smaller hotels that might have difficulty affording the evaluation. Once the evaluation is completed, HVS Eco Services' consulting practice can be further contracted to provide expertise on improving a hotel's environmental performance.

## Program Methodology

The ECOTEL<sup>®</sup> Certification program was a natural extension of HVS Eco Services' hotel consulting practice into the environmental field. The ECOTEL<sup>®</sup> performance criteria were determined through consultation with such hospitality and environmental organizations as the Rocky Mountain Institute, the Ecotourism Society, Certified Utility Consultants, and Cornell University's School of Hotel Administration. The criteria are proprietary information of HVS Eco Services, and are therefore not disclosed to the public. However, a summary of the criteria is available. The criteria cover such areas as the extraction and processing of raw materials, manufacturing, transportation and distribution, product uses, reuse, maintenance, recycling, final disposal, ingredient or materials restrictions, and the environmental performance of production processes.

A numerical rating system, used to quantify the findings, is adapted for each hotel's size and location. It consists of a primary, secondary, and tertiary qualifying round. Hotels must receive all of the primary qualifying points in order to be considered for the secondary points, 75 percent of which must be attained to achieve the ECOTEL<sup>®</sup> Globe Award. This 75 percent requirement allows for flexibility within the prescribed standards by rewarding hotels for good environmental performance despite differences among individual programs. The tertiary round awards bonus points to those hotels with outstanding environmental programs.

ECOTEL<sup>®</sup> evaluates hotels in any of the five performance categories listed below, per the hotel's request; most request all five. A hotel must earn the Globe Award in at least one category to be considered an "ECOTEL<sup>®</sup>." The categories are as follows:

- Solid Waste Management
- Energy Management
- Water Conservation and Preservation
- Employee Education and Community Involvement
- Legislative Compliance and Native Land Preservation

## References

"Can You Believe the 'Eco' Label?." *Successful Meetings* February 1996.

HVS Eco Services. *ECOTEL<sup>®</sup> Information Portfolio*. July 1997.

Jones, Beth Frankowski. "Going Green in the Hospitality Market." *Interiors and Sources* March 1996.

Moffitt, Kimberly. Director of Marketing, HVS Eco Services. Personal communication with Abt Associates. Summer 1997.

Scoviak-Lerner, Mary. "Eco-Friendly Retreat In The Arizona Desert." *Hotels* March 1996.

## **Product Categories**

Hotels



# THE ENERGY GUIDE: HOUSEHOLD APPLIANCE ENERGY EFFICIENCY LABELING

## Introduction

In December 1975, Congress passed the Energy Policy and Conservation Act (EPCA), the primary purpose of which is to "conserve energy by enabling consumers purchasing appliances to compare the energy usage of competing models" (US Federal Trade Commission, *The Appliance Labeling Rule*, 1997). EPCA requires that Energy Guide labels be placed on certain new home appliances including refrigerators, refrigerator-freezers, freezers, water heaters, clothes washers, dishwashers, furnaces, room air conditioners, central air conditioners, and heat pumps. These appliances are covered under EPCA because their energy costs can vary greatly, depending on their construction and design. EPCA also directed standards and labeling for humidifiers and dehumidifiers, clothes dryers, direct heating equipment, kitchen ranges and ovens, and television sets. The Federal Trade Commission (FTC), which shares responsibility for EPCA's implementation, did not include these products in the labeling program, however, stating that there were insufficient differences in energy efficiency among different models.

The National Appliance Energy Conservation Act (NAECA) of 1987 amended EPCA by, among other things, establishing minimum efficiency standards for all EPCA products. In 1988, National Appliance Energy Conservation amendments added fluorescent lamp ballasts. The Energy Policy Act of 1992 added general service fluorescent lamps and general service incandescent lamps, including reflector lamps. It also expanded EPCA to address water efficiency issues by specifying water flow labeling requirements for showerheads, faucets, water closets, and urinals. In 1994 the FTC extended the rule to include pool heaters and certain other water heater types.

## Program Summary

Under EPCA, the FTC was given responsibility for establishing the format of the Energy Guide labels, while the Department of Energy (DOE), then the Federal Energy Administration, was given responsibility for promulgating standardized test procedures and minimum efficiency standards, and conducting a consumer education program to complement the labeling program.

The original label design was announced by the FTC in 1979; it required the disclosure of an appliance's estimated annual operating cost as well as a comparison with similar models. For room air conditioners and furnaces only, where variations in climate make a national average meaningless, an energy rating figure was required on the labels. For all other appliances covered by the law, it was required that labels disclose the cost of the average annual energy use for the appliance in dollars and a comparison with similar models. The FTC has since revised the format of these labels. Critics pointed out that expressing the energy use in dollars could be confusing because the cost of energy changes over time. When energy prices changed by more than 15 percent from the previous baseline, the FTC required that new Energy Guide labels incorporate the

new energy prices into their operating cost figures. This meant that two identical appliances on the same storeroom floor could be labeled with two different operating costs, if energy prices changed between manufacture dates. Comparisons among different models and brands were also thrown off by this discrepancy, creating confusion among consumers.

On July 1, 1994, partly in response to this criticism, the FTC announced amendments to the labeling requirements to make the label more "user-friendly." Among other things, the new specifications require that primary energy use disclosures, previously given as estimated operating cost, now be given in units of energy consumed per year. Estimated yearly operating cost is still given in some cases, but it appears as a smaller figure toward the bottom of the label, allowing the energy consumption figure to dominate as the primary figure on the label. Where given, the operating cost is accompanied by the energy price used in its calculation, making explicit the fact that the cost is simply a snapshot indicator and does not take in to account energy cost fluctuation over time. Under this system, every appliance's primary energy use disclosure is a unique, fixed figure. Although the labels vary somewhat for different types of appliances, they all contain specific information on energy efficiency and costs. The current rule requires that, for covered products other than fluorescent lamp ballasts, lamps, and plumbing fixtures, the text of the labels include:

1. the manufacturer, model number, type of appliance, features, and size, all listed at the top of the label;
2. a number in the center of the label which is either the appliance's energy consumption per year or the energy efficiency rating (for room and central air conditioners, heat pumps, and furnaces). Energy consumption may be given in kilowatt-hours, therms, or gallons per year, depending on the type of fuel consumed. Energy efficiency ratings are presented such that the higher the number, the more efficient the appliance and the less it costs to operate;
3. the "range of comparability" published by the FTC, showing the energy consumption or energy efficiency rating of the most and least efficient models of similar size and features, placed at either end of a bar below the appliance's energy use figure. This figure is marked with a triangle at the appropriate position along the bar to convey how the appliance compares with similar models; and
4. for most products, a boxed number at the bottom giving the appliance's estimated yearly operating dollar cost based on the national average fuel cost in effect at the time the range of comparability specified for that product was published. This national fuel cost and any other assumptions used to calculate the figure are stated below the box. For central air conditioners, heat pumps, and furnaces, annual operating cost information does not appear on the label, but rather must be given separately on fact sheets available through the manufacturer or in product directories compiled by industry trade associations.

Products not included in the above descriptions must meet different labeling requirements. Fluorescent lamp ballasts and luminaries containing such ballasts must be labeled with an encircled "E" indicating compliance with DOE minimum efficiency standards. Covered lamps must be labeled with such figures as the electrical power consumed, its light output, and lamp life

expressed in hours. Manufacturers of showerheads, faucets, toilets, and urinals must disclose their products' flow rate in terms of water used per flush, minute, or cycle.

### **Program Methodology**

The primary purpose of EPCA is to "conserve energy by enabling consumers purchasing appliances to compare the energy usage of competing models" (US Federal Trade Commission, *The Appliance Labeling Rule*, 1997). To accomplish this goal most efficiently, the FTC included only those appliances for which there was a significant potential for a reduction in energy use due to altered consumer purchasing behavior. For this reason, only those appliances that showed significant differences in energy efficiency among different models were included in the Energy Guide program.

As an information disclosure requirement, the Energy Guide program does not set product criteria or evaluate individual products. The FTC does, however, establish the format of the labels. It also requires that manufacturers of regulated appliances submit their energy consumption or energy efficiency rating as determined through standardized DOE test procedures. This enables the FTC to publish the annual range of comparabilities for each appliance. When the range of comparability changes by more than 15 percent, the FTC requires that manufacturers print new labels incorporating the new range.

### **References**

Federal Trade Commission. "FTC Updates Energy-usage Disclosures for Home Appliances: New Labels to be Simpler, More Useful to Consumers, FTC Says." *FTC News* May 24, 1994.

Mills, James. Attorney, Federal Trade Commission. Personal communication with Abt Associates, Summer 1997.

US Federal Trade Commission. "Rule Concerning Disclosures Regarding Energy Consumption and Water Use of Certain Home Appliances and Other Products Required Under the Energy Policy Act ('The Appliance Labeling Rule')." *Code of Federal Regulations* 16 CFR 305. January 1, 1997.

US Federal Trade Commission. "Rule Concerning Disclosures Regarding Energy Consumption and Water Use of Certain Home Appliances and Other Products Required Under the Energy Policy Act; Final Rule." *Federal Register* 59 FR 34014. July 1, 1994.

US Federal Trade Commission. "The US Appliance Labeling Rule." May 20, 1997.

## **Product Categories**

Refrigerators  
Refrigerator-freezers  
Freezers  
Room air conditioners  
Central air conditioners  
Heat pumps  
Water heaters  
Furnaces  
Dishwashers  
Clothes washers  
Fluorescent lamp ballasts  
General service fluorescent lamps  
General service incandescent reflector lamps  
Medium base compact fluorescent lamps  
Showerheads  
Faucets  
Toilets  
Urinals  
Pool heaters

## US EPA ENERGY STAR PROGRAMS

### Introduction

The U. S. Environmental Protection Agency's (EPA) ENERGY STAR program is an umbrella of voluntary programs consisting of: the ENERGY STAR Labeling program, the ENERGY STAR New Homes program, the ENERGY STAR Buildings program and the ENERGY STAR Small Business program. All the programs are administered by EPA's Atmospheric Pollution Prevention Division; the Labeling program is jointly run by the EPA and the US Department of Energy (DOE).

The overall goal of the various ENERGY STAR programs is to reduce air pollution from the burning of fossil fuels (needed to generate the large quantities of electricity used in the United States) by promoting the development and use of energy efficient products. ENERGY STAR Partners (e.g., manufacturers, private sector industries, government, public and private organizations) volunteer to join one or more of the ENERGY STAR programs and pledge to either make or use energy efficient products. It is hoped that the cost savings realized by the use of energy efficient products will encourage more companies and other organizations to join the program, and therefore prompt more manufacturers to produce these types of products in larger volume and at lower prices.

Each of the programs will be discussed briefly below with more emphasis on the ENERGY STAR Labeling Program.

### Recent Developments

The ENERGY STAR Labeling program is in the process of expanding to include televisions, video cassette recorders (VCRs), and windows. EPA has decided to label consumer electronics because, according to the US Energy Information Administration, consumer electronics and small electrical appliances are expected to account for about 90 percent of the projected increase in carbon dioxide emissions from residential and commercial buildings over the next 20 years. Manufacturers are now signing agreements to label Televisions and VCRs, and it is expected that these labeled products will be on the market in early 1998. The DOE has chosen to label windows, which in many homes are a significant factor in heating and cooling losses and therefore energy consumption.

### Program Summaries

#### *ENERGY STAR Labeling Program*

As mentioned above, the ENERGY STAR Labeling program is funded and managed jointly by the US EPA and the US Department of Energy (DOE). The program was created to provide customers with an easy way to recognize energy efficient products by labeling these products with the

ENERGY STAR logo. Manufacturers and retailers participating in the ENERGY STAR Labeling program sign a Memorandum of Understanding (MOU) with EPA and DOE agreeing to produce, label, and sell products that meet the product specifications. EPA and DOE establish the criteria, and the agencies then allow manufacturers and retailers to use the ENERGY STAR logo, a single-attribute seal of approval, on products and in advertising. As part of this program, EPA is implementing a nationwide consumer education awareness campaign to educate users about these products and the label.

Though there are plans to expand the labeling program in 1998, currently there are seven product categories that are part of the labeling program. These include: office equipment, residential light fixtures, exit signs, transformers, residential heating and cooling equipment, insulation, and major household appliances. Some of these will be discussed briefly below.

*ENERGY STAR Office Equipment Program:*

The Office Equipment program was the first of the ENERGY STAR programs to label products. It was launched in June 1992, and is designed to promote the development and use of energy-efficient office equipment. Manufacturers of computers, monitors, printers, fax machines, and copiers are eligible to join the program if they produce energy-efficient versions of these products. The basis of this program is that each participating company agrees to introduce computers, monitors, printers, fax machines, or copiers, that switch to a low power state when left idle. For example, ENERGY STAR computers drop their power draw to 30 watts or less, a 50 to 75 percent reduction compared to normal power draw, by automatically turning to a “sleep” mode when not in use. Similarly, ENERGY STAR monitors power down to 30 watts or less when not in use by turning to a sleep mode. Printers power down to 15 to 45 watts when not in use. ENERGY STAR fax machines have a power-management feature that can reduce energy costs by 50 percent. They also have a sleep mode and double-sided faxing capabilities, thereby cutting down on paper costs. ENERGY STAR copiers automatically turn off after a period of inactivity.

An independent study by the US DOE Lawrence Berkeley Laboratories estimates that US businesses could save almost \$1 billion per year in energy costs, or \$900 million, by the year 2000, by converting to energy-efficient office equipment.

Almost all major manufacturers of these products have joined the program. Companies that market qualifying products may use the EPA ENERGY STAR logo to identify those products. EPA emphasizes that the purpose of the ENERGY STAR logo is to promote energy efficiency only, and that EPA does not endorse any particular product. For office equipment users, however, joining the program and buying energy efficient products is voluntary. Executive Order 12873 (which addresses Federal Acquisition, Recycling, and Waste Prevention), however, directs the various agencies of the federal government, the largest purchaser of office equipment in the world, to purchase ENERGY STAR computers, monitors, and printers, provided that they are available commercially and meet performance standards.

### *ENERGY STAR Residential Light Fixtures Program:*

Established in June 1997, the ENERGY STAR Residential Light Fixtures Program is one of the newest programs under the ENERGY STAR Labeling program. Partners agree to manufacture energy-efficient lighting fixtures for installation in homes, especially in high-use sockets, such as in kitchens, living rooms, and outdoor areas. ENERGY STAR lighting fixtures are ‘dedicated’ fixtures, which means that they are designed to operate only energy-efficient sockets. These fixtures start immediately, (i.e. they don’t need to warm up), operate quietly, and may also have dimming or switching features. Outdoor fixtures automatically turn off in daylight and some fixtures have motion detector on-off features.

### *ENERGY STAR Exit Signs Program:*

In June 1996, EPA launched the ENERGY STAR Exit Signs Program to develop energy-efficient exit signs. Manufacturers involved in this program produce energy-efficient exit signs that meet the EPA ENERGY STAR guidelines. Manufacturers can then use the ENERGY STAR logo on their product. Manufacturers do their own testing to ensure that products meet the guidelines.

ENERGY STAR exit signs operate on less than 5 watts of electricity per face. In addition, they have been tested by the manufacturer and are found to have levels for visibility and luminance that exceed those required by the National Fire Protection Agency’s Life Safety Code. It is estimated that by the year 2000, these exit signs could save companies a cumulative 800 million kilowatts of electricity, an estimated cost savings of \$70 million each year.

### *ENERGY STAR Transformers Program:*

This program is a partnership between the EPA and electric utility companies and transformer manufacturers. The program was established in April 1995. By joining the program, utility companies agree to buy cost-effective, high-efficiency transformers for their electricity distribution systems. Manufacturers of transformers also agree to produce ENERGY STAR transformers and agree to market them to electric utilities. Even though electric transformers are already about 98 percent efficient, it is estimated that ENERGY STAR transformers can easily reduce energy loss levels by 10 to 40 percent. Additionally, an estimated 3.4 billion kilowatt hours of savings is projected with the use of ENERGY STAR transformers.

### *ENERGY STAR Residential Heating and Cooling Program:*

In this program, manufacturers agree to produce and market high-efficiency heating and cooling equipment. The program was established in April 1995. ENERGY STAR-labeled products under this program include furnaces, air conditioners, geothermal heat pumps, gas-fired heat pumps,

thermostats, and boilers. Further, EPA is working with the financial industry to encourage the development of lower cost commercial loans to purchasers of ENERGY STAR heating and cooling equipment.

### *ENERGY STAR Homes Program*

The ENERGY STAR Homes Program was established in April 1995. It is a partnership between EPA and home builders and developers. Builders and developers who join the program agree to build energy-efficient homes. Guidelines for these homes are detailed in the ENERGY STAR Homes MOU. Energy efficient lighting systems, heating, ventilation, and air condition systems, as well as energy efficient insulation, are installed in ENERGY STAR homes.

ENERGY STAR Homes can be advertised as such in real estate listings and with real estate brokers. Home buyers may also inquire about energy-efficiency upgrades in their existing homes. It is estimated that home buyers can cumulatively save an estimated \$1.80 billion in utility bills by purchasing ENERGY STAR Homes.

### *ENERGY STAR Buildings and Green Lights Program*

The ENERGY STAR Buildings and Green Lights Program was established in 1991 and is the first of the ENERGY STAR programs. It is aimed at encouraging the widespread use of energy-efficient lighting. Partners agree to install energy-efficient lighting “where profitable as long as lighting quality is maintained or improved.” Federal agencies that are partners in the program have until the year 2005 to complete lighting upgrades in their buildings.

In April 1995, the Green Lights program was expanded in the ENERGY STAR Buildings Program aimed at maximizing energy efficiency building-wide. In order to become a partner, commercial building owners agree to upgrade their building to become more energy efficient. Partners are encouraged to follow a five-step upgrade procedure: 1) installing energy efficient lighting; 2) completing a general building tune-up; 3) performing load reductions; 4) undertaking fan system upgrades; and 5) upgrading heating plant and cooling systems. The MOU in this program outlines in detail each of the requirements under these stages as well as EPA’s and the partner’s responsibilities.

Participants in the ENERGY STAR Green Lights and Buildings Program include corporations, small businesses, universities, health care facilities, non-profit organizations, school districts, and federal and state governments. Since the beginning of the Green Lights program in 1991, participation has grown from 39 members to 2,400 in 1997.



## *ENERGY STAR Small Business Program*

Launched in June 1996, the ENERGY STAR Small Business Program is a partnership between EPA and small businesses. The program provides technical assistance and information to its partners in order for them to find ways to earn energy-efficient simple pay backs of three years or less. Small businesses or non-profit organizations can join the program if they have facilities of 100,000 square feet or less, and if they agree to upgrade these facilities to make them energy-efficient. Additionally, partners agree to purchase ENERGY STAR-labeled products. EPA will provide partners with workshops, seminars, a hotline, and a Web site on available energy-efficient upgrades, as well as publicize success stories. It is estimated that typical small business can save from 30 to 50 percent of their energy bills by conducting energy efficiency upgrades. As of August 1997, 100 small businesses had joined the program.

### **Program Methodology**

As mentioned above, all of the ENERGY STAR programs aim at reducing air pollution through the use or production of energy-efficient products. Product categories are therefore evaluated according to their environmental impacts in terms of their energy use. Similarly, businesses are assessed according to their energy-efficient building management.

The ENERGY STAR program reports that when choosing product categories and establishing product standards for the ENERGY STAR Labeling program, previous literature about the product category, independent testing and auditing, and information provided by participating producers are used. Additionally, the program conducts generic/modeled environmental impact assessments when choosing product categories.

### **References**

Betsy Agle, ENERGY STAR Labeling Programs, US Environmental Protection Agency. Personal communication with Abt Associates, October, 1997.

Jeff Ryan, ENERGY STAR Programs, US Environmental Protection Agency. Personal communication with Abt Associates, November, 1997.

United States Environmental Protection Agency, ENERGY STAR Homepage, <http://www.epa.gov/energystar.html>

US Department of Energy, ENERGY STAR Homepage, <http://www.energystar.gov>.

Business and the Environment (BATE), *US "ENERGY STAR" Program Continues to Expand*, August 1997.

Business and the Environment (BATE), *US "ENERGY STAR" Program to Include TVs and VCRs*, June 1997.

Lawrence Berkeley Laboratories, *US EPA ENERGY STAR Program*, <http://eande.lbl.gov/EPA/EUF/oeexesum.html>.

## **Product Categories**

### *ENERGY STAR Labeling Program*

- Computers
- Monitors
- Fax Machines
- Photocopiers
- Printers
- Exit Signs
- Residential Light Fixtures
- Furnaces
- Air conditioners
- Geothermal heat pumps
- Gas-fired heat pumps
- Thermostats
- Boilers
- Transformers

## FUEL ECONOMY INFORMATION PROGRAM

In 1975, Congress passed the Energy Policy and Conservation Act (EPCA), which established Corporate Average Fuel Efficiency (CAFE) standards as well as a testing, labeling, and information program to assist consumers in purchasing new cars. One aspect of the information program was the *Gas Mileage Guide*, a publication listing the fuel economy of cars manufactured at a given time. Car dealers were required to have the Guide available for customers.

The law also required a label to appear in the windows of new cars that lists the miles-per-gallon (MPG) of the car for city and highway driving, the estimated annual fuel cost associated with its operation, and the fuel economy of comparably-sized models. Such labeling began in 1974 with a voluntary program administered by the EPA and the Federal Energy Administration (FEA), a precursor of the Department of Energy. The EPCA made the program mandatory as of March 1976. Although EPA is responsible for testing cars and preparing the *Gas Mileage Guide* and the MPG labels, responsibility for other aspects of the fuel economy program is shared with three other federal agencies: Department of Energy, Department of Transportation, and the Federal Trade Commission.

The labeling program had a number of problems initially with the measurement of vehicle mileage. A Congressional Committee hearing noted, "As the public quickly discerned, the EPA mileage figures were not an accurate measure of on-road performance" (US House, 1980). According to Elder Bontekoe of EPA's Office of Mobile Sources, the tests were not run according to "real world" conditions and considerably overestimated the actual mileage automobiles could be expected to achieve. In response, in 1985 a formula was worked out to adjust the mileage for actual city and highway driving conditions. This new system has been found to be fairly reliable (Bontekoe, 1993).

A few changes have been made to the format of the label since the program's inception. Initially showing both highway and city ratings for MPG, 1979 EPA regulations removed the higher (and less accurate) highway rating, and changed the wording to "Estimated MPG." Car makers were still allowed to use both ratings in advertising, so there was a concern that consumers were "being misled by nightly television advertisements and auto showroom displays featuring extravagant gasoline mileage claims based on their government's own testing program" (US House, 1980). After changes were made in 1985 to improve the accuracy of the tests, labels again bear estimated MPG ratings for city and highway use.

A study performed in 1976 found that 72 percent of new car buyers were aware of the Fuel Economy Information Program and more than half had seen the mileage label on the car they bought (while only 7 percent were aware of the *Gas Mileage Guide*). Also, buyers who were aware of the label bought cars with higher mileage than did unaware buyers, with the mileage of their new car more than 20 percent higher than their old vehicle. Unaware buyers achieved almost no increase in mileage. On the other hand, 64 percent of buyers did not believe the MPG estimates

(Abt, 1976). Two important considerations for interpreting this study are that the OPEC oil embargo, in the winter of 1973-74, was fresh in car buyers' minds at that time, and that the program was still quite new.

The effectiveness of the EPA gas mileage labeling program is largely dependent on public opinions toward gasoline use and conservation. Due to the low price of gasoline in recent years, mileage has become a less important consideration for many car buyers. "We perceive that the numbers are well accepted and the program has a fair degree of recognition in the marketplace," said Mr. Bontekoe. "A lot of people don't *care*, but they do seem to be paying attention."

## References

Abt Associates, 1976. *Impact of the FEA/EPA Fuel Economy Information Program*, prepared for the Federal Energy Administration by Vince Scardino, James Birch, and Kathy Vitale, June.

Bontekoe, Elder. US EPA, Office of Mobile Sources. Personal communication with Abt Associates, April 1, 1993.

Tyree, C.D. US EPA Certification Policy and Support Branch, 1982. *History and Description of the EPA (Environmental Protection Agency) Motor Vehicle Fuel Economy Program*, NTIS# PB 84-212091, EPA# AA-CPSB-82-02.

US House of Representatives, Committee on Government Operations, 1980. *Automotive Fuel Economy: EPA's Performance*, May 13, report no. 96-948.

# PESTICIDE LABELING UNDER THE FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT

## Introduction

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), first enacted in 1947 and subsequently amended, requires the registration of pesticides and pesticide producers with the US Environmental Protection Agency. Pesticides, as defined by FIFRA, are substances designed to prevent, destroy, repel, or mitigate any pests, or to regulate, defoliate, or desiccate plants.

Each of the 600-odd pesticide active ingredients in use today must pass a set of health and safety standards in order to be approved for registration, or in the case of chemicals registered before 1984, a re-registration. (Tweedy et al., 1991). As part of registration or reregistration, the labeling of each product is reviewed and approved by the Agency.

## Program Summary

Under EPA's Consumer Labeling Initiative (CLI), EPA and several stakeholders are evaluating the need for improvements to FIFRA labels for pesticides and household cleaners. See the write-up on CLI in this section for details.

FIFRA requires labels to appear on the containers of every pesticide product sold in the US, and imposes standards and restrictions regarding the wording and format (40 CFR §156.10). As outlined in the Code of Federal Regulations (CFR), a pesticide label must clearly and prominently display the following information:

- a) The name, brand, or trademark under which the product is sold;
- b) The name and address of the producer, registrant, or person for whom produced;
- c) The net contents (weight or measure);
- d) The product registration number;
- e) The producing establishment number;
- f) An ingredient statement;
- g) Warnings and precautionary statements;
- h) The directions for use; and
- i) The use classification(s) (restricted use).

All required label text must be set in 6-point type or larger, and must appear in English. The Agency, however, may require additional text in other languages if it is considered necessary in protecting the public health.

The Office of Pesticide Programs (OPP) at EPA reviews each pesticide label individually to ensure appropriateness and accuracy. (Frane, 1993) The particular environmental or health effects of a

pesticide may prompt EPA to require additional warnings or messages to be included on its label (e.g., groundwater advisory statements, chronic hazard warnings).

The various components of the label are discussed in more detail below. Label requirements as described below are taken from the 40 CFR §156.10. The regulations set only broad guidance on label content. In practice, the Agency has wide latitude to require, or accept, statements that deviate from the regulations, and many statements that are accepted reflect variations based on product type and use.

- A. Name, brand, or trademark: The name that appears on the label must be registered with the EPA, and not be false or misleading.
- B. Name and address of the producer, registrant, or person for whom produced: If the registrant's name that appears on the label is not the producer of the pesticide, it must be qualified by appropriate wording such as "*Packed for \*\*\**," "*Distributed by \*\*\**," etc.
- C. Net contents (weight or measure): The net weight or measure, exclusive of wrapping materials, must be stated as an average content unless explicitly stated as a minimum quantity.
- D. Product registration number: The EPA registration number (often abbreviated to "EPA Reg. No.") assigned to the pesticide product at the time of registration must appear on the label.
- E. Producing establishment number: The producing establishment number, preceded by the phrase "EPA Est.," must appear on the label or on the immediate container.
- F. Ingredients statement: The ingredients statement is normally required on the front panel of the label. If there is an outside container or wrapper through which the label cannot be read, then the ingredient statement must also appear on that container or wrapper.

The label of each pesticide product must bear a statement that contains the name and percentage by weight of each active ingredient, and the total percentage by weight of all inert ingredients. Each ingredient may be referred to by its accepted common name, if there is one. If no common name has been established, then the chemical name must be used. Trademarked names not accepted as common names are not allowed.

Pesticide products that contain one or more chemical components that change significantly over time must also include a statement that reads: "*Not for sale after [date]*."

G. Warning and precautionary statements:  
Required warning and precautionary statements regarding toxicological hazards to humans fall into

two groups: those required on the front panel and those that may appear elsewhere. The child hazard warning and the appropriate human hazard signal word (see below) must appear on the front panel of a pesticide label. The human hazard signal word also appears elsewhere on the label. Other warnings and messages, including the first aid or statements of practical treatment (except in cases of extremely toxic products), health and environmental precautionary statements, and physical and chemical hazard statements, may appear elsewhere on the label.

### *1. Child hazard warning*

Except for those products deemed safe for use on children or infants, or where the possibility of contact with children is exceedingly small, all pesticide product labels must bear on the front panel the warning “*Keep Out of Reach of Children.*”

### *2. Toxicity Categories*

The text required on the front panel of the label is determined by the Toxicity Category of the pesticide product. A pesticide is assigned a Toxicity Category based on its highest hazard potential in any of the following indicators listed in Table 1:

Table 1: Toxicity Category Definition				
Hazard Indicators	Toxicity Categories			
	I	II	III	IV
Oral LD <sub>50</sub>	up to and including 50 mg/kg	from 50 thru 500 mg/kg	from 500 thru 5000 mg/kg	greater than 5000 mg/kg
Inhalation LC <sub>50</sub>	up to and including 0.05 mg/liter	from 0.05 thru 2 mg/liter	from .5 thru 2 mg/liter	greater than 2 mg/liter
Dermal LD <sub>50</sub>	up to and including 200 mg/kg	from 200 thru 2000 mg/kg	from 2000 thru 20,000 mg/kg	greater than 5,000 mg/kg
Eye Effects	Corrosive (irreversible destruction of ocular tissue) or corneal involvement or irritation persisting for more than 21 days	Corneal involvement or irritation clearing in 8-21 days	Corneal involvement or irritation clearing in 7 days or less	Minimal effects clearing in less than 24 hours
Skin Effects	Corrosive (tissue destruction into the dermis and/or scarring)	Severe irritation at 72 hours (severe erythema or edema)	Moderate irritation at 72 hours (moderate erythema)	Mild or slight irritation (no irritation or slight erythema)
NOTES: LD <sub>50</sub> is the lethal dose at which 50 percent of the animals in lab testing die. LD <sub>50</sub> is measured in mg pesticide per kg bodyweight. LC <sub>50</sub> is the lethal concentration at which 50 percent of the animals in lab testing die. LC <sub>50</sub> is measured in mg pesticide per liter of air. SOURCE: <i>Consumer's Research</i> , July 1992; 40 CFR §156.10				

### 3. Human Hazard Signal Words

Pesticide labels must bear specific signal words, depending on the pesticide's assigned Toxicity Category.

A pesticide that meets the criteria of Toxicity Category I must bear the signal word "*Danger*" on the front panel of its label. In addition, if the product was assigned to Toxicity Category I based on its oral, inhalation, or dermal toxicity, the label must also bear the word "*Poison*" in red on a background of distinctly contrasting color and the skull and crossbones symbol must appear in close proximity to the word "*Poison*."

A pesticide meeting the criteria of Toxicity Category II must bear the signal word "*Warning*" on the front panel of its label.



A pesticide meeting the criteria of Toxicity Category III or IV must bear the signal word “*Caution*” on the front panel of its label.

#### 4. *First Aid (Statements of Practical Treatment)*

For pesticides in Toxicity Category I, a first aid statement (or statement of practical treatment) is normally required on the front panel, although in practice reasonable variations are permitted by EPA. For other pesticides, first aid statements are not required on the front panel, but must appear elsewhere on the label.

#### 5. *Other Required Warnings and Precautionary Statements*

Other appropriate warnings and precautionary statements must appear on the label under the general heading of “Precautionary Statements,” and under the subheadings of “Hazard to Humans and Domestic Animals,” “Environmental Hazard,” and “Physical or Chemical Hazard.”

Typical precautionary statements indicating hazard to humans and domestic animals are listed in Tables 2 through 8 below, and are arranged by Toxicity Category. Other statements are also used - there is considerable variability in hazard statements.

If a pesticide is found to be potentially hazardous to non-target organisms (excluding humans and domestic animals), the text on its label must include precautionary statements describing the nature of the hazards and the appropriate precautions to avoid problems. For example, for a pesticide intended for outdoor use, which contains an agent with an acute oral LD<sub>50</sub> of 100 or less, the label must read, “*This Pesticide is Toxic to Wildlife.*” Other statements address toxicity to birds, fish, and aquatic organisms.

Finally, for chemical or physical hazards, the required precautionary statements are listed below in Table 9.

#### H. Directions for use

All pesticide labels must have printed on them detailed use instructions or references to accompanying instruction leaflets.

Table 2: Hazard to Humans and Domestic Animal Precautionary Statements		
Toxicity Category	Precautionary statement by Toxicity Category	
	Oral, inhalation, or dermal toxicity	Skin and eye local effects
I	Fatal (poisonous) if swallowed [inhaled or absorbed through skin]. Do not breathe [vapor, dust or spray mist]. Do not get in eyes, on skin, or on clothing [Front panel statement of practical treatment required].	Corrosive, causes eye and skin damage [or skin irritation]. Do not get in eyes, or skin, or on clothing. Wear goggles or face shield and rubber gloves when handling. Harmful or fatal if swallowed. [Appropriate first aid statement required.]
II	May be fatal if swallowed [inhaled or absorbed thru the skin]. Do not breathe vapor [dust or spray mist]. Do not get in eyes, on skin, or on clothing [Appropriate first aid statements required.]	Causes eye [and skin] irritation. Do not get in eyes, on skin, or on clothing. Harmful if swallowed. [Appropriate first aid statement required.]
III	Harmful if swallowed [inhaled or absorbed thru the skin]. Avoid breathing vapor [dust or spray mist]. Avoid contact with skin [eyes or clothing]. [Appropriate first aid statements required.]	Avoid contact with skin, eyes, or clothing. In case of contact immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists.
IV	[No precautionary statements required.]	[No precautionary statements required.]

SOURCE: 40 CFR §156.10.

Table 3: Acute Oral Toxicity Study*		
Toxicity Category	Signal Word	Precautionary Statements and Personal Protective Equipment
I	DANGER Skull & Crossbones required	Fatal if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.
II	WARNING	May be fatal if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking or using tobacco.
III	CAUTION	Harmful if swallowed. Wash thoroughly with soap and water after handling.
IV	CAUTION	No statements are required. However, if the registrant chooses to use category III labeling that is acceptable.

\*Products Containing 4% or more of methanol: Add the following to the precautionary statements: "Methanol may cause blindness."

Table 4: Acute Dermal Toxicity Study		
Toxicity Category	Signal Word	Precautionary Statements and Personal Protective Equipment
I	DANGER Skull & Crossbones required	Fatal if absorbed through skin. Do not get in eyes, on skin, or on clothing. Wear protective clothing and gloves (specify protective clothing and type of gloves). Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco. Remove contaminated clothing and wash before reuse.
II	WARNING	May be fatal if absorbed through skin. Do not get in eyes, on skin, or on clothing. Wear protective clothing and gloves (specify protective clothing and type of gloves). Wash thoroughly with soap and water after handling and before eating, drinking or using tobacco. Remove contaminated clothing and wash clothing before reuse.
III	CAUTION	Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling.
IV	CAUTION	No statements are required. However, if the registrant chooses to use category III labeling that is acceptable.

Table 5: Acute Inhalation Toxicity Study		
Toxicity Category	Signal Word	Precautionary Statements and Personal Protective Equipment
I	DANGER Skull & Crossbones required	Fatal if inhaled. Do not breathe (dust, vapor, or spray mist).* [Identify specific respiratory protective device approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health.]** Remove contaminated clothing and wash clothing before reuse.
II	WARNING	May be fatal if inhaled. Do not breathe (dust, vapor or spray mist).* Wear a mask or pesticide respirator jointly approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health. Remove contaminated clothing and wash clothing before reuse.
III	CAUTION	Harmful if inhaled. Avoid breathing (dust, vapor or spray mist).* Remove contaminated clothing and wash clothing before reuse.
IV	CAUTION	No statements are required. However, if the registrant chooses to use category III labeling that is acceptable.

\* Choose the word which appropriately describes the product during use.

\*\* Refer to Section to determine the specific respiratory protective device. This section can be used for both WPS and Non-WPS products.

Table 6: Primary Eye Irritation Study		
Toxicity Category	Signal Word	Precautionary Statements and Personal Protective Equipment
I	DANGER	Corrosive.* Causes irreversible eye damage. Do not get in eyes or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses).** Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.
II	WARNING	Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses).** Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.
III	CAUTION	Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.
IV	CAUTION	No statements are required. However, if the registrant chooses to use category III labeling that is acceptable.

\*The term "corrosive" is not required if only eye irritation (redness) was observed during the study and was still present at day 21.

\*\*Use the term "safety glasses" in the precautionary labeling for residential use products.

Table 7: Primary Skin Irritation Study		
Toxicity Category	Signal Word	Precautionary Statements and Personal Protective Equipment
I	DANGER	Corrosive. Causes skin burns. Do not get in eyes or on clothing. Wear protective clothing and gloves (specify protective clothing and type of gloves)*. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.
II	WARNING	Causes skin irritation. Do not get on skin or on clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.
III	CAUTION	Avoid contact with skin or clothing. Wash thoroughly with soap and water after handling.
IV	CAUTION	No statements are required. However, if the registrant chooses to use category III labeling that is acceptable.

\*The need for rubber (homeowner products) or chemical-resistant gloves must be determined on an individual basis. Some products cause blistering if confined under clothing.

Table 8: Dermal Sensitization Study	
Study Results	Precautionary Statement
Product is a sensitizer or is positive for sensitization.	Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.
Product is not a sensitive or is negative for sensitization.	No labeling is required for this hazard.

Table 9: Physical or Chemical Hazard Precautionary Statements	
Flash Point	Required Text
(A) PRESSURIZED CONTAINERS	
Flash point at or below 20°F, if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
Flash point above 20°F and not over 80°F or if the flame extension is more than 18 in long at a distance of 6 in from the flame.	Flammable. Contents under pressure. Keep away from heat, sparks, and open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
All other pressurized containers.	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
(B) NON-PRESSURIZED CONTAINERS	
At or below 20°F	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
Above 20°F and not over 80°F	Flammable. Keep away from heat and open flame.
Above 80°F and not over 150°F	Combustible. Do not use or store near heat or open flame.
SOURCE: 40 CFR §156.10	

The directions must appear under the heading “*Directions for use,*” and include the following:

- a) the statement of use classification (see section I, below);
- b) the statement, “*It is a violation of Federal law to use this product in a manner inconsistent with its labeling;*”
- c) the sites of application (e.g., crops, lawns, etc.), or objects to be treated;
- d) the target pests;
- e) the dosage rate;
- f) the method of application;
- g) the proper frequency and timing of application;
- h) the reentry statement (if needed), which specifies the length of time that must pass before people can reenter a treated area;
- i) the disposal directions; and
- j) any use limitations or restrictions required to prevent unreasonable adverse effects.

#### I. Use classification

Every registered pesticide has one or more EPA-designated uses. Each of these uses is evaluated for hazard potential and may be classified for restricted use if necessary to protect human health or the environment.

## 1. General Use Pesticides

Unclassified products, with one exception, do not bear the term “General Use” as discussed in 40 CFR 15.160. The one exception involves products containing the active ingredient, chlorine gas. These products are the only products which bear the classification “General Use.”

## 2. Restricted Use Classification

Products designated for restricted use only must include the words “*Restricted Use Pesticide*” on the front panels of their labels. A statement describing the nature of the restrictions and the reason for the restriction must appear directly below the above statement. For example, “Due to oncogenicity,” “For retail sale and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator’s certification.” For each specific pesticide, other additional restriction statements may be required by EPA.

## Enforcement

According to FIFRA Sec. 2(q) and 12 (Federal Environmental Laws, 1988), failure on the part of the pesticide producer or registrant to comply with labeling requirements may be considered “misbranding” of the pesticide. Sales or distribution of a misbranded pesticide constitutes an unlawful act. The Environmental Protection Agency may then cancel the registration, or bring criminal and/or civil charges against the registrant or producer of the pesticide.

## References

Code of Federal Regulations, 40: PARTS 150 to 189. Revised as of July 1, 1992.

Committee on Scientific and Regulatory Issues Underlying Pesticide Use Patterns and Agricultural Innovation, Board on Agriculture, and the National Research Council (US), 1987. *Regulating Pesticides in Food: The Delaney Paradox*. National Academy Press, Washington D.C.

*Consumers’ Research*, 1992. *How to Read Pesticide Labels*, July, pp 34-36.

*Federal Environmental Laws, 1988 Edition*, 1988. West Publishing Co., St. Paul, MN.

Frane, Jean, US EPA, OPP, 1993. Personal Communication with Abt Associates.

Hurst, Peter, Alastair Hay, and Nigel Dudley, 1991. *The Pesticide Handbook*, Journeyman Press, London, Concord, MA.

Tweedy, B.G. et al. eds., 1991. *Pesticide Residues and Food Safety: A Harvest of Viewpoints*, American Chemical Society, Washington D.C. pp 324-332.

US EPA, undated. Simazine Re-registration Guidance Document.





# GREEN SEAL

## Introduction

Green Seal is an independent, non-profit organization involved in environmental standard setting, product labeling, and public education in the United States. Established in 1989, Green Seal issues a third party, seal-of-approval to consumer products that “cause less harm to the environment than other similar products” (Green Seal, 1997). The Green Seal is available to both US and foreign companies. In addition, Green Seal also encourages companies and other large buyers to become members of Green Seal’s “Environmental Partners Program” to develop environmentally sound procurement policies, and to pledge to buy environmentally preferable products.

As of August 1997, product standards or criteria had been developed for 88 product categories. Fifteen of these are currently undergoing final revisions after the public comment period that is part of Green Seal’s standards/criteria finalization process. To date, approximately 300 products have been awarded the Green Seal. As of August 1997, Green Seal has certified products from several foreign manufacturers including three Canadian companies (producing newsprint paper, sanitary equipment, and engine oil), one Japanese company (producing a heat pump,) and one Korean company (producing a bleach product).

## Recent Developments

In 1993 Green Seal started distinguishing between two types of award criteria. These award criteria are known as “product standards” or “product criteria,” depending upon the product category. Product standards are award criteria for products that require more in-depth environmental impact or life cycle analysis. Standards are established for products that Green Seal considered to have greater environmental impacts and are, therefore, tested and assessed more comprehensively. In contrast, product criteria were established as a response to market interest (i.e., for product categories that manufacturers were interested in getting eco-certified). Product criteria are developed as a way to quickly certify product categories that are less complex or that are experiencing technological changes. Over time, however, the distinction between product standards and product criteria has become less significant for Green Seal.

## Program Summary

Green Seal standards and criteria are developed on a category-by-category basis. Anyone, including industry, public interest groups, and the general public, may submit proposals for new product categories. Green Seal, however, makes the final decision as to which categories are chosen. Product categories are assessed based on a life cycle analysis. Once product categories are chosen, product standards and criteria are developed. Draft standards and criteria are sent for comment to relevant parties, such as manufacturers, trade associations, environmental and

consumer groups, and government officials, as well as to any member of the public who requests them. The comment period lasts for about 45 to 60 days.

Once the public comment period is completed, staff of the Green Seal Board of Directors finalizes the product standards and criteria and forwards them to the Environmental Standards Committee. The Environmental Standards Committee acts on behalf of Green Seal's Board of Directors in approving the final standards. Product criteria do not need the Board's approval and are sent directly for publication. Product standards and criteria are usually revised every three years to keep up with technological advances in product categories and to encourage continual environmental improvement.

Once the standards and criteria are published, manufacturers are encouraged to apply for the Green Seal. As part of the certifications process, manufacturers must demonstrate that they are in compliance with all applicable federal, state, and local environmental regulations. Manufacturers pay a product evaluation fee and a monitoring fee, which is based on a fixed price plus the additional estimated cost of laboratory tests and travel to the manufacturers' facilities. If the product meets Green Seal's standards/criteria, the manufacturer is given a contract to use the Green Seal label on its product(s), packaging, and in advertising, for as long as the product stays in compliance with the standards. Green Seal re-evaluates its product standards every three years.

### **Program Methodology**

Green Seal's acceptance of a product category for its label is based on a life-cycle assessment of several products on the market. Green Seal makes assessments based on the environmental impacts during various stages of the products' life cycle. These include: raw material extraction, manufacturing, transportation and distribution, product use, and disposal. Additionally, products are assessed on their potential for reuse, their maintenance needs, potential for recycling, ingredients, and environmental performance during the production process. Green Seal's goals are to set standards and criteria that reduce one or more of the following: toxic chemical pollution, energy consumption, impacts on water resources, impacts on wildlife, natural resource consumption, impacts on the atmosphere, and global warming. Products within a category must also comply with minimum performance standards, i.e., they must perform at least as well as other products in their category which are considered less environmentally preferable.

In setting product standards, Green Seal collects information about the product category from previous literature and studies done on the product category, as well as from its own independent testing and studies. Additionally, Green Seal collects data from manufacturers and previous life-cycle assessments conducted by other ecolabeling programs. For example, Green Seal exchanged information with Canada's TerraChoice program and adopted several of its product standards.

Green Seal's standard-setting procedure is a transparent one. The public is given the opportunity to provide comments on the draft standards. The commentors' suggestions are often based on the

feasibility of meeting the proposed environmental standards, given the available technologies for the category. Once standards are finalized by the Environmental Standards Committee, commentators may appeal the standards if they feel that their comments were not addressed adequately. This is done through a body known as the Environmental Standards Council, made up of technical experts and academic scientists. Once appeals are taken into consideration, Green Seal publishes the final standards along with a document that lists all significant comments and Green Seal's responses.

## **Other Information**

In addition to the labeling program, Green Seal has also established the "Environmental Partners Program." There are two aspects to the program. Environmental Partners (businesses, government agencies, and other organizations,) may join the program by agreeing to the Environmental Partners Pledge, thereby committing to buying environmentally preferable products and services as part of their procurement policies. Additionally, pledged Partners have to establish a recycling program in their offices. Alternatively, business, organizations, and government agencies may opt to subscribe to the program and simply receive information materials from Green Seal about environmentally preferable products. Green Seal provides all its Partners with monthly *Choose Green Reports*, which recommend specific environmentally preferable brands of products, and lists places these products can be purchased. As of August 1997, there are 461 organizations taking part in the program; 163 of these organizations have made the Environmental Partners Pledge. Partner organizations include federal, state, and local government agencies, private companies, and universities and colleges.

In addition to the *Choose Green Reports*, Green Seal has published the *Office Green Buying Guide* and *Greening Your Property*. The *Office Green Buying Guide* provides guidelines for businesses to set up environmentally preferable purchasing policies. Specifically, the *Office Green Buying Guide* provides information on types of products offices can consider buying. For example, the *Guide* encourages businesses to reassess the type of paper products they buy (e.g., buying papers made with recycled materials and fibers other than wood-pulp), or it may encourage purchasing energy-efficiency office equipment (e.g., Energy Star-labeled photocopiers, computers, and fax machines). In *Greening Your Property*, Green Seal provides similar guidance, specifically for the lodging (hotels and motels) industry, on developing their environmentally preferable purchasing policies and ways to engage in the notion of eco-tourism. The guide aims to educate the industry on ways to cost-effectively better their hotels' and motels' environments. In addition to *Greening Your Property*, Green Seal regularly contributes to the lodging industry's monthly magazine, *Lodging*, with articles on specific brands and product names.

Both the *Office Green Buying Guide* and *Greening Your Property* provide information on environmental considerations to keep in mind when purchasing products. Green Seal encourages businesses to consider the following characteristics of the products before making purchases: the products' life-cycle costs (e.g., cost of purchase, use, and disposal,) instead of simply the up-front

costs; durability; performance; energy and natural resources use; recyclability and recycled content; toxicity; biodegradability; and packaging. Additionally, guidance to businesses on ways to advertise to their employees, suppliers, and customers about their new environmental policies are provided.

Green Seal is also actively involved in coordination with other labeling programs. Green Seal and the Canadian TerraChoice program were the first two ecolabeling programs that urged for the establishment of the Global Ecolabelling Network (GEN). In fact, Green Seal chaired GEN during the first three years GEN was established. Green Seal has encouraged information exchange and harmonizing with other programs through GEN. Additionally, Green Seal participates in International Organization for Standardization (ISO) activities.

## References

Arthur Weissman, President and CEO, Green Seal. Personal Communication with Abt Associates, 1997.

Mark Petruzzi, Director of Certification and Compliance, Green Seal. Personal communication with Abt Associates, 1997

Green Seal, *Green Seal of Approval and List of Standards*, Green Seal Homepage, <http://www.greenseal.org>

Green Seal, *Rules Governing the Use of the Green Seal Certification Mark*, Green Seal Homepage, <http://www.greenseal.org>

Green Seal, *Standards and Criteria*, Green Seal Homepage, <http://www.greenseal.org>

Green Seal, *About Green Seal*, information page.

Green Seal, August 1997, *10 Ways to Save Energy*, Green Seal's Choose Green Report.

Green Market, *What is Green Seal?* <http://www.igc.org/GreenMarket/FORUM/gs.html>

Green Seal, *Green Seal Environmental Partners Program*.

American Hotel and Motel Association, July 1997, *Lodging: Special Design and Renovation Section*.

Green Seal, *Greening Your Property*.

Green Seal, *Hotel Projects*, Green Seal Homepage, <http://www.greenseal.org>.

Green Seal, 1996, *Office Green Buying Guide: A Green Seal Guide*.

Green Seal, 1996, *Powdered Laundry Bleach, GC-11*.

**Product Categories** (number of awarded products in parentheses)

*Final Product Standards*

- Electric chillers (100 tons to 2,000 tons rated capacity)
- Clothes dryers
- Clothes washers
- Combination ranges
- Electric or gas cooktops
- Dishwashers
- Freezers (30 CF or less)
- Ovens
- Refrigerators (39 CF or less)
- Combination refrigerator-freezers (39 CF or less)
- Engine oil
- Reusable utility bags
- General purpose cleaners
- Compact fluorescent lamps
- E26 medium screw ballast adaptors
- E26 medium screw fluorescent self-ballasted lamps
- E26 medium screw lamp holder conversion kits
- Interior and exterior architectural coatings
- Bathroom tissue
- Blanks
- Bond paper
- Bristol paper
- Business forms
- Coated printing paper
- Copy paper
- Cover paper
- Drawing paper
- Facial tissue
- Gift wrapping paper
- Labels
- Ledger paper
- Lightweight printing paper
- Manifold and onion skin paper
- Newsprint and printed products manufactured from newsprint
- Other printing and writing paper
- Paper napkins

Paper towels  
Tablet paper  
Uncoated groundwood-free paper  
Faucet aerators  
Kitchen faucet  
Lavatory faucet  
Toilets  
Electric storage heaters (20 to 120 gallons and 12 kW input)  
Heat-pump heaters (max current rating of 24 amp. at 250 volts)  
Gas storage heaters (20 to 100 gallons and 75,000 Btu/hr max input)  
Oil-fired storage heaters (50 gallons or less and 105,000 Btu/hr max input)  
Glazed exterior doors  
Skylights  
Storm doors  
Windows  
Retrofittable window films

*Final Product Criteria*

Residential central air-conditioning systems (cooling capacity of 65,000 Btu/hr or less)  
Split ductless air-source heat pumps (cooling capacity of 65,000 Btu/hr or less)  
Alternative-fueled vehicles (CNG or electric)  
Fleet vehicle maintenance  
Powdered laundry bleach  
Discrete informational labels for plastic parts  
Passive infrared sensors  
Ultrasonic sensors  
Dual technology sensors  
Audio and/or microwave sensors  
Anti-corrosive paints  
Paper products used in the preparation of food (coffee filters, baking paper and parchment)  
Office copiers  
Showerheads  
Garden hoses  
Sprinkler hoses

*Product Categories under revision after the public comment period (all of these will be product standards once finalized)*

Adhesives  
Gap sealants  
Weather proofing sealants  
Tub and tile sealants

Through the wall air-conditioning units  
Window air-conditioning units  
Ceiling and close to ceiling luminaries  
Exterior luminaries with photocell  
Outdoor brackets and lanterns  
Porch lights  
Recessed downlights and wallwashers  
Security lights  
Task lights  
Wall sconces and brackets  
Toner cartridges for printing and reproduction equipment





## EPA'S OZONE DEPLETING SUBSTANCE (ODS) WARNING LABEL

### Introduction

Section 611 of Title VI of the Clean Air Act, as amended in 1990, requires "labeling of products that contain or were manufactured with class I or II [ozone depleting] substances" by May 15, 1993. Class I substances are chlorofluorocarbons (CFCs), halons, carbon tetrachloride, and 1,1,1-trichloroethane (methyl chloroform), while class II substances are hydrochlorofluoro-carbons (HCFCs). The text of the label reads: "WARNING: Contains (or "Manufactured with" if applicable) [*insert name of substance*], a substance which harms public health and environment by destroying ozone in the upper atmosphere."

### Recent Developments

In an amendment promulgated on January 19, 1995, EPA added several exemptions in response to comments that the former rule placed burdens "on specific parties whose activities contribute no additional emissions of ozone-depleting substances." Examples include exemptions from the labeling requirement "when controlled substances are destroyed,... [and] for spare parts that are used in repair." The amendment also made some minor clarifying revisions on such issues as the labeling of waste. These changes were intended to "provide additional flexibility to the regulated community [while] in no way [compromising] the environmental goals and benefits of protecting public health through the labeling regulation" (60 FR 4010).

### Program Summary

In 1977, "the Food and Drug Administration and the Consumer Product Safety Commission required marketers and importers of self-pressurized medical and consumer products that use a CFC propellant to label their products with a warning that such products may harm public health and the environment by reducing ozone in the upper atmosphere."<sup>6</sup> Soon afterward, CFC was banned as an aerosol propellant for all but "essential applications," thus making the FDA/CPSC warning label irrelevant on such consumer products.

The final rule implementing section 611 was promulgated by EPA on February 11, 1993. The rule prohibits the sale of "any container containing class I and class II substances, product containing class I substances and product manufactured with class I substances, unless it bears a warning statement indicating that the product contains or is manufactured with ozone-depleting substances." Before January 1, 2015, products containing or manufactured with class II substances may require labeling should "the Administrator [determine] that safe alternatives are available." After January 1, 2015, all products containing or manufactured with class I or II substances must be labeled (58 FR 8136).

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<sup>6</sup>See the *Federal Register* April 29, 1977, 42 FR 22018, and August 24, 1977, 42 FR 42780.

"Products manufactured with class I substances can be temporarily exempted from the labeling requirements if EPA determines that there are no substitute products or manufacturing processes that (a) do not rely on the use of the class I substance, (b) reduce the overall risk to human health and the environment, and (c) are currently or potentially unavailable. All products must be labeled by 2015" (Labeling Subcommittee, "Meeting Summary").

"Products manufactured with" class I substances might include electronic parts washed in class I solvents or packaging, books, or sporting goods that use class I adhesives. A container of class I substances might be a can of CFC-12 intended for use in degreasing units or refrigeration equipment. Such refrigeration or degreasing units would then be considered "products containing class I substances."

Although a symbol featuring a globe within an octagon (a stop sign) was considered in the rule proposal, the final rule requires only the text of the warning above. EPA believed that "this symbol would substantially increase consumer understanding and recognition of the required warning and thus heighten the effectiveness of the label" (57 FR 1992). The agency was also concerned, however, that the cost of changing product labels "would outweigh the benefits of using the label" (58 FR 8136).

Section 611 also required that the warning be "clearly legible and conspicuous;" EPA proposed that it should appear on the "principle display panel," defined as the place on a product or package "where the consumer is likely to look for product information." After receiving comments on the proposal, EPA decided that, "In view of the broad diversity of products potentially affected by the labeling requirements...manufacturers will need some latitude as to where to place the labels" (58 FR 8136). Therefore, the final regulation reverts to the language of the Clean Air Act requiring the warning to be "clearly legible and conspicuous" wherever it is presented. Other labeling options such as hang tags, stickers, and supplemental printed materials are also acceptable.

At the time of the Clean Air Act Amendments in 1990, the US was committed to a phaseout of class I substances by the year 2000 (two years later for methyl chloroform), in accordance with the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer. In a November 1992 meeting in Copenhagen, the phaseout schedule for class I substances was accelerated to January 1996 (two years *sooner* for halons). Thus, the ODS warning label was in effect for fewer than three years before the class I phaseout was completed. The 1993 rule states, "The recent decision of the Protocol Parties to significantly accelerate the phaseout of the listed ozone-depleting substances reduces the importance of the labeling program....[When the phaseout was scheduled for the year 2000], the labeling requirements provided an incentive for manufacturers to move away from their use of such substances before 2000 in order to avoid any negative marketplace reaction. With the acceleration of the phaseout,...requiring products to be labeled is unlikely to significantly add to the manufacturers' incentive to switch to alternative substances." As a result, EPA streamlined the labeling requirements by rejecting a proposed pass-through requirement whereby any manufacturer that incorporates a labeled component into its product would be required to label its product. Instead, EPA defined "manufactured with," such that manufacturers

must label products only when "the manufacturer of the product itself used an ozone-depleting substance in manufacturing that product....The incorporation of that [labeled] product into another, however, [would] not necessitate a label" (58 FR 8136).

## References

"Some 'Nonessential' Products Containing Ozone Depleters to be Banned, EPA Rules." *BNA Daily Environment Report* January 9, 1992: A-12.

Labeling Subcommittee of the Stratospheric Ozone Protection Advisory Council. *Labeling Products Containing or Manufactured with Class I or II Substances* March 11, 1991.

*Meeting Summary*. Washington, D.C. March 11, 1991.

*Meeting Summary: Second Meeting*. Washington, D.C. August 30, 1991.

US EPA. "Protection of Stratospheric Ozone: Notice of Proposed Rulemaking." *Federal Register* 57 FR 1992, January 16, 1991.

"Protection of Stratospheric Ozone: Notice Listing Ozone-depleting Substances." *Federal Register* 56 FR 2420, January 22, 1991.

"Protection of Stratospheric Ozone: Temporary Final Rule." *Federal Register* 56 FR 9518, March 6, 1991.

"Protection of Stratospheric Ozone: Notice of Proposed Rulemaking." *Federal Register* 57 FR 19167, May 4, 1992.

"Protection of Stratospheric Ozone: Final Rule." *Federal Register* 58 FR 4768, January 15, 1993.

"Protection of Stratospheric Ozone; Labeling." *Federal Register* 58 FR 8136, February 11, 1993.

"Protection of Stratospheric Ozone; Labeling Supplemental Rulemaking." *Federal Register* 60 FR 4010, January 19, 1995.

US EPA: Stratospheric Protection Division. *Section 611: Product Labeling*. [online: web], updated October 31, 1995, cited September 18, 1997. URL: <http://www.epa.gov/ozone/title6/labeling/labfact.html>



## CALIFORNIA PROPOSITION 65

### Introduction

California's Proposition 65, officially known as the Safe Drinking Water and Toxic Enforcement Act of 1986, is a statute that was placed on the ballot by citizen petition due to concern over inadequate governmental public health regulations. The purpose of the law is to enhance community right-to-know, protect drinking water supplies, and reduce toxic releases. Although the law was opposed by industry and agriculture groups, as well as almost every major newspaper in California, Proposition 65 was approved by the California electorate by nearly a two to one margin.

Proposition 65 mandates that the Governor of California publish a list of chemicals that are known to cause cancer, or been developmental or reproductive toxicity. In addition, warnings must be provided by businesses that knowingly and intentionally expose individuals to these chemicals, unless it is determined that the exposure poses no significant risk assuming a exposure at the level in question for cancer causing chemicals. For chemicals causing reproductive toxicity, businesses that knowingly and intentionally expose individuals to these chemicals must provide warnings, unless it is determined that the exposure will have no observable effects assuming an exposure level 1,000 times the level in question. The warning requirements become effective twelve months after the date of listing of the chemical. Businesses are required to provide a “clear and reasonable” warning, which can take the following forms: labeling a consumer product, posting signs at the workplace/businessplace, or publishing notices in the newspaper. In addition, discharge of these chemicals into drinking water supplies are prohibited twenty months after the date of listing of the chemical, except in those cases where the discharger can demonstrate that the discharge is insignificant. The governor's list currently includes over 580 chemicals, 420 carcinogens, and 160 reproductive toxins. The Act is not applicable to government agencies, drinking water utilities, and businesses employing fewer than ten persons.

### Recent Developments

Following the implementation of the Act, many industries have attempted to avoid or reduce the requirements. The food, drug, and cosmetic industries lobbied to receive a temporary exemption from the law on the grounds that they are already regulated by the US Food and Drug Administration (FDA). In addition, some industry groups tried to avoid having to develop warning labels by setting up a toll-free telephone number for product information which was ruled unacceptable by the courts. By contrast, other industries (such as the tobacco industry) have implemented Proposition 65 warning labels. These labels have added significantly to the scope of hazard warnings on consumer products in California.

Proposition 65 has had some measure of success in influencing the decisions of manufacturers, wholesalers, and retailers, and reducing the risks of chemical exposure. While data are not

currently available on actions taken by the regulated community to remove themselves from the purview of Proposition 65, there is evidence that manufacturers have reformulated products to eliminate or reduce exposures to listed chemicals to avoid having to provide warnings. Proposition 65's effectiveness as a market-based incentive for the reformulation of products has led to the removal of certain solvents from correction fluids, as well as the removal of lead from certain ceramic products and from foil wraps on wine bottles. In addition, Proposition 65 has been cited as the reason for process modifications, chemical substitutions, and the use of pollution control devices to eliminate or reduce emissions of listed chemicals that would have required warnings.

## **Program Summary**

California EPA's OEHHA is designated as the lead agency for Proposition 65 implementation. OEHHA is "directed to implement the Act in a manner that is fair, predictable, and based on a firm foundation of science." OEHHA compiles the list of carcinogens and reproductive toxins, prepares dose-response assessments on listed chemicals, promulgates regulations, and provides assistance to the regulated community in complying with the law. In addition, the Science Advisory Board (SAB), established by the Governor, reviews chemicals and recommends those to be added to the list. The state's SAB consists of two independent committees of scientists and health professionals that serve as the state's qualified experts; the Carcinogen Identification Committee and the Developmental and Reproductive Toxicant Identification Committee. The authority to enforce Proposition 65 is vested in the Attorney General, local district attorneys, and certain city attorneys. Private citizens may also take action to enforce Proposition 65, following certain conditions (see "Enforcement") (Health and Safety Code, Section 25249.7).

Proposition 65 uses an unusual means of enforcement that allows private citizens to initiate proceedings against alleged violators and reap monetary benefits from successful actions. Sixty days after notifying public authorities (i.e., the Attorney General, the appropriate district attorney, or city attorney) of an alleged violation, any individual or group may sue the offending business if the authorities are not "diligently prosecuting" the matter. If successful, the individual or group bringing suit receives 25 percent of the penalty fines, which may amount to a maximum of \$2,500/day for each violation. The plaintiff filing suit must first show that the alleged violator generated a knowing discharge or exposure. It is then the responsibility of the defendant to prove that the exposures and discharges were within legal limits.

Examples of warnings that have been issued as a result of Proposition 65 include: labels on cigars, pipe tobacco, and other tobacco products not covered by the federal cigarette labeling requirements; point-of-purchase signs warning about risks of alcoholic beverage consumptions during pregnancy; signs warning about the presence of environmental tobacco smoke; and newspaper notices about routine or incidental emissions from facilities in the community.

## Program Methodology

OEHHA compiles and publishes the list of chemicals known to the state to cause cancer or developmental/reproductive toxicity, and updates it at least annually. A chemical is listed:

- 1) if, in the opinion of the "state's qualified experts," the chemical has been clearly shown to cause cancer or reproductive toxicity;
- 2) if an "authoritative" body designated by the "state's qualified experts" has formally identified the chemical as a carcinogen or a developmental/reproductive toxicant; or
- 3) if any state and/or federal agency has formally required the chemical to be labeled or identified as a carcinogen or a developmental/reproductive toxicant.

The "state's qualified experts" have designated the following organizations as authoritative bodies: the US EPA, the FDA, the International Agency for Research on Cancer, the National Institute for Occupational Safety and Health (NIOSH), and the National Toxicology Program.

Additionally, there are two business requirements as part of the rule. First, twelve months after a chemical is listed, businesses must not knowingly and intentionally expose any individual to a listed chemical without first providing a "clear and reasonable warning," unless the business can demonstrate that the exposure:

- does not exceed 1/1000 of the "no observable effect level" (NOEL) for reproductive toxins;
- poses "no significant risk" of cancer. "No significant risk" is defined as the level that results in a cancer risk of less than one excess case of cancer per 100,000 individuals exposed over a 70-year lifetime for carcinogens. In other words, if you are exposed to the chemical in question at this level every day for 70 years, your chances of getting cancer will be no more than 1 case in 100,000 individuals so exposed.

The second business requirement stipulates that twenty months after the chemical is listed, businesses must not knowingly discharge the chemical into the drinking water supply unless the discharger can demonstrate that a "significant amount" of the listed chemical has not, did not, or will not enter any drinking water source and that the discharger complies with all other applicable laws, regulations, permits, requirements or orders. "Significant amount" refers to any detectable amount, unless the resulting exposure meets the same criteria for exemptions from the warning requirement.

## References

Becker, Richard A., *Using Sound Science and Common Sense to Improve Proposition 65 Implementation*.

California EPA, Office of Environmental Health Hazard Assessment (OEHHA), 1996. *The*

*Implementation of Proposition 65: A Progress Report.* September 1996.

California EPA, OEHHA, 1996b. *Proposition 65 in Plain English.* December 1996.

Safe Drinking Water and Toxic Enforcement Act of 1986, Chapter 6.6. *California Health and Safety Code*, Section 25249.5 et. seq.

Kizer, Kenneth W., et al., 1988. "Sound Science in the Implementation of Public Policy: A Case Report on California's Proposition 65", *The Journal of the American Medical Association*, August 19, 260 (7): 951-955.



# SCIENTIFIC CERTIFICATION SYSTEMS' ENVIRONMENTAL CLAIMS CERTIFICATION PROGRAM

## Introduction

Scientific Certification Systems's (SCS) Environmental Claims Certification Program was developed in 1990 to independently verify the "accuracy of environmental claims on products." Under this program, SCS conducts detailed investigations to determine whether a claim can be verified. When the program was developed, environmental claims were largely unregulated and it was difficult for consumers and retailers to know what claims to believe. SCS certifies claims in the following areas:

- Recycled Fiber
- Biodegradable Product
- Certified Organic Ingredients
- No Smog Producing Ingredients (VOCs)
- Water Efficiency

Once a product has been certified by SCS, its packaging may display an "authorized certification emblem" accompanied by an exact description of the verified claim. SCS emphasizes consumer education by providing product shelf signs, information printed on the products, and special educational material prepared by manufacturers and retailers. SCS will certify claims for consumer products and packaging, as well as for materials used by product manufacturers. To date, more than 150 manufacturers and retailers are participating in the SCS Environmental Claims Certification Program, and SCS has evaluated claims for more than 2,000 consumer and business products. Participants range from small entrepreneurs to Fortune 500 companies. The vast majority of companies are based in the US

## Recent Developments

SCS recently integrated its Environmental Claims Certification Program and its LCA and Certified Eco-Profile programs. This allows SCS to help companies choose from several environmental claims to find the best certification for a particular product. A company may choose a full life-cycle assessment, but also may choose to have a specific claim certified.

## Program Summary

Five steps are taken during claims certification. In Step 1, SCS does an initial feasibility assessment of the manufacturer's product to determine the appropriate certification in one of the five certification categories. The manufacturer and SCS sign a contract in Step 2. In Step 3, SCS engineers or scientists verify the manufacturer's claim by evaluating information released by the manufacturer, reviewing results from independent testing facilities, and performing on-site

inspections to verify the information. In Step 4, if a product's claims are substantiated, SCS issues a certificate and authorizes the use of the SCS Certification Emblem to the manufacturer. Ongoing monitoring takes place in Step 5, during which quarterly reviews are conducted to maintain the accuracy of data. Fees for certification vary greatly, ranging from \$1,500-8,000. Among other factors, fees depend on the number of sites that have to be visited, the complexity of the production process, and the ease of obtaining information from the company being studied. SCS charges companies for quarterly certification updates, but does not charge an annual fee or royalty.

In addition to verification, SCS administers special claims screening programs for retailers and other purchasing agents. These programs help purchasing agents to ensure that product environmental claims that manufacturers may be using are credible and comply with all state and federal green marketing guidelines.

### **Program Methodology**

The categories for claim certification were chosen based on the types of environmental claims that prevailed in the market. Criteria were developed with information gathered from stakeholders, outside literature, independent studies, and SCS's scientific advisory board. The criteria were reviewed by industry and stakeholders. Criteria are readily available on Fact Sheets provided by SCS.

### **Other Information**

In 1991, SCS announced joint efforts to establish an Environmental Claims Evaluation Program for The Home Depot, a nationwide retailer. Under this program, SCS is working with The Home Depot to verify the accuracy and significance of claims made for products that it stocks. In addition to the Environmental Claims Evaluation Program, many of The Home Depot stores carry products that have undergone actual certification.

### **References**

Brown, Linda. Senior Associate, Program Development and Communications, Scientific Certification Systems. Personal communication with Abt Associates. Fall 1997.

Brown, Sydney. Director, Communications, Scientific Certification Systems. Personal communication with Abt Associates. Fall 1997.

*Montgomery Advertiser*. "Quality Products Abound at Home Depot." 23 January 1997.

*Scientific Certification Systems*. [Online: Web]. Cited 26 November 1997. URL: <http://www.scs1.com/>

Scientific Certification Systems. *Biodegradability: Certification Program for Soaps, Detergents, and Cleansers*. Summer 1997.

Scientific Certification Systems. *Certified Claims: Products, Packaging, and Materials Whose Environmental Claims Have Been Certified by Scientific Certification Systems*. July 1997.

Scientific Certification Systems. *Certified 'No VOCs': Certification Standards for Paints and Coatings*. Summer 1997.

Scientific Certification Systems. *Certified Recycled Content: SCS Environmental Claims Certification Program*. Summer 1997.

Scientific Certification Systems. *Environmental Claims Certification Program* [Online: Web]. Cited 26 November 1997. URL: <http://www.scs1.com/claims.html>

Scientific Certification Systems. *Water Efficiency: Certifying Low Flow Rates for Showerheads*. Summer 1997.

Weidman, Elaine. Associate Director, LCA and Environmental Claims, Scientific Certification Systems. Personal communication with Abt Associates. Fall 1997.

## **Product Categories**

### *Final Categories*

- Recycled Fiber
- Biodegradable Product
- Certified Organic Inputs
- No Smog Producing Ingredients (VOCs)
- Water Efficiency

### *Categories Under Development*

- Alternatives to Poison
- Poison-free



## **SCIENTIFIC CERTIFICATION SYSTEMS' CERTIFIED ECO-PROFILE LABELING SYSTEM**

### **Introduction**

Scientific Certification Systems's (SCS) Certified Eco-Profile Labeling System is a third-party, neutral declaration of environmental performance of a product. It is designed to help "managers, design engineers, purchasing agents, retail and industrial customers, and policy makers understand the environmental performance of products and materials to make better informed decisions" by conveying the findings of life-cycle assessment (LCA) studies. As part of the Eco-Profile, SCS performs a cradle-to-grave assessment that covers all relevant impacts for each of a product's life-cycle stages: raw material extraction, material processing, manufacturing, distribution, use, and disposal. The results of the assessment are presented quantitatively on the "Certified Eco-Profile," which communicates an overall declaration of the environmental performance of a product or industrial system. The Certified Eco-Profile has both internal and external applications. When used as a product label, the eco-profile has often been referred to as the environmental equivalent of a nutritional label. Based on the life-cycle assessment, special claims of achievement may also be certified. These claims include "Certified Environmental State-of-the-Art," "Certified Environmental Improvements," and "Certified Environmental Advantages." At the present time, the results from the Eco-Profile and an accompanying report are used primarily at the industrial level to communicate environmental performance data and to provide a tool that can be used to improve manufacturers' processes from an environmental standpoint. SCS is currently engaged in several assessment projects at both the domestic and international levels. SCS expects that in early 1998, many new products will carry the Eco-Profile on their labels. Several products that are currently in the marketplace carry an older version of the Eco-Profile (see "Recent Developments").

### **Recent Developments**

The Certified Eco-Profile Labeling System evolved from SCS's Environmental Report Card, which was introduced in 1993. The Report Card provided a quantified summary of the resources used and emissions associated with a product system. The Certified Eco-Profile, in contrast, is based on a more advanced form of LCA that goes a step further to link the quantified resources and emissions of a product back to the specific environments where releases occur. Both the Report Card and the Certified Eco-Profile have consumer and industrial applications (e.g., internal company communications and industry-to-industry communications), but currently, demand for the Certified Eco-Profile is primarily at the industrial level. The name was changed because "Eco-Profile" is more consistent with the methodology. SCS believes that the name "Eco-Profile" is easier than "Report Card" to translate, and is more compatible with international terminology.

## Program Summary

Through the Certified Eco-Profile Labeling System, SCS assesses an industrial product material. SCS is engaged in projects in several industries, chosen on the basis of industry interest and demand. The products and services currently being assessed include: building materials, energy production systems, textiles and apparel, forest products, steel products, glass, household appliances, telecommunications equipment, paints, and plastics.

The assessment process consists of several phases. SCS meets with the client to set the parameters of the study, then conducts primary and secondary research, including collecting information and data from the manufacturing process, vendors, and suppliers. SCS processes the data, identifying and quantifying the system resources used and emissions which impact the environment. SCS then develops a quantitative profile of these impacts.

The results are presented in a detailed report for the client that is accompanied by a “Certified Eco-Profile Executive Summary and Data Sheet” (ES/DS), and a “Certified Eco-Profile.” The report and ES/DS detail these findings for each unit process in the life-cycle. This includes a detailed description of the study boundaries, an explanation of the production process, a summary of key findings as illustrated on the Certified Eco-Profile, details of these findings for each unit process in the product life cycle, an explanation of any significant environmental achievements, and an illustration on how the production system studied compares to similar systems. The results presented on the Certified Eco-Profile summarize the net resources depleted and the effective emission loadings on the environment under a set of 15-20 core “environmental impact indicators” that reflect the unique system being studied. The Certified Eco-Profile also indicates when there are no measured indicator values above internationally recognized thresholds. The Certified Eco-Profile could be affixed to a retail product or used internally by a company as an environmental management tool. One of three claims of environmental achievement based on the assessment may be certified:

**Environmental State-of-the-Art:** Earned by a product performing in the top 20th percentile in its product category for all significant environmental indicators.

**Environmental Improvements:** Earned by products with demonstrated environmental performance improvements over time.

**Environmental Advantages:** Indicates key advantages (and trade-offs) when comparing the product evaluated to another product or material that can perform the same function.

As in all LCA studies, resource consumption and emissions data are collected for each “life-cycle” stage studied. SCS employs a methodology known as life-cycle stressor-effects assessment (LCSEA), which goes beyond traditional LCA practice by integrating environmental data in order to characterize the actual environmental significance of the inventory data. This process was

selected because SCS felt that it provides a more scientifically accurate and objective measure of environmental performance. The ES/DS, mentioned above, presents the streamlined life-cycle stressor-effects assessment inventory data as well as the final LCSEA impact indicator values. It shows the relative contribution of specific unit operations to the cumulative environmental indicator values, and shows the relationship between the original inventory values and the final indicator values. Of SCS's current projects, a portion use LCSEA, but all future projects intended for a consumer audience will use LCSEA.

SCS describes five features of the Certified Eco-Profile Labeling System as follows:

1. The system is a comprehensive and science-based system. Findings from the life-cycle are presented in an understandable and usable label format, both in numeric and graphic form. The findings are listed under global, regional and local environmental indicators that are relevant to the system studied.
2. The system provides a level playing field for comparative assessment. The LCA methodology provides a uniform foundation for product assessment, and helps to ensure that fair comparisons can be made among products.
3. The system records the unique environmental "footprint" of each product. The eco-profiles of similar products may differ greatly, depending on the source of its natural resources, the manner in which such resources are extracted, differences in production technologies used, emissions released, and the relative tolerance of the environment into which these emissions are released.
4. The system documents current practices and environmental achievements, and gives companies information that allows them to determine where improvements are most needed.
5. The system is applicable to all markets and avoids trade barriers because it is a site-specific declaration of actual environmental performance, and does not have restrictive criteria and standards that could reflect local and national priorities. It is directly translatable in all countries and markets.

The typical LCSEA study, including the production of a full life-cycle report, the Executive Summary and Data Sheet, and the Certified Eco-Profile, costs between \$15,000-\$50,000. There are no licensing or annual fees, and maintenance fees are minor.

### **Program Methodology**

SCS performs a life-cycle stressor-effects assessment (LCSEA), which is a form of LCA developed for use in the evaluation of product's environmental performance evaluation and labeling. It is a cradle-to-grave assessment that covers all relevant impacts for each of a product's life-cycle stages: raw material extraction, material processing, manufacturing, distribution, use, and disposal. The LCSEA methodology has a number of key features. First, it maintains simplified data treatment: inventory data are not aggregated in order to maintain data characteristics of time and space.

Second, it incorporates environmental data from the “providing” environments (i.e., the source of material inputs) and the “receiving” environments; third, recognized threshold levels are used to determine whether an emission is causing a measurable effect; and finally, it models the environmental mechanism through defined stressor-effects (i.e., cause and effect) networks that link specific system inputs, outputs or activities (i.e., the “stressors”) to model actual impacts on the environment. The system presents results from the assessment in two broad categories of environmental indicators:

1. Net Resources Depleted includes the following indicators: water, wood fiber, fossil fuels, non-fuel oil and gas, minerals, metals, direct land area, and marine resources.
2. Emission Loadings includes the following indicators: greenhouse gases, acidifying chemicals, ground level ozone, stratospheric ozone-depleting substances, hazardous air pollutants, noise, eutrophication chemicals, total oxidizable organic carbon, total suspended solids, hazardous water pollutants, and hazardous waste.

Eco-Profile studies are conducted when individual companies and industry groups come forward with interest and demand. Information for each study is collected from sources including primary data from participating companies and suppliers, published and unpublished data from LCA studies, environmental impact assessment and risk assessment studies, government statistics, and industry sources. Each project is peer reviewed and opportunities for input and review by key stakeholders are provided. SCS conducts site-specific impact assessments, recognizing local, national, and global conditions. The methodology for the Certified Eco-Profile goes beyond the conventional Life-Cycle Inventory methodology (e.g., such as that put forth by the Society for Environmental Toxicology and Chemistry (SETAC)) to include data pertaining to actual environmental effects. Examples of environmental characterization data collected include: local/regional exposure data; background concentration levels; exceedance of threshold levels by GIS mapping for acidification and ground level ozone formation; composition and structure of floral and fauna types; the size of the reserve base for a given resource; and recycling rates for a given material and the number of times the material is recycled.

### **Other Information**

SCS is involved with the development of ISO 14000 standards for Type III labeling, the category of labeling that includes the Certified Eco-Profile. SCS is also working to harmonize with emerging Type III labeling initiatives being conducted outside of the US, believing in the importance of harmonizing with programs before they are developed. SCS has formed alliances with institutions in Chile, Finland, Sweden, Japan, and Korea to offer LCA and Certified Eco-Profile services worldwide. SCS is also collaborating with two Nordic organizations, the Swedish Environmental Research Institute (IVL) and Soil and Water (the environmental division of Jaakko Pöyry, Finland), to write an LCSEA practitioners’ manual for Type III labeling. The first version (1.2) was released in April 1997, and international stakeholder input is being assembled. The new version will be released in 1998.



The Environmental Work Place Analysis is another LCA based program run by SCS. The program assists companies to incorporate environmental considerations into the overall management strategies. It was designed to educate employees at all levels about the environmental consequences of their actions, and to help employees make good environmental decisions at work. At the same time, it has been used as a tool to document environmental savings and their corresponding cost savings for corporations. Employees complete a questionnaire about job-related activities, and SCS calculates the amount of raw materials and energy used and the amount of pollution and waste generated as a result of these activities. The information is summarized for each employee on “Employee Eco-Profiles,” along with departmental or faculty eco-profiles.

## References

Brown, Linda. Senior Associate, Program Development and Communications, Scientific Certification Systems. Personal communication with Abt Associates. Fall 1997.

Brown, Sydney. Director, Communications, Scientific Certification Systems. Personal communication with Abt Associates. Fall 1997.

*Montgomery Advertiser*. “Quality Products Abound at Home Depot.” 23 January 1997.

*Scientific Certification Systems*. [Online: Web]. Cited 26 November 1997. URL: <http://www.scs1.com/>

Scientific Certification Systems. *Certified Eco-Profile; Executive Summary and Data Sheet*. Summer 1997.

*Scientific Certification Systems*. *Environmental Performance of Products*. [Online: Web]. Cited 26 November 1997. URL: <http://www.scs1.com/impact.html>

Scientific Certification Systems. *Environmental Workplace Analysis*. 1996.

Scientific Certification Systems. *Life-Cycle Assessment and Certified Eco-Profile Projects*. June 1997.

Scientific Certification Systems. *Life-Cycle Assessment Peer Review and Stakeholder Review Procedures*. 1997.

Scientific Certification Systems. *Overview of LCSEA Methodology*. 1997.

Scientific Certification Systems. *Programs and Qualifications Profile; Supporting Informed Decision Making for a More Sustainable Future*. Fall 1997.

Scientific Certification Systems. *Response to EPA Type III Labeling Survey*. July 1997.

Scientific Certification Systems. *The Evolution of a Technical Framework For Life-Cycle Impact Assessment*. 10 November 1997.

Weidman, Elaine. Associate Director, LCA and Environmental Claims, Scientific Certification Systems. Personal communication with Abt Associates. Fall 1997.

### **Product Categories**

All product categories

## SCIENTIFIC CERTIFICATION SYSTEMS' FOREST CONSERVATION PROGRAM

### Introduction

The Forest Conservation Program (FCP) was developed by Scientific Certification Systems (SCS) in 1991 to “help the forest products industry, government policy makers, and the general public bring order to the contentious public debate over management, harvesting, and the conservation of the earth’s forests.” The goal of the Forest Conservation Program is to identify forest management practices that most successfully sustain timber resources while maintaining the ecological viability of the forest and benefiting the surrounding community.

SCS sends independent inspection teams to evaluate company or state forest operations. Each evaluation team consists of experts representing such disciplines as forestry, wildlife biology, hydrology, sociology, natural resource economics, and sustainable resource management. The evaluation team produces a detailed report with valuable feedback and recommendations for individual operators who are interested in maximizing the longevity of their timber resources. High-scoring forests (80 or above on a 100-point index) are certified as “Well-Managed.” In this way, SCS can provide an “independently verified basis for potential marketplace claims.” The program can be applied in tropical, temperate, and boreal forests and plantations, and is open to small and large land holders alike. SCS certification is also available through Chain-of-Custody Certification to manufacturers who produce goods from certified well-managed timber, and to retailers and distributors who merchandise these products. The FCP was accredited by the Forest Stewardship Council in 1995.

As of September 1997, SCS had certified 15 forestry operations and 35 Chain-of-Custody operations. Four additional forestry operations are pending certification. Applicants to the certification programs vary greatly, and include forest managers that produce logs and lumber, distributors, manufacturers, wholesalers, and retailers. SCS has certified forests and chain-of-custody operations in North and South America, as well as in Sweden.

### Recent Developments

SCS recently initiated a program to evaluate and certify public forestland management units. A pilot project in Pennsylvania was initiated in early 1997 to evaluate about half of the state’s forestland. Due to the success of this program, Pennsylvania has given SCS the authority to evaluate the remaining state forestland. SCS considers state land evaluations to be an emerging field.

SCS has also recently initiated the Consulting Forester and Small Woodlot Certification Program (Small Woodlot Program) to recognize sustainable forest management on small woodlots. The operational steps for evaluation are very similar to those of the FCP; however, the program is

designed to reflect the scope and scale of small, nonindustrial woodlots, usually no larger than 2,000 acres. In this new program, the management practices of a forestry consultant are evaluated on a sample of woodlots that are under the forester's care. Each woodlot being considered for certification must meet the Forest Stewardship Council's Principals and Criteria.

## **Program Summary**

In the in-depth analysis of specific forestland area (management units), SCS establishes an Evaluation Team composed of consultants with expertise in disciplines such as forestry, biology-ecology, economics, wildlife, sustainable resource management, and decision sciences. The summary of the Forest Conservation Program and Chain-of-Custody Certification are explained separately below.

### *Forest Conservation Program*

The process of forest evaluation and certification involves five main steps. In Step 1, SCS and the client plan the evaluation of the forest operation management practices, including its scope and geographic limitations. The selection of an Evaluation Team takes place in Step 2. Although the final decision is made by SCS, the Team selection includes input from the client. Step 3 involves determining the scope of the evaluation, as well as data collection and analysis. According to an FCP fact sheet, the Team "conducts on-site inspections, collects and reviews landowner-supplied records, reviews documents from government forestry agencies and other sources, and conducts interviews with people in the surrounding community."

The Team identifies relevant "importance-weighted" evaluation criteria in Step 4. These criteria are organized into three categories: timber resource sustainability, forest ecosystem maintenance, and financial and socio-economic considerations. Because of the diversity of each site, these criteria and their relative weights differ from operation to operation. Finally, in Step 5, the Team assesses the extent to which the site "meets the underlying objectives and goals associated with each evaluation criterion," and prepares a written report detailing the findings. This report is given to the client for review and feedback to ensure that the client does not disagree with the accuracy of the data, or the veracity of any observations and assumptions. The report is then submitted to peer reviewers for comments on the general FCP methodology and the results of the specific evaluation. Performance is measured on a 0-100 point scale in each of the three main program elements, and SCS provides scoring guidelines that describe a threshold and optimal performance. Forests that rate above 80 in all three categories are designated as "Well-Managed Forests" by SCS. In addition to scoring sites in the three categories, the evaluation can also make non-mandatory suggestions to the applicant to improve the quality of management.

Certification is usually valid for three to six years, at which point a full re-evaluation occurs. The period before re-evaluation depends on the length in years of the applicant's management plan. SCS requires annual on-site audits to monitor the applicant's compliance with stated goals, as well

as to establish an ongoing framework that allows SCS to track issues or concerns raised in the initial evaluation.

The cost of forest certification varies greatly from site to site, and depends on the size of the operation, the geographic location and distribution of the forest areas, and the ease of access. The initial fee is between \$.05-.40 per acre, and annual audits cost between \$2,000-5,000.

### *Chain-of-custody Certification*

Valid chain-of-custody procedures are an essential component to a forest certification program. Chain-of-custody procedures are intended to ensure that products bearing FCP labeling are produced from certified sources and materials. Procedures vary greatly from one production system to another, but SCS has developed basic requirements for the different possible scenarios. Procedures can include assuring that logs bear a tag identifying the forest of origin, segregating certified lumber from other lumber at a secondary mill, and segregating the lumber during transport. The procedures are implemented at key points where the product is transferred, such as when it leaves the forest, arrives at a paper mill, or is delivered to the broker, wholesale dealer, or retailer. The chain-of-custody program certifies that production systems have these procedures in place.

Applicants submit a summary of their processing/sales operations outlining how their operational procedures will incorporate chain-of-custody considerations. SCS reviews the summary to determine whether or not to proceed with an on-site compliance audit. The purpose of the audit is to ensure that the applicant's staff follow the documented procedures, determine if the documentation of activities is sufficient, and review the effectiveness of the system in meeting chain-of-custody requirements. The audit is compiled into a report reviewed by the applicant to ensure that the client does not disagree with the accuracy of the data. If the operations successfully meet chain-of-custody requirements, SCS issues the applicant a certificate. SCS requires annual on-site audits of the manufacturing and distribution process, and can conduct random, short-notice inspections and request documentation related to the product's chain-of-custody.

The fee for a chain-of-custody certification is between \$200-2,000 annually, depending on the size and complexity of the operation.

### **Program Methodology**

The framework and criteria for the FCP and Chain-of-custody Certification were developed through a process of consultation with professionals and experts in the forestry field, and information collected from the literature and independent studies. The FCP's framework was peer-reviewed in the development stages. Because the field of forestry management changes with

technical developments, the criteria and methodology are also peer-reviewed during each evaluation. The criteria are published in the Program Description and Operations Manual.

### **Other Information**

Because small and mid-sized timberland owners are becoming more common, the FCP has developed an evaluation process that accommodates the realities of small owners. In particular, the costs of the evaluation are reduced. The new Small Woodlot Program will also help small businesses.

SCS is following the negotiations and debate over ISO forestry standards, but is not actively participating in their development. Since ISO forestry standards are being developed to provide a certification framework, and the Forestry Stewardship Council (FSC) provides performance measurements, SCS foresees that ISO and the FSC could eventually work well together.

### **References**

Brown, Sydney. Director of Communications, Scientific Certification Systems. Personal communication with Abt Associates. Fall 1997.

*Forest Conservation Program: Quantitative Assessment Program Ranks Forest Management Practices.* Summer 1997.

Hammel, Debbie. Director of the Forest Conservation Program, Scientific Certification Systems. Personal communication with Abt Associates. Summer 1997.

Pennsylvania, Commonwealth of. *News Release: Pennsylvania Chosen to Participate in Landmark Study of Its Public Forestlands.* 13 January 1997.

*Scientific Certification Systems.* [Online: Web]. Cited 26 November 1997. URL: <http://www.scs1.com/>

Scientific Certification Systems. *Consulting Forester and Small Woodlot Certification Program.* Summer 1997.

*Scientific Certification Systems. Forest Conservation Program.* [Online: Web]. Cited 26 November 1997. URL: <http://www.scs1.com/forests.html>

Scientific Certification Systems. *Forest Conservation Program: Certified Forests Status Report.* January 1997.

Scientific Certification Systems. *Forest Conservation Program: Manufacturers and Retailers Certified for Chain-of-Custody*. March 1997.

Scientific Certification Systems. *Forest Conservation Program; Program Description and Operations Manual*. October 1995.

**Product Categories**

Wood products





## **SCIENTIFIC CERTIFICATION SYSTEMS' "NUTRICLEAN FOOD SAFETY MANAGEMENT PROGRAM"**

### **Introduction**

The NutriClean Food Safety Management Program was launched by Scientific Certification Systems (SCS) in 1984. NutriClean is the agricultural division of SCS. The program is based on the "No Detected Residues"(NDR) certification for fresh produce. The NutriClean-Certified NDR standard means that produce contains no pesticide residues above a laboratory detection limit of 0.05 parts per million. The program was launched not only to test pesticide residues in fresh produce, but also to recognize growers whose crops meet these standards. NutriClean standards are up to 1,000 times more stringent than those of the US Environmental Protection Agency (EPA). The program has several components, one of which is Grower Certification. Produce from fields that are NutriClean-certified carries a certification label on pallets and containers and may be accompanied by a shelf label in retail stores. In addition to grower certification, SCS performs testing services for growers, retailers, and importers. Foods grown organically that have no detected residues qualify for NutriClean's Organic Certification.

NutriClean is based on three key principles: 1) the certification is granted by an independent, neutral, third-party with no vested interest in the product being certified; 2) all claims must be scientifically verifiable; and 3) the certification process is complete with appropriate "checks and balances" to ensure accuracy in the final result.

The NutriClean program has certified over 400 growers domestically and internationally. It works with 15 major grocery store chains with more than 3,000 individual stores, and provides services to more than 150 importers.

### **Recent Developments**

NutriClean recently introduced a program to provide a variety of food safety management services based on the principal known as HACCP (Hazard Analysis Critical Control Point). HACCP procedures cover proper food handling, preparation, and storage techniques, and are designed to control physical, chemical, and microbiological hazards. The Food and Drug Administration (FDA) and the Department of Agriculture have established HACCP requirements for seafood, meat, and poultry. Produce standards are voluntary at this time. SCS assists grocery retailers, food processors, suppliers, and growers in meeting these requirements. SCS offers food safety and sanitation programs, employee education, and certification of well-planned and properly implemented HACCP-based food safety management programs.

## Program Summary

SCS's NutriClean program has several components. Grower Certification involves testing produce and certifying that it meets "clean" food standards; in other words, that the produce has "No Detected Residues" (NDR). NutriClean certification requires that growers fully disclose the pesticides that they use. SCS staff conduct on-site inspections and take field samples from the produce, which are extensively analyzed by independent laboratories. SCS frequently splits samples among different testing laboratories as a quality control measure. Tests are conducted for each pesticide used by the grower, regardless of whether it is natural or synthetically derived. When a field is certified as having NDR, its produce is licensed to carry a NutriClean label. In addition, certified products are published in NutriClean's weekly *Certified Product Status Bulletin*, which is available on a subscription basis to wholesale distributors, retailers, and food providers. Fees for grower certification vary greatly and depend on the number of fields and number of pesticides, among other variables.

Additional services for growers are intended to encourage the responsible reduction in pesticide use and can assist growers in meeting NutriClean NDR standards. These services include: employing microbiological assays to assist growers in developing microbiological quality assurance programs, nutritional analyses to help growers maximize the nutritional value of crops, analyzing the rate that pesticides decay on crops to help farmers fine-tune their pesticide applications, documenting that crops comply with government regulations, and conducting soil and water analyses to provide information about potential contamination.

NutriClean offers a variety of services to retailers. One of these services is testing non-NutriClean-Certified produce items for pesticide levels and pathogens to verify compliance with FDA regulations. This testing service may be part of retailers' own quality assurance program. This program is known as the "DOCK" program because NutriClean collects samples at the loading docks of retail distribution centers. Collection is done either weekly or bi-weekly. The number of samples collected is based on the volume of produce that the retailer purchases. NutriClean attempts to sample five percent of the incoming product. NutriClean also conducts laboratory analyses of food microbiology, chemistry, additives, alteration, and nutrition, and can conduct chain-of-custody sampling and verification. In general, these services help retailers improve food quality and safety. Fees for DOCK testing vary depending on the quantity of produce sampled.

NutriClean also tests a variety of food items for importers. In addition to produce, NutriClean tests seafood, meat and poultry, processed foods, and spices for pesticide residues, harmful bacteria and parasites. The main purpose of this service is to aid importers in complying with FDA pesticide residue limits. Fees for importers are competitive with those of other organizations doing similar work.

## Program Methodology

The “No Detected Residues”(NDR) certification is the same for all types of fresh produce. To be certified, produce must have no detectable pesticide residue above 0.05 parts per million. The level of 0.05 ppm is the standard limit of quantification that can be met by most labs. In developing the program, information was gathered from independent studies, participating producers, and current literature. The program has been peer reviewed. Operating costs are covered by the fees collected for services.

## Other Information

Although NutriClean certifies growers both within and outside of the US, it has not been involved in any trade conflicts.

## References

Brown, Sydney. Director of Communications, Scientific Certification Systems. Personal communication with Abt Associates. Summer 1997.

*Scientific Certification Systems*. [Online: Web]. Cited 26 November 1997. URL: <http://www.scs1.com/>

*Scientific Certification Systems. Certified and Organic Food*. [Online: Web]. Cited 26 November 1997. URL: <http://www.scs1.com/safety.html#haccp>

Scientific Certification Systems. *Compliance and Food Safety Services for Importers*. Summer 1997.

Scientific Certification Systems. *Consulting Forester and Small Woodlot Certification Program*. Summer 1997.

*Scientific Certification Systems. Food Safety Programs and Tips* [Online: Web]. Cited 26 November 1997. URL: <http://www.scs1.com/food.html>

Scientific Certification Systems. *NutriClean Dock Testing 1995 Annual Report*. 1995.

Scientific Certification Systems. *NutriClean Food Safety Management Program: For Store-Wide Protection From Food-Borne Illness*. Summer 1997.

Scientific Certification Systems. *NutriClean Food Safety Services for Fresh Produce*. Summer 1997.

Scientific Certification Systems. *NutriClean: Quality Assurance Services*. Summer 1997.

Scientific Certification Systems. *NutriClean Services for Growers*. Summer 1997.

Scientific Certification Systems. *NutriClean Services for Exporters*. Summer 1997.

Scientific Certification Systems. *NutriClean: Three Principals of Certification*. Summer 1997.

Scientific Certification Systems. *Scientific Certification Systems Verification Program for Grocery Retailers*. Summer 1997.

Sumner, Wilfred. Technical Director, NutriClean Division, Scientific Certification Systems. Personal communication with Abt Associates. Summer 1997.

### **Product Categories**

- Produce
- Seafood
- Meat
- Poultry
- Spices

## PRODUCT LABELING UNDER THE TOXIC SUBSTANCES CONTROL ACT (TSCA)

### Introduction

The Toxic Substances Control Act (TSCA) was enacted by Congress in the fall of 1976 to identify and control toxic chemical hazards to human health and the environment. “To prevent unreasonable risks,” the Act gives EPA the authority to “select from a broad range of control actions under TSCA, from requiring hazard-warning labels to outright bans on the manufacture or use of especially hazardous chemicals.” (EPA, 1987)

### Program Summary

EPA is authorized to require labeling both for existing chemicals appearing on the TSCA Inventory and for new chemicals. For existing chemicals,

Section 6(a)3 of TSCA allows the Administrator to apply:

*a requirement that such substance or mixture or any article containing such substance or mixture be marked with or accompanied by clear and adequate warnings and instructions with respect to its use, distribution in commerce, or disposal or with respect to any combination of such activities. The form and content of such warnings and instructions shall be prescribed by the Administrator. (PL 94-469)*

The law does not specify the form or content of the warnings, and EPA has not promulgated any regulations establishing a single consistent method of labeling. To date, labels have been required or proposed for chemicals and products on a case-by-case basis. To date, regulated chemicals and products subject to TSCA Section 6 labeling include PCBs, asbestos, hexavalent chromium and acrylamide grout.

Under TSCA Section 5(e), EPA requires labeling for some new chemicals that “may present an unreasonable risk of injury to health or the environment” using its authority “to prohibit or limit the manufacture, processing, distribution in commerce, use or disposal” of such substances.

Generic labeling provisions listed in 40 CFR §721.72(b), (g), and (h) are applied to significant new uses of specific chemicals on a case-by-case basis. Companies may be required to provide labeling for containers distributed in commerce, for containers used in the workplace by employees, or both. When labeling is required for containers distributed in commerce, labels must include:

- a) The commonly recognized identity of the substance
- b) A statement of health hazard(s) and precautionary measure(s), if any
- c) A statement of environmental hazard(s) and precautionary measure(s), if any
- d) A statement of exposure and precautionary measure(s), if any, and

- e) The name and address of a source of additional information about hazard evaluation and emergency procedures.

Additionally, labels for containers distributed in commerce must not conflict with the requirements of the Hazardous Materials Transportation Act and the regulations issued under it. Labeling requirements imposed under TSCA Section 5 seldom affect consumers because the regulated substances are mainly distributed between manufacturers and processors and are only rarely used in consumer products.

40 CFR §721.72 contains slightly different labeling requirements for workplace uses of new chemicals. Companies may provide signs or other written material in lieu of container labels in the workplace. There is no requirement to include the name and address of a contact for further information for workplace labels. Portable containers used to transfer a new chemical from a labeled container for an employee's immediate use need not be labeled. Existing labels on incoming containers must not be removed or defaced unless they are immediately relabeled with the required information.

In addition to the specific labeling requirements applied under TSCA Section 5(e), TSCA Section 5(f) allows EPA to apply Section 6's labeling provisions to new chemicals as well as existing ones.

### **Examples of TSCA Labels**

Polychlorinated biphenyls (PCBs) were regulated under TSCA in 1978. The labeling section of this rule required one of two labels to be used, a "Large PCB Mark" or a "Small PCB Mark." The large label states:

*"Caution: Contains PCBs, a toxic environmental contaminant requiring special handling and disposal in accordance with US EPA regulations 40 CFR 761. For disposal information contact the nearest EPA office. In case of accident or spill, call toll free the US Coast Guard National Response Center."* The small label states, *"Caution: Contains PCBs. For proper disposal contact US EPA."*

The labeling of asbestos was required in 1989 as part of regulatory actions that included a ban on "almost all products" containing asbestos. Consumer products containing asbestos include clutch parts and brake shoes for cars and trucks, pipeline wrap and vinyl asbestos floor tile. The labeling aspect of the rule is intended "to facilitate compliance with and enforcement of the rule." The required label stated:

*"Notice: This product contains asbestos. The EPA has banned the distribution in US commerce of this product under section 6 of TSCA (15 USC. 2605) as of [date, ranging from August 1990 to August 1995]. Distribution of this product in commerce after this date and intentionally removing or tampering with this label are violations of Federal law."* (54 FR 29460)

Hexavalent chromium-based water treatment chemicals used in HVAC and refrigeration systems were regulated under TSCA in 1990. (55 FR 221) The warning label reads:

*“Warning: This product contains hexavalent chromium. Inhalation of hexavalent chromium air emissions increases the risk of lung cancer. Federal law prohibits use of this substance in comfort cooling towers, which are towers that are open water recirculation devices and that are dedicated exclusively to, and are an integral part of, heating, ventilation and air conditioning or refrigeration systems.”*

EPA has proposed a ban on acrylamide and N-methylolacrylamide (NMA) grouts, which are used to make repairs to leaking cement structures such as sewers and manholes, but also to dams and basins, and to stop water flow in mines, reservoirs and hazardous waste sites. The ban would prohibit all use of acrylamide grout and would allow NMA to be used only for sewer repair for three years, subsequently banning it. EPA proposed labeling of containers of such grout 15 days after the effective date of the rule. “EPA believes there is a strong need for labeling to ensure compliance with the prohibitions on the manufacture, importation, distribution and use of acrylamide and NMA grouts. Labeling is a necessary mechanism to direct users toward compliance with the prohibitions on uses of acrylamide and NMA grouts.” (56 FR 49871) No wording for the label warning has been suggested.

40 CFR §721 subpart E defines significant new uses for many specific chemicals. Manufacturers, importers, or processors of these chemicals are required to notify EPA when they intend to engage in a significant new use of the listed substance. Failure to comply with labeling requirements specified in subpart E constitutes a significant new use. For 2-Chloro-N-methyl-N-substituted acetamide, the first chemical listed in 40 CFR §721 subpart E, companies are required to label only containers distributed in commerce. The following specific hazard and precautionary statements are required for 2-Chloro-N-methyl-N-substituted acetamide: “This substance may cause internal organ effects,” “When using this substance avoid skin contact,” and, “When using this substance use skin protection.”

40 CFR §721 subpart E prescribes more extensive labeling provisions for halogenated phenyl alkane. For this substance, companies are subject to all of the §721.72 requirements for workplace labeling and for the labeling of containers distributed in commerce. In addition, labels must be legible, prominently displayed, and in English. The information they contain may also be repeated in other languages. Specific hazard and precautionary statements required for halogenated phenyl alkane include: “This substance may cause cancer,” “When using this substance use respiratory protection,” “When using this substance use skin protection,” “This substance may be toxic to aquatic organisms,” and, “Notice to users: do not release to water,” Each of these statements must be followed by “See MSDS for details.” 40 CFR §721 subpart E’s requirements do not apply once halogenated phenyl alkane has been incorporated into a resin.

## References

Axelrad, Dan, Office of Pollution Prevention and Toxics, Exposure, Economics and Technology Division, Regulatory Impact Branch, US EPA, 1993. Personal communication with Abt Associates, February 26.

US EPA, Office of Toxic Substances, 1987. *The Layman's Guide to the Toxic Substances Control Act*, EPA 560/1-87-011, June.

US EPA, Office of Toxic Substances, 1989. "Asbestos; Manufacture, Importation, Processing and Distribution in Commerce Prohibitions," *Federal Register*, 54 FR 29460, July 12.

US EPA, Office of Toxic Substances, 1990. Prohibition of Hexavalent Chromium Chemicals in Comfort Cooling Towers," *Federal Register*, 55 FR 221, January 3.

US EPA, Office of Toxic Substances, 1991. "Proposed Ban on Acrylamide and N-Methylolacrylamide Grouts," *Federal Register*, 56 FR 49863, October 2.



# VERMONT HOUSEHOLD HAZARDOUS PRODUCT SHELF LABELING PROGRAM

## Introduction

The Vermont Household Hazardous Product Shelf Labeling Program was implemented in April 1991 by the Solid Waste Division of the State of Vermont, Agency of Natural Resources (the Agency). The mandatory shelf labeling program was established by a 1990 state law that required all retailers stocking household products containing hazardous constituents to identify those products via a shelf label. The program's purpose is to promote toxic use reduction and pollution prevention by educating consumers about the dangers of hazardous household products and encouraging them to consider alternatives. Additionally, through customer education, the program hopes to send a signal to manufacturers to produce less hazardous products by prompting consumers to avoid purchasing hazardous products. Approximately 3,500 Vermont stores (e.g., grocery stores, hardware stores, house and garden stores, and convenience stores) are subject to the law. Since 1995, however, some changes to the extent of labeling required by retailers have been made.

Retailers were initially concerned that the program would result in a negative consumer perception of their stores because they sell hazardous products. Instead, consumers have been quite supportive of the participating stores, and have expressed their appreciation for the additional product information. Retailers also worried about possible loss of sales of the labeled products. The state responded by modifying the program to label products deemed less toxic or nontoxic with an "exempt" label, so that retailers could offer officially-sanctioned alternatives to the labeled products. To qualify for an exempt label, a petition must be submitted to the Secretary of the Agency of Natural Resources, and it must be shown that the product is free of certain ingredients listed in the Vermont Community Right-to-Know list of hazardous chemicals.

Products covered by the program include those listed as household hazardous products in the Vermont state statute, and generally fall into the following four categories: cleaning products, auto and machine maintenance products, hobby and repair products, and outside use products (e.g., fertilizers, pesticides, butane or lighter fluid, etc.). Personal care products and food items are excluded.

## Recent Developments

Since 1995, there have been changes made to the program aimed at streamlining its implementation. The biggest change to the program is that retailers are no longer required to label the shelf space below every hazardous product. Instead, the Agency provides retailers with 3"x 6", vinyl coated, yellow and black cards known as "shelf-talker" cards. Retailers are required to place this card in areas that display a significant quantity of hazardous products.

Additionally, as mentioned above, products considered less toxic or nontoxic were originally labeled as “exempt” from the program. Since 1995, however, it is no longer required that retailers label these products as such, though they are welcome to do so if they wish.

## **Program Summary**

Vermont's program was established with input from the broad-based Governor's Technical Advisory Committee on Solid Waste and other interested parties. The Technical Advisory Committee included representatives from retailers as well as environmental organizations. The program was implemented and is maintained by the Solid Waste Division of the Agency of Natural Resources. The Commissioner of Agriculture has adopted the shelf labeling programs as its companion program for pesticides and commercial fertilizers.

Categories of products requiring shelf labeling are those listed in the Vermont state statute. Many of the products on this list also require labeling under the Federal Hazardous Substances Act. The Vermont program requires that the Agency provide information pamphlets and guides to retailers detailing which products meet the statutory determination of hazardous products under the labeling program. Additionally, the Agency is required to provide retailers information, brochures, and posters about the program for display on their premises and for their customers to use. However, since 1995, it is no longer mandatory that retailers label individual products (although the Agency reports that some retailers still do).

The program currently uses yellow and black shelf talker cards contain the signal words “Poison,” “Danger,” “Warning,” “Caution,” and “no warning label,” in descending order. These signal words closely follow those on product labels required by the Federal Hazardous Substances Act and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). On the card, an arrow points from “Poison,” indicating the most hazardous types of products, down to “no warning label,” indicating that products with no warning labels on them are the least hazardous. A message to consumers that says, “Read label warning words...Choose less hazardous products” is also presented on the shelf talker card. The card prompts consumers to read these labels before purchasing hazardous products. Prior to 1995, every household hazardous product listed by the Vermont statute had to be labeled as such. Now, however, retailers are only required to place these shelf-talker cards on shelves (or other display areas) when over 20 percent of the shelf or display area contains hazardous products.

Retailers are provided with information about household hazardous products and alternatives, as well as logistical information on how to label shelves in information pamphlets and double-sided information cards. Also, during the first nine months of the program’s implementation, a full-time “retailer educator” was hired to assist retailers in implementing the program.

In addition to the shelf talker cards, the Agency has developed informational posters to be displayed close to shelves where hazardous products are sold and brochures that contain

background information on products, potential hazards, safe disposal, and use of alternative nontoxic products.

### **Program Methodology**

As a mandatory program, the Vermont Household Hazardous Products Shelf Labeling Program requires retailers to label the shelf space below hazardous product displays, when these products occupy more than 20 percent of the display area. Products covered by the program include those listed as household hazardous products in the Vermont state statute.

### **References**

Miller, John, State of Vermont, Waste Prevention Section, Vermont Agency of Natural Resources, 1997. Personal communication with Abt Associates.

Vermont, State of, 1992. *The Vermont Household Hazardous Products Shelf Labeling Program - Retailer Information Guide*.

Vermont Agency of Natural Resources, *Hazardous Product Shelf Labeling: What retailers need to know*, information pamphlet.

Vermont Agency of Natural Resources, 1996, *Report to the General Assembly on Streamlining Household Hazardous Product Shelf Labeling*.

Vermont Agency of Natural Resources, *Shelf-Talker Label*.

Vermont Agency of Natural Resources, 1995, *Household Hazardous Products...deserve your attention*, information brochure.

### **Product Categories**

#### *Auto Maintenance*

- Motor oil
- Transmission fluid and additives
- Engine lubricants
- Antifreeze
- Windshield wiper solution
- Lead-acid batteries
- Engine cleaners and solvents
- Gas treatments
- Gas line freeze-up products
- Car waxes

### *Hobby and Repair Products*

- Paint (brush, spray, and aerosol)
- Lacquers and thinners
- Alcohol (not for human consumption)
- Cresol, naphtha
- Mineral spirits
- Turpentine
- Wood preservatives
- Glues and adhesives
- Photographic chemicals

### *Outside Use Products*

- Fertilizers
- Pesticides
- Pool chemicals
- Self-lighting charcoal
- Charcoal lighter fluid
- Butane lighters

### *Cleaning Products*

- Furniture polishes and stains
- Floor waxes
- Car waxes
- Spray dust cleaners
- Drain cleaners
- Toilet bowl cleaners
- Oven cleaners
- Spot and stain removers (petroleum based)
- All aerosols
- Shoe polish

## **WATER ALLIANCES FOR VOLUNTARY EFFICIENCY (WAVE)**

### **Introduction**

The Water Alliances for Voluntary Efficiency (WAVE) program was established by EPA's Office of Water in December 1992, following the success of other EPA voluntary programs such as Green Lights. WAVE's mission is to "encourage commercial businesses and institutions to reduce water consumption while increasing efficiency, profitability, and competitiveness." WAVE encourages water use efficiency by providing education on water conservation along with marketing support and use of the WAVE logo. The program currently targets the lodging industry, whose widespread public exposure provides an effective medium for educating the public on water conservation issues. WAVE expects to expand its focus by early 1998 to include office buildings, schools, and universities.

### **Program Summary**

WAVE is funded and administered by EPA's Office of Water and provides its membership services free of charge. WAVE membership is divided into three categories: Partners, Supporters, and Endorsers. Any US commercial business interested in water conservation is eligible to become a WAVE Partner, although, as mentioned above, the program currently targets the lodging industry. Water service companies, equipment suppliers and manufacturers, government agencies, and utility companies are eligible to become WAVE Supporters. Finally, environmental groups and trade associations are eligible to become WAVE Endorsers.

WAVE Partners are primarily targeted to increase their water use efficiency. The WAVE Partnership consists of a Memorandum of Understanding (MOU) between EPA and the participating lodging establishment. The MOU commits the business to water efficiency practices in exchange for technical assistance, publicity, and use of the EPA and WAVE logo. There are currently 750 hotels, owned by 33 companies, participating in WAVE.

Specifically, the MOU requires that WAVE Partners appoint a WAVE Implementation Manager for their hotel or chain. They must survey their current water use devices and practices, and implement more efficient water use techniques. Partners, however, are not expected to undertake activities that will have an unreasonable impact on profitability. In addition, Partners agree to upgrade water devices to achieve 90 percent of projected water use reductions within five years of enrollment, and to use water-efficient devices in any new construction projects. To assist with these activities, WAVE provides member hotels with WAVE Saver, a software package that allows Partners to track water use, evaluate efficiency options, and choose the most economical alternatives for water use efficiency at their hotel. WAVE Saver allows hotels to enter their own property data (e.g., the number of rooms, size of the facility, etc.) to calculate the unit cost of water usage, then estimates annual water costs based on historical occupancy patterns. These data are used to highlight water-efficiency options and analyze the benefits of water-efficient equipment

upgrades. Program data and any progress toward water use efficiency must be reported to the EPA.

WAVE claims that instituting more efficient water use practices can reduce hotel water use by up to 30 percent. To accomplish such reductions, WAVE often examines plumbing fixtures, cooling systems, kitchens, laundries and landscaping. The WAVE Saver program allows hotels to customize water conservation measures to the unique nature of each property, location, and clientele. EPA also provides technical support through training, workshops, and a nationwide member help-line. By giving hotels the ability to identify for themselves the best water-efficiency options, WAVE encourages creativity and independent decision-making in water conservation.

In order to fulfill the educational component of the program's motivations, Partners must educate both customers and employees about the benefits of water use efficiency. A designated WAVE Partner liaison at EPA supplies WAVE outreach materials for this purpose. WAVE promotes Partners through public service magazine advertisements commending Partners' commitment to water conservation. WAVE gives Partners the right to use EPA and WAVE logos on stationary, advertisements, and displays. While the MOU sets limitations on the use of these logos, however, there is no formal mechanism for ensuring compliance with all of the conditions agreed to in the MOU,

Both hotel chains and individual franchises are eligible for WAVE Partnership, although, as mentioned above, the program plans to expand its focus in the near future. Because the WAVE Saver software is more suitable to larger hotels (more than 100 rooms), most of the current membership consists of larger hotel chains; however, some small, individual hotels have become WAVE Partners as well.

WAVE Supporters consist of resource-conscious organizations that can help commercial businesses become more efficient, such as water service companies, equipment suppliers or manufacturers, government agencies, and water and wastewater utilities. Supporters promote water efficiency especially within industry, help to publicize WAVE, recruit Partners, and work with EPA to improve the market infrastructure for water-efficient equipment. EPA works with Supporters by providing WAVE outreach and training materials and by establishing an information-sharing network for Supporters. WAVE Supporters also receive the WAVE Saver computer program to help them survey and upgrade their water use facilities, and may use the WAVE logo in promotional materials.

WAVE Endorsers are organizations like Green Seal and the American Hotel & Motel Association, that simply support the WAVE concept and pledge to help EPA promote water conservation practices. These organizations may also use the WAVE logo in promotional materials.

## **Program Methodology**

The WAVE program bases the selection of its product categories on environmental impacts. Currently working with the hospitality industry, WAVE targets commercial businesses and institutions whose widespread public exposure provides an effective medium for educating the public on water conservation issues. WAVE membership is open to all interested hotels and includes automatic program certification. Members must abide by the terms of the MOU signed by WAVE and the member institution, which requires that members consider their recycling, reuse, maintenance, and product use patterns. WAVE reviews information from other environmental programs and member businesses, as well as relevant literature, in targeting business sectors and setting the standards for its MOUs.

## **References**

Auer, Joy. "Cutting Back on Profit Leaks." *Lodging* May 1995.

EPA Office of Water. *Introducing WAVE- Water Alliances for Voluntary Efficiency*. September 1994.

Flowers, John. WAVE Program Director, US EPA. Personal communication with Abt Associates, Summer 1997.

Martin, Valerie. WAVE Program, US EPA. Personal communication with Abt Associates, Summer 1997.

## **Product Categories**

- Lodging establishments
- Water-service companies
- Water or wastewater utilities
- Energy utilities
- Equipment manufacturers or suppliers
- Consulting firms
- State governments
- Municipalities
- Hotel franchisers
- Environmental groups
- Trade associations





## BUYING GUIDES

### ***Greening the Government: A Guide to Implementing Executive Order 12873***

*Greening the Government* was issued in the summer of 1997 to “familiarize Federal agencies with Executive Order 12873 and help them understand its intent.” It includes guidance on the prevention of waste, recycling of materials and acquisition of goods manufactured from collected materials. Although the guide is not a buying guide per se, it does provide basic information for government procurement of recycled products.

The guide contains a summary of the Executive Order including: standards, specifications, and designation of items; agency goals and reporting requirements; applicability and other requirements; and awareness. The guide also describes the regulations or recommendations for green standards in procurement. For example, it outlines the recommended recovered material content for many items to be used in green procurement such as paper, carpet, etc. The guide provides case studies of the actions that have been taken by various agencies to promote the purchase of recycled content. Finally, the guide provides a listing of resources with product information, including several buying guides listing environmentally preferable products.

### **References**

Office of the Federal Environmental Executive. *Greening the Government: A Guide to Implementing Executive Order 12873*. Summer 1997.

### ***The Green Pages***

*The Green Pages* is a directory of 2,500 US suppliers of environmental products and services. Since 1993, it has been published annually by the US Department of Commerce. In addition to being distributed to foreign countries, it is supported by the United States-Asia Environmental Partnership (US-AEP). US-AEP facilitates relationships between Asia and the environmental resources of the US, using *The Green Pages* as one of its primary tools.

All US companies are listed free of charge in *The Green Pages* if they are registered in the US Department of Commerce Office of Export Trading Company Affairs’ Contact Facilitation Database. This database contains any company that exports and registers itself in the database. Companies can also pay for advertising space in the directory, and the publishers of the directory also actively recruit companies to advertise in the pages. There is no methodology in place for ensuring that companies listed in the directory in fact abide by their claims regarding their products and services. The US Department of Commerce states that it “is unable to verify the qualifications and continued interest of any of the companies requesting to be included in this directory and accepts no responsibility for the accuracy of the information contained therein.” In addition, the department does not endorse any of the products and services listed or advertised in the directory.

## References

US Department of Commerce. *The Green Pages*. US West Dex, Inc. 1997.

# US EPA NATIONAL VOLATILE ORGANIC COMPOUND EMISSION STANDARDS FOR ARCHITECTURAL COATINGS

## Introduction

The National Volatile Organic Compound Emission Standards (NVOCES) for Architectural Coatings regulates the content of volatile organic compounds (VOCs) in architectural coatings sold or distributed in the United States. Architectural coatings are defined as coatings that are recommended for field application to stationary structures and their appurtenances, to portable buildings, to pavements, or to curbs. VOC emissions have the potential to cause or contribute to ground-level ozone, elevating it to levels that violate the national ambient air quality standards (NAAQS). Ground-level ozone is a major component of “smog” and is associated with a wide variety of human health effects, agricultural crop loss, and damage to forests and ecosystems. The EPA determined that architectural coatings account for about nine percent of VOC emissions from all consumer and commercial products. In many states, architectural coatings represent one of the largest identifiable sources of unregulated VOC emissions. The NVOCES standards regulate VOC content in architectural coatings in order to reduce overall VOC emissions and comply with NAAQS.

The standards arose from and are part of the Clean Air Act, section 183 (e). In September 1998, the EPA issued a final ruling on VOC standards for architectural coatings (CFR, September 11, 1998, Volume 63, Number 176), outlined below. Among other requirements, the ruling mandates labeling specifications for architectural coatings produced after September 13, 1999.

## Program Summary

For the purposes of this regulatory program, architectural coatings are divided into over 50 sub-categories. Each sub-category has its own VOC content limit. The VOC content of an architectural coating must be within this EPA set limit. Domestic manufacturers and importers of foreign products for distribution in the US whose products do not meet the set standard may comply with the ruling by paying an exceedance fee. A tonnage exemption allows manufacturers who sell or distribute quantities of architectural coatings that do not comply with VOC content limits to comply if they produce less than a specified amount per year.

The labeling program is a combination of neutral labeling and negative labeling. It is neutral because it mandates the reporting of product ingredients. It can also be considered negative labeling because warning statements regarding ingredient impacts on home, health, and environment are required for some coating categories.

The labeling component of the regulation specifies that all architectural coatings produced after September 13, 1999, must indicate of the following information on the product label or lid of the container:

A) The date of manufacture or a code indicating this date (this can also be displayed on the bottom of the container);

B) A statement of the manufacturer's recommendation regarding thinning of the coating (this does not apply to thinning with water);

C) Either the VOC content of the coating, displayed in units of grams of VOC per liter of coating; or the VOC content limit (as specified by the standards) with which the coating is required to comply and does comply, displayed in units of grams of VOC per liter of coating. (Any coating that does not comply with VOC content limits, such ones for which the exceedance fee or tonnage exemption provision is being used, must be labeled with its VOC content.)

Architectural coatings used for industrial maintenance must also be labeled with one of the following phrases indicating that the coating is not intended for general consumer use:

A) "For industrial use only."

B) "For professional use only."

C) "Not for residential use," or, "Not intended for residential use."

D) "This coating is intended for use under the following conditions:" (Each of the following conditions that applies to the coating must be included).

- 1) Immersion in water, wastewater, or chemical solutions (aqueous and nonaqueous solutions), or chronic exposure of interior surfaces to moisture condensation;
- 2) Acute or chronic exposure to corrosive, caustic, or acidic agents, or to chemicals, chemical fumes, or chemical mixtures or solutions;
- 3) Repeated exposure to temperatures above 120 deg. C (250 deg.F);
- 4) Repeated (frequent) heavy abrasion, including mechanical wear and repeated (frequent) scrubbing with industrial solvents, cleaners or scouring agents; or
- 5) Exterior exposure of metal structures and structural components.

For recycled coating, manufacturers and importers must include the following statement indicating the post-consumer coating content on the label or lid of the container: "CONTAINS NOT LESS THAN X PERCENT BY VOLUME POST-CONSUMER COATING," where "X" is replaced by the percent by volume of post-consumer architectural coating.

In addition to labeling, compliance is enforced through mandatory recordkeeping and reporting of VOC content information. All manufacturers and importers of architectural coatings must report the VOC content of their products. Manufacturers who produce recycled architectural coatings, or who use the exceedance fee or the tonnage exemption provision to comply with the regulations, must keep records on the VOC content of their products.

## **Program Methodology**

Mandatory labeling changes are used to target a problem (ground-level ozone), by focusing on one of the major pollutants (VOCs) that contributes to the problem. The VOC content limits were determined using information gathered during an initial EPA process of regulated negotiation (which began in 1992 and concluded without consensus), along with other information. Specifically, the EPA took into consideration data from a 1990 industry study on the volume, VOC content, and hazardous air pollutant (HAP) content of architectural coatings.

The EPA expects that the VOC content of architectural coatings limits will encourage the reformulation of products with lower VOC content. Additionally, labeling requirements that mandate indicating VOC content on the product label will provide consumers with a method of readily identifying products with lower VOC content.

## **References**

US Federal Register: September 11, 1998 (Volume 63, Number 176).

## **Product Categories**

Architectural Coatings



## **PROGRAMS UNDER DEVELOPMENT**

### ***Brazilian Association For Standardization's "ABNT - Qualidade Ambiental"***

#### **Introduction**

The Brazilian Association for Standardization (ABNT) is in the experimental stage of an environmental certification program called "ABNT - Qualidade Ambiental" (Environmental Quality). The program was developed after research was conducted into the experiences of environmental labeling programs worldwide. The results of the study formed the conceptual framework of the Brazilian environmental label. ABNT reports that the program is structured according to ISO draft Standard 14020, "Environmental Labels and Declarations - General Principles," and ISO draft Standard 14024, "Guiding Principles and Procedures for Type I Environmental Labeling." Initiated in 1993, the program is positive, voluntary, and based on multiple criteria. ABNT is a private, non-profit organization, created in 1940 to develop national government recognized standards. The mission of Qualidade Ambiental, the environmental labeling program within ABNT, is to "promote the reduction of environmental burdens and negative impacts related to products or services," by increasing the awareness of manufacturers, consumers, and public organizations regarding the "advantages of adopting products less harmful to the environment." Through its environmental certification program, ABNT hopes to: certify products in the market that demonstrate environmental quality, promote the supply of such products for consumer use, expand the program into other sectors, become well known in Brazil and internationally, and reach financial sustainability. The program is currently working on developing standards in two categories, leather and footwear products and forest products. The program is not yet active, however, and no products have been certified.

#### **Program Summary**

Three main groups are involved in the environmental certification process. The Certification Commission is responsible for proposing program policies, and supervises the implementation of these policies and the certification process. The Commission is appointed by the ABNT Governing Board. The membership is meant to provide a balance of interests, where no single interest dominates. It is composed of stakeholders such as representatives from government agencies, industry organizations, scientific and technological institutions, environmental organizations, and consumers. The Certification Commission creates a Technical Committee for Certification for each product category. Representation on the Technical Committee is similar to the Certification Commission, but has a more technical focus. The Committee is responsible for developing the product criteria. Finally, the Certification Department of ABNT is responsible for the operational procedures of product evaluation and certification. The Certification Department is made up of ABNT staff. ABNT - Qualidade Ambiental currently has two product categories. The Technical Committee for Leather and Footwear Products is analyzing the environmental aspects of the

leather and footwear products' life cycle. The Technical Committee for Forest Products is establishing criteria for wood products.

To select the initial product categories for possible standard development, ABNT worked with stakeholders and identified ten product categories. The initial two product categories were chosen when the two industries expressed interest in the environmental labeling program. The forestry industry came to ABNT in 1996 with the idea of developing a product category for forest certification. Forest certification is designed to cover planted and natural forests, and is based on five principles: care for biodiversity; sustainability of forest resources and their rational use in the short and long term; care for water, soil, and air; environmental, economic, and social development of areas with forest activity; and compliance with government legislation.

To develop product criteria, the individual Technical Committee follows several steps. First the Technical Committees conduct an inventory and develop an "environmental matrix." The matrix relates the productive processes of each material in the product to its environmental impacts on air, water, soil, and noise, as well as with the use of energy and natural resources. The Technical Committee then conducts an Environmental Impact Evaluation by identifying, characterizing, and evaluating the environmental impact of these inputs and outputs. Each impact is classified as being "substantial," "reasonable," "not substantial," or "unknown." Criteria are set by determining the most relevant of these impacts, establishing "threshold values," and using these values as the basis for developing criteria. The criteria development process may also consider industrial performance, trends in improvement, available technology, and economic feasibility.

The draft criteria are submitted for public review, and the final criteria are established following a "consensus process." The ABNT Certification Commission makes the final decision to adopt the criteria and certification procedures once they have been accepted by involved and interested parties. The Technical Committee defines how long the criteria will be valid and when revisions will be carried out. ABNT usually re-evaluates awards every three years. Although no revisions have occurred to date, ABNT expects revisions to reflect changes in scientific knowledge, new industrial practices, and consumer expectations.

Companies submit applications for product evaluation directly to ABNT. The Certification Department carries out audits and tests to determine whether the company and its product comply with the established criteria. The Technical Committees review the test results, inspections, and audit reports, and makes a proposal to the Certification Commission when they believe a product should be granted the Qualidade Ambiental label.

Fees for the two product categories are determined by the Technical Committees. Funding of the environmental certification program comes from two sources. Salaries of program staff are funded by the National Council of Scientific and Technology Development. ABNT funds other program expenses.



## **Program Methodology**

ABNT reports that the program conforms to the draft standards for ISO draft Standards 14020 and 14024. The product categories are selected when industry groups come forward voluntarily. When developing criteria, ABNT collects information from literature, other programs, independent testing, and participating producers. The ABNT methodology is based on Life Cycle Analysis (LCA), and considers the following elements: extracting and processing raw materials, manufacturing, transportation and distribution, product uses, reuse, maintenance, recycling, final disposal, ingredient or materials restrictions, and environmental performance of the production process. Proposed criteria are not peer reviewed, but are stakeholder reviewed. ABNT conducts an environmental evaluation, but not an impact assessment.

## **Other Information**

ABNT staff are involved in the development of ISO draft standards. As the ISO standards develop and change, those of ABNT Qualidade Ambiental are expected to accommodate these changes. ABNT has been a member of GEN since 1996, and ABNT's Technical Director was on GEN's Executive Committee until October 1997. ABNT is beginning to conduct harmonization activities with Spain's AENOR program.

Another mission of ABNT is to promote the adoption of non-environmental product standards in Brazil. ABNT is accredited as a Registration Body to certify according to ISO 9000 standards. Standardization work is conducted by committees made up of representatives from various groups, and the committees attempt to harmonize the various interests and develop standards through consensus. Other product certification programs include: fire extinguisher maintenance, fire doors, sprinklers, civil construction products, cement, liquefied petroleum gas containers, and hotel classification.

## **References**

Associação Brasileira de Normas Técnicas. *ABNT - Qualidade Ambiental*. Summer 1997.

Associação Brasileira de Normas Técnicas. General Information. Fall 1997.

Cabral, Frederico José Marques. *ABNT - Qualidade Ambiental*. Personal communication with Abt Associates. Fall 1997.

## **Product Categories**

### *Criteria Under Development*

Leather and footwear products

Forest products

### *Categories Under Consideration*

- Paper
- Electrical house appliances
- Cosmetics
- CFC-free aerosols
- Automobile batteries
- Detergents
- Lamp bulbs
- Dyes
- Varnishes

### ***Small Spark-Ignited Engine Environmental Labeling Program***

The US Environmental Protection Agency is in the process of developing an environmental labeling program for hand-held combustion engines used in lawn and garden equipment. The program will be part of national air emission regulations that limit the emissions of hydrocarbons (HC) and nitrogen oxides (NO<sub>x</sub>) that small spark-ignited engines may emit. EPA is currently proposing Phase II levels of HC+NO<sub>x</sub> as part of the regulation, which will reduce emissions by approximately 40 percent from the Phase I levels. Manufacturers representing over 90 percent of the small, hand-held engine industry have agreed to participate in the development of a voluntary environmental labeling program that will award labels to engines that emit a certain percentage below Phase II levels. The EPA is soliciting comment on the development of this program, and plans to release a proposal by early 1998.

### **References**

McCabe, Betsy, US EPA. Personal communication with Abt Associates. Summer 1997.

MISSTAP News, Vol. 4, No. 6, June 1997.

### ***Electric Utility***

The Electric Utility program is a pilot program to provide environmental performance information to consumers regarding various electricity providers. As the government deregulates the electric industry, these labels will provide consumers with environmental information about competing electric companies. The three groups involved in developing this program are: the Regulatory Assistance Project (an NGO), the Federal Drug Administration (providing guidance based on its experience with the nutrition label), and the Department of Energy.

Pilot programs have been initiated in several states in which deregulation of the electric industry is occurring. These pilot programs are examining how consumers would like the program to be

organized and what kinds of environmental performance information they would like to use as they choose their electricity provider. Depending on the information gathered by the pilot project, the program could take the form of a multi attribute, positive, seal-of-approval, or a neutral report card, such as the nutrition label, which discloses facts and lets consumers make judgments. Evidence from pilot studies already completed suggests that the latter is preferred by consumers, though no formal decision has been made to propose a particular type of positive or neutral label. Additionally, no decision has been made as to whether the program will be administered by an NGO or the government.

## **References**

Tiesel, Mario. Federal Drug Administration. Personal communication with Abt Associates. Summer 1997.

## ***Indonesian Environmental Labeling***

### **Introduction**

Indonesian environmental labeling has been spurred by demand in the export market, where environmental issues have become increasingly important. For example, with forest products, Indonesia's second largest export industry, there has been a growing movement to buy sustainably forested products, and the accompanying call for sustainable forestry certification programs. Indonesian environmental labeling, however, is still in the developmental stages. Thus far, it is still unclear which of three possible groups-- the Ministry of Trade, the Indonesian Ecolabeling Institute, and BAPEDAL-- will be given responsibility to implement a national labeling program. A proposal for the breakdown of responsibility among the groups has been tentatively accepted by all three parties. Under this proposal, the Ministry of Trade would be responsible for the labeling of export products, while the Indonesian Ecolabeling Institute would be responsible for forestry products, and BAPEDAL would be in charge of labeling other export and domestic products. It is clear that each group wishes to be given the primary responsibility for administering an environmental labeling program.

### ***Ministry of Trade***

The Ministry of Trade, concerned about potential losses in the Indonesian export market due to international concern about the environment, has sought to develop a national environmental labeling program. Thus far, it has concentrated its efforts on the textile and garment industry.

### *Indonesian Ecolabeling Institute*

Although the Indonesian Ecolabeling Institute has yet to be formally established, its precursor, the Indonesian Ecolabing Working Group, was founded in 1994 with three objectives: first, to establish a set of criteria and indicators of sustainable forest management; second, to set up a timber certification program; and third, to design an institutional arrangement for the formal establishment of the Indonesian Ecolabeling Institute. The working group consists of representatives of academic and nongovernmental organizations, and is chaired by the former Minister of Environment. The working group has drafted criteria through consultation with the public and with several national and international wood product and environmental organizations including the Forestry Stewardship Council, Rainforest Alliance, ISO TC 207, and the International Tropical Timber Organization. The draft criteria are directed at securing sustainability of forest productivity as well as its ecological, social, and cultural functions. The working group has also drafted plans for a certification system for sustainable natural forest management. A pilot project is planned in the near future. The working group is also preparing manuals and training materials to be used in the implementation of their certification program.

### *BAPEDAL*

A government agency, BAPEDAL, is responsible for national environmental protection and has also undertaken the development of a national environmental labeling scheme. Although it is still in the developmental stages, the program has established the following three goals: the improvement of environmental quality through the introduction of environmentally preferable products; community education on environmental issues; and encouraging manufacturers to apply for their label and consumers to consider it in their purchasing decisions. The proposed certification process examines the provision and utilization of raw materials, production processes, and waste generation. Thus far, BAPEDAL has studied several foreign environmental labeling programs, held seminars and workshops to disseminate information on environmental labeling, and drafted criteria for several products including pulp and paper, textiles, and leather products.

### **References**

Bratasida, Liana. Director for Technical Development, BAPEDAL. Personal communication with Abt Associates. Fall 1997.

Djalims, Upik. Indonesian Ecolabeling Working Group. Personal communication with Abt Associates. Summer 1997.

Heinke, Gary W. et al., *Final Report: Development of an Eco-label Certification Programme for Hong Kong/ RC96-19*. Hong Kong: Research Centre of the Hong Kong University of Science and Technology, June 1996.

### ***Germany's Type III Eco-report Card***

Germany is in the preliminary stages of developing an environmental “report card.” Research has begun on the feasibility and practicality of Type III environmental labeling for Germany. The initial research and development activities are a joint effort between the Federal Environment Agency (Umweltbundesamt) and various manufacturers in Germany. This research includes documentation of practiced labeling programs related to Type III labeling as discussed in the International Organization for Standardization (ISO) TC 207/SC3/WG1. Also, investigations are underway to determine if it will be possible to incorporate existing private labeling programs with a national Type III ecolabel. Additionally, as part of the program’s development, a questionnaire and workshops with representatives of German industrial branches will be conducted to investigate three characteristics of Type III labeling: target groups for the label and the influence of these groups on the format of the label, organization of an administration that will supply third party validation for the label, and development of Life Cycle Analysis methodology.

#### **References**

Eva Schmincke, Biologist, Office for Ecological Studies, Germany. Personal communication with Abt Associates Inc., July - October, 1997.

### ***Hong Kong Ecolabeling Scheme***

Hong Kong does not currently have an environmental labeling program. A study was conducted (1994 - 1996) by the Institute of Environmental Studies at the Hong Kong University of Science and Technology (HKUST), to determine the suitability of an ecolabeling program for Hong Kong. The study examined several well-established ecolabeling programs in Europe, the United States, and Asia to see how their programs were established and to investigate their success. The research team also conducted meetings with industry, consumer organizations, and government representatives to obtain their opinions on establishing an ecolabeling program for Hong Kong.

The study concluded that environmental labeling programs may be established for two primary reasons -- to 1) improve environmental quality and protection through market forces, and 2) assist industries exporting to markets where environmental labeled products are available. It was determined that because Hong Kong is a major exporter, there are several product categories that may be suitable for a Hong Kong ecolabel. The report illustrated a number of such products including: clothing, textiles, electronics, chemicals, plastic products, plastic packaging, metal products, and industrial machinery.

The HKUST research team conducted discussion forums to determine industry’s, consumers’ and government’s opinions on the potential establishment of an ecolabel for Hong Kong. Most of the groups thought that Hong Kong should follow a “wait and see” option. That is, having been

informed of other worldwide ecolabeling programs, Hong Kong should be an observer at ecolabeling meetings (UNCTAD, GEN, OECD, ISO) before deciding to initiate its own program. Another option discussed was for the textile industries to cooperate with one or more of already established, private, textile ecolabels in Europe, two of which have a branch office in Hong Kong. The third option discussed was a “franchise scheme” where Hong Kong industries could work with agents, set up in important export countries, to assist them in obtaining that country’s ecolabel. A fourth option is for Hong Kong to join China’s ecolabeling scheme, provided China’s label gains worldwide recognition.

Costs for establishing an ecolabeling scheme for Hong Kong were determined. Meetings have taken place between Hong Kong’s Industry Department and several industries for an exploration of views. To date, the “wait and see” option is being pursued.

### **References**

Heinke, Gary W. et al., *Final Report: Development of an Eco-label Certification Programme for Hong Kong/ RC96-19*, Hong Kong: Research Centre of the Hong Kong University of Science and Technology, June, 1996.

## **Select Bibliography on Environmental Labeling**





## Select Bibliography on Environmental Labeling

Global Ecolabeling Network, *GENews*, March 1997, Issue No. 2.

Heinke, Gary W. et al., *Final Report: Development of an Eco-label Certification Programme for Hong Kong/ RC96-19*. Hong Kong: Research Centre of the Hong Kong University of Science and Technology, June 1996.

Organization for Economic Co-operation and Development, *Case Study on Eco-Labeling Schemes*. Paris. 30 December 1997.

European Communities, Commission of the, *Eco-label Revision; COM (96) 603 final; SUMMARY*. Date Unknown.

Lee, James Dr., et. al., *Trade Related Environmental Measures: Sizing and Comparing Impacts*. April 1996. Taken from World Wide Web site:  
<http://gurukul.ucc.american.edu/ted/GETSPAPI.HTM>.

Polak, John and Bergholm, Kari, *Eco-Labeling and Trade: A Cooperative Approach*. January 1997.

United Nations Council on Trade and Development (UNCTAD), International Trade Division, Trade and Environment Section. *Eco-labelling and International Trade: Preliminary Information from Seven Systems (Draft)*, Geneva, Switzerland, May 19. 1993.

Business and the Environment (BATE), volume 9, no. 6, June 1998.

*Draft International ISO Standards, ISO/DIS 14020:1997 (E)*, 1997.

United States, Congress of the, Office of Technology Assessment, *Trade and Environment: Conflicts and Opportunities (Background Paper)*, OTA-BP-ITE-94. Washington, DC: Government Printing Office, May 1992.

Dawkins, Kristin, Institute for Agriculture and Trade Policy, *Eco-Labeling: Consumers's Right-to-Know or Restrictive Business Practice?* Minneapolis, Minnesota. January 1996.

United States Environmental Protection Agency, *Status Report on the Use of Environmental Labels Worldwide* (EPA Document #742-R-9-93-001). September 1993.

United States Environmental Protection Agency, *The Use of Life Cycle Assessment in Environmental Labeling* (EPA Document #742-R-93-003). September 1993.

United States Environmental Protection Agency, *Determinants of Effectiveness for Environmental Certification and Labeling Programs* (EPA Document #742-R-94-001). April 1994.

