Preparedness of Costa Rican Companies to Export Green Products to the European Union Private Market

Cámara de Industrias de Costa Rica

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Abstract

This study, done under the direction of the Cámara de Industrias de Costa Rica, assessed the preparedness of secondary food and timber industries in Costa Rica to export to the green and organic sectors of the European Union private market. We researched the most recognized standards and certifications in Europe, and created two questionnaires based on these regulations. We used the questionnaires to examine several Costa Rican companies, and to gather information about their compliance with green and organic regulations. We also identified gaps between the current practices of the industries and the European standards, and developed recommendations for improvement towards exporting to the European Union in the form of a brochure.

Acknowledgements

We would like to express our gratitude to all those who contributed to the success of this project. We extend special thanks to Professors Ingrid Shockey and Isa Bar-On for their guidance and support over the entire process of our study. We would also like to express our gratitude to the Cámara de Industrias de Costa Rica, specifically Doña Elisabeth Duerr, Don Luis Obando, Doña Luisa Diaz, and Don Nicolás Marquez, for their assistance and dedication to our project. Finally, we would like to thank Don Jimmy and Doña Marcela Music, and all the companies and certification agencies who took part in our interviews for making this project possible.

Executive Summary

Costa Rica is considered a developing country by the European Union and as such it benefits from the generalized system of preferences in which many countries have a special advantage in entering the EU market such as reduced tariffs for their products. However, Costa Rican industries are not exploiting these opportunities in an efficient way, which is seen in the lack of popularity that Costa Rican products have in the European Union private market.

In an effort to aid Costa Rican product presence in the EU, the Cámara de Industrias is working on green market initiatives in order to understand the level of preparedness that Costa Rican companies need in order to export to the European Union private market, specifically to countries such as France, Spain, Germany and the UK.

Our project objectives were to determine the most popular green seals for timber and food companies among European consumers, to research the requirements for obtaining those seals, to discover the types of certification available in Costa Rica, and to assess the "greenness" of the Costa Rican businesses.

These objectives were accomplished through research on both Costa Rican and EU standards, interviews with certification agencies, and interviews with companies that represented the Costa Rican secondary industry sector. Our project will be used in further initiatives at the Cámara de Industrias to inform Costa Rican companies and to foment in these companies the subject of green export products, which is an area in which there is still potential to be exploited in the Costa Rican nation.

Research has shown that 4.6% of all Costa Rican export products in 2009 consisted of organic products, and predicts that they will constitute 10% in the near future. Therefore, Costa Rica can benefit from the introduction of these products into the EU market given their popularity as a green and environmentally-friendly Central American country.

To perform our analysis, our group interviewed two certification agencies to identify the types of certification available in Costa Rica. Our evaluation of the companies' preparedness focused on the company interviews and their implementation of green practices in the five stages of production: origin of raw materials, manufacturing process, packaging, waste management and other information related to their export activity. We visited 8 food companies and 3 timber companies, and interviewed them using questionnaires, which were developed based on European regulations. The food companies were asked questions based on the EU legislation for

organic products, EC 834/2007, as well as several green standards recognized by European consumers. The questionnaire for the timber industries was based on the Forest Stewardship Council (FSC) Chain of Custody standards, which is the most recognized timber seal among consumers in the EU, as well as on a feasibility study on a European eco-label for furniture.

We also developed a scorecard to help us evaluate each company's compliance with EU criteria. This tool focused on the five production stages. With regards to the origin of raw material, we assessed criteria such as usage of organic certified raw materials, absence of Genetically Modified Organisms, and environmental considerations in the acquisition of the raw material. For the manufacturing process, we assessed compliance with record keeping activities, certification of the production process, and avoidance of cross contamination. In the packaging procedures, we examined criteria such as usage of recycling materials for packaging. For the waste management, we assessed practices for solid waste and measures to make the transportation process greener. We awarded scores to the companies based on 5 feasibility levels which reflected the easiness of each criterion to be implemented in the companies' practices.

Our group determined that the average level of preparedness of the Costa Rican companies to export to the European Union was about 50%. This number showed that although some efforts had been made to demonstrate a commitment to the environment, there were some areas that were weak in compliance with EU standards. Many burdens impede these companies to fully comply with strict European Union legislations such as the lack of availability of organic raw materials, absence of funding for certification, and the lack of knowledge of how to target successful markets for their products. Our findings were distributed in the form of a brochure with recommendations for the companies on how to become more compliant with EU green and organic legislations. We hope our study can guide these companies into the implementation of measures that could improve their environmentally-friendly practices and move them closer to the European Union markets to bring economic improvement to the Costa Rica.

Authorship Page

Each group member, Beatriz Gutierrez, Silvia Velasquez, and Michael Frewin, has contributed equally throughout the development of this project, including efforts researching, interviewing, writing, and revising each chapter of this report.

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Chapter One: Introduction

"We don't just need the first black president. We need the first green president. We don't just need the first woman president. We need the first environmental president" (Friedman, 2007, Pg. 1). These words of Thomas Friedman demonstrate that "green" is growing awareness in America and throughout the world. Dell has promised that for every PC purchased, it will plant a tree (Dell, 2007). Walmart is creating energy-efficient stores across the United States (Bentonville, 2008). Target has promised to use less dangerous chemicals in their products and packaging (Iwata, 2008). Coca-Cola, Nike, and Dole Foods have made public their initiatives to become "climate neutral" (Iwata, 2008). Throughout the world there are growing green initiatives and green demand. This is not just the concern of large industries, but a priority for many nations. "The concept of "green" is not new, particularly in countries such as Costa Rica where development has been related to biodiversity" (Bermúdez, 2009).

Costa Rica is a country smaller than West Virginia, USA, and yet enriched with vibrant wildlife and tropical climate (CIA WorldFactbook, 2009). This country has great potential in world markets varying from the unique tropical wood grown in the country to the different types of food industries, including fruit and coffee. As a result, the Costa Rican economy could benefit from stronger trade relationships with international markets such as the European Union. Costa Rican companies, however, are not fully prepared for marketing and exporting their products, and their stance in relation to the EU private market had to be assessed.

On June 7th, 2009, the President of Costa Rica, Oscar Arias, announced his goal to make the country carbon neutral by 2021, the year of its 200th anniversary. This statement shows the initiative Costa Rica has to enter the "green" race, and the motivation for why the Cámara de Industrias de Costa Rica (CICR) has been working to understand the compliance of the Costa Rican companies with the European Union regulations in order to identify the areas where they should improve. This program emphasizes their redefined mission of "promoting the interests and attending to the necessities of their associates, fomenting their competitiveness, and proactively contributing to the sustainable development of the industrial sector" (Cámara de Industrias de Costa Rica, 2009).

The CICR responds to the needs of many Costa Rican companies and, consequently, it holds the power to change the direction in which these companies are moving. It is through the

efforts of the CICR that the feasibility of Costa Rican products entering the European green markets has been assessed.

At this point we might ask ourselves, why focus on green? The term "green" was once only used to describe a color. Today, the term is much more complex, and includes a confusing and often misleading set of parameters that can be used to define its ecological purity or environmental impact. It can also signify standards, which address concerns about the effects humans have on the environment. The concept of green branding in products has expanded in such a vast way that it is now considered an important aspect of world trade. Consumers now think about the environmental effects that end products have, and therefore, products that support environmentally-friendly initiatives are becoming more competitive in world markets.

Becoming more green is not just the initiative of the CICR, but of many Costa Rican industries as well. In 2008, Yale University classified 149 countries with regard to their environmental performance index (EPI – "a weighting of carbon and sulfur emissions, water purity and conservation practices"), which ranked Costa Rica in 5th place (Yale University, 2008). This statistic shows the commitment Costa Rican companies have not only to make a more marketable product, but one that will have less negative impacts on Earth by employing sustainable and green practices. In order to achieve this goal, the Costa Rican producers must continue to strive to not just create more eco-friendly products, but also to raise their competitive edge in markets such as the European Union.

We recognize the clear potential that Costa Rica has for producing green products. In order to find the gap between the marketability of green Costa Rican export products and the European Union standards for them, this paper first determines a better understanding of the term green, and then investigates how secondary Costa Rican industries are currently meeting the requirements of the EU regulations on organic and green products for expanding into the European Union private market.

Chapter Two: Background

The broader context of our research includes the following areas: understanding certification and the definition of green, understanding the European seals, and the EU consumer preferences. To begin, we focus on defining green terminology and understanding the requirements for the certification seals that EU consumers most frequently recognize. We then discuss the interest that European consumers have in green products, and finally explore how Costa Rican producers can respond to those interests in order to expand into the European Union private market.

2.1 Understanding Certification and the Definition of Green

Certification is a voluntary procedure through which a product, process, or service is evaluated, subjected to an audit, and issued a written guarantee confirming its compliance with the specific standards (Center for Ecotourism and Sustainable Development, n.d., pg. 8). Research has shown the importance for products to be certified according to specific standards. Many efforts have focused on organic products, since it has become a very popular market - but one of the biggest gaps with regard to the Costa Rican situation is the lack of knowledge as to which standards their products should meet. Each third-party certifier is responsible for setting the standards and producing their own product authorization. The International Organization for Standardization could be considered as the place for all the different public and private interests to come to a consensus for addressing needs for international standards.

According to the Banco Interamericano de Desarrollo, “for green products to be differentiated and recognized in international markets, they need to be certified by an independent certification agency that should be accredited by one or more recognized international systems” (Banco Interamericano de Desarrollo, n.d) These laws are very broad, making it hard for underdeveloped countries to understand the appropriate process behind the certification of a green product and its recognition in the European Union market.

Part of the problem is lack of consensus in terminology. In the ecological realm, many terms, such as green, organic, sustainable and environmentally-friendly, are used interchangeably to refer to consciousness for our planet. Since there is a lack of overall consensus on the meaning of these terms, they may purposefully lead to confusion. In order to bring more credibility to consumers, we have agreed on specific meanings for green terminology based on several

published opinions. Helke Ferrie writes that recent European green initiatives have outlawed the use of chemicals shown to be damaging to life or the environment, including "pesticides, GMOs, antibiotics in food-producing animals, animal feed containing slaughterhouse waste, and various plasticizers" (2007). For the purposes of our project and through research of the different EU Ecolabels we define "green" as an all-encompassing term of organic, sustainable, and eco-friendly; taking into account the use of non-toxic raw materials, recycled packaging, reusable elements, and recyclable substances (Official Journal of the European Union, 2007; Federal Agency for Agriculture and Food, 2009, Tesco, n.d; Gudiña, V., 2007; International Organization for Standardization (ISO), 2009). At the same time, we will understand that"organic" relates to products that have been adequately prepared from the raw material stage. These products have "been grown and transported without chemical pesticides, herbicides, fertilizers, or other additives, on land that conforms to the standards of an organic certification board" (Anisman-Reiner, 2009). "Sustainable" will describe products grown or harvested in a manner which "meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987), and "eco-friendly" describes products or processes that make a minimal environmental impact.

2.2 Most Identified Seals

Any business interested in exporting to the European Union private market must be aware of the requirements for entering the specific market it wishes to target. The Costa Rican businesses must first look into the EU regulations for exports so that the products can enter the EU market; however, that does not guarantee that the products will be successful in the EU. Hence, if the products are to be successful, the companies have to acknowledge the most recognized/trusted/respected? seals in their targeted countries. For the purpose of this project, we have researched the most identified seals according to Germany, Spain, France, and the United Kingdom; all of which are among the top food and timber product importers in the EU.

2.2.1 Food Seals

Most of the top food seals in Germany, Spain, France, and the United Kingdom are either national or related to major supermarket chains. Among the top food seals in Germany is the Bio-Siegel (Bio-seal). The products that bear this label are organic products and follow the EU regulations for organic production. This includes requirements that forbid genetic engineering, food additives, and products that contain more than 5% of non-organic ingredients (Federal

Agency for Agriculture and Food, 2006). The governing body of this seal ensures that all products bearing this label comply with all of the necessary regulations and production laws (The Federal Agency for Agriculture and Food, 2006).

In the United Kingdom, one of the leading supermarket chains is Tesco. In 2007, Tesco held 31.5% of the market share in the United Kingdom, a fact that reflects its increasing popularity (Jones, P., Comfort, D., & Hillier, D., 2009). Tesco's green incentives have also been increasing. One of their initiatives is the Nurture Scheme, accredited by Tesco in order to ensure that the food products sold in the store meet certain requirements that ensure an environmentally-friendly product. These requirements include knowing the origin of the product to ensure that producers use safe practices and that the products can be classified as high quality (Tesco, n.d.).

Carrefour is a popular French supermarket chain with locations in other countries, such as Spain, as well. With increasing competiveness and popularity, Carrefour is another supermarket that has taken environmental initiatives through the products it carries. To encourage consumption and production of eco-friendly foods, they offer certification for their seal, the Carrefour Eco-Planete, whose main goal is to "foment amongst consumers the defense of the environment, the reduction of contamination, and the adequate management of natural resources" (Gudiña, 2007). The eco-labels of both Tesco and Carrefour designate green products by promoting food that is the outcome of environmentally-friendly and sustainable production practices to their customers, as well as ensuring that the food is safe.

Most of these food seal standards focus on secondary industries and their productions processes. However, for a processed product to obtain an organic status, its raw material must also be organic. Similarly, if a company wishes to maintain a green image, it should consider obtaining raw material produced under green standards. The two main regulations that European Union consumers recognize with regard to raw material are the GLOBALGAP seal and the EU organic regulation EC 834/2007. GLOBALGAP's "standard is primarily designed to reassure consumers about how food is produced on the farm by minimizing detrimental environmental impacts of farming operations, reducing the use of chemical inputs, and ensuring a responsible approach to worker health and safety as well as animal welfare" (GLOBALGAP, 2009). The term GAP, good agricultural practices, indicates systems that focus on environmentally- and socially-friendly goals while generating a safe and marketable product (Centre for the Promotion

of Imports from Developing Countries, 2002). The EU regulation EC 834/2007 focuses on the practices of growing and processing organic food and livestock.

All of these seals for food offer certification through third-party certifiers that follow specific guidelines. This requires the interested industries to maintain up-to-date records of all activities for the certifier agencies. Regarding the treatment of organic food, for example, the certifier must verify that during the handling of the raw material there were no outside contaminants. If the industries were to process raw material that was produced under good agricultural practices and organic practices, then records of how the machinery was cleaned and how the material was separated need to be kept.

Another seal that is pertinent to our study is the International Organization for Standardization (ISO) regulation on environmental management systems, ISO 14000. This standard is recognized worldwide and is applicable to any company with environmental considerations. Its intention, rather than to "specify levels of environmental performance," is to "provide a framework for a holistic, strategic approach to the organization's environmental policy, plans and actions" (ISO, 2009). Even though ISO 14000 does not specify exact methods for being environmentally-friendly, it is considered a green standard because it ensures that companies have measures in place to minimize their environmental impact.

2.2.2 Timber Seal

Costa Rica is known for its exotic forests; hence, Costa Rican wood is an export article of interest. We analyzed certification for environmentally-friendly wood products and correspondingly popular timber seals in the EU. The Forest Stewardship Council (FSC), for example, is a nonprofit organization that ensures that wood products meet requirements that are environmentally-friendly (FSC, n.d.). The FSC was created to "promote responsible forest management worldwide" based on "the need to substantially improve forest management" (FSC, n.d.). The FSC states that the companies certified under their labels protect the forests by making them more sustainable, and that they encourage positive impacts on the world's forests and the people associated with them (FSC, n.d.).

One of the most popular timber products produced in Costa Rica is furniture. Several EU countries have national eco-labels that promote greener furniture production processes, such as "Ökocontrol" in Germany and "Marque NF En-vironnement" in France. These seals, however, focus on particular types of furniture or input material, and the standards that they follow vary

significantly depending on the country and the types of furniture in question. So far, the promotion of environmentally-friendly products through these labels has been unsuccessful. The existing seals are confusing to many consumers and producers. “None of these labels is widely accepted by the furniture industry” because of the inconsistencies and undependable promotions among them (Bärsch, 2001, pg. 5). For the certification of timber products, our project will focus on the standards of the Forest Stewardship Council because of its national independence and universal acceptance in the EU.

2.3 EU Consumer Preferences

Retailers in the European Union note a growing demand for food and timber products, but the consumers have very particular preferences when purchasing these goods. We analyzed these preferences for environmentally-friendly production in order to identify target markets for our study.

2.3.1 Food Ingredients

Market research indicates that noticeable trends exist among food consumers throughout the European Union. Organic food items are gaining popularity and recognition among European consumers. Recent scares around the globe of contaminated food have prompted growing concerns for food safety and the environment. “These factors, combined with the increasing awareness of the importance of diet and nutrition, have intensified interest in organic food” (Centre for the Promotion of Imports from Developing Countries, 2002, pg. 26). Although organic items make up only a small part of the food market, ranging from 1% in France to 2.7% in Denmark, the demand for these products is growing in the major EU markets. Consumption of organic products in the UK, for example, is expected to grow by more than 20% annually (Centre for the Promotion of Imports from Developing Countries, 2002). Unique opportunities lie in the EU food market for developing countries in the areas of fruits, vegetables, spices, and herbs, especially if their growers and processors can certify their practices as organic or under the category of good agricultural practices (GAP).

2.3.2 Timber and Timber Products

Economic uncertainty has slowed the overall timber industry, but opportunities still exist in certain sectors. Imports from developing countries, including Costa Rica, accounted for 20% of imported timber products to the EU in 2000. Regardless of the product, producers can find a competitive advantage in the market if their products or processes are certified. Although

obtaining such certifications as those by the Forest Stewardship Council are costly, EU consumers are becoming increasingly aware of the seals that represent environmentally-friendly and sustainable timber processing practices. In Germany, for example, in order for tropical timber to be used in construction it must be certified by the FSC (Centre for the Promotion of Imports from Developing Countries, 2002).

In the furniture market, brand names are highly attractive, but constitute only about 20% of all furniture built. By demonstrating greener practices, certified production procedures would allow smaller, foreign producers to compete with the larger corporations in the EU market (Bärsch, 2001). Furthermore, while "FSC certification is the most relevant for timber from developing countries", more seals are becoming available (Centre for the Promotion of Imports from Developing Countries, 2002, pg. 47).

Costa Rica has unique opportunities in the European Union private market. Its small- and medium-sized companies, in particular, can earn a competitive advantage by adopting organic or environmentally-friendly production practices. Despite the obstacles of the certification process, these companies can make this process less troublesome by knowing the requirements of the most popular EU eco-labels, understanding the certification process, and noting the most likely European markets for their products to be successful.

Chapter Three: Methodology

The goal of our project was to understand how secondary Costa Rican industries are meeting the requirements of the EU regulations on organic and green products for expanding into the EU private market. Therefore, our objectives were to identify the most important EU regulations and seals, evaluate the companies' compliance with these regulations and seals, and investigate the processes by which these businesses can obtain the best certifications for their practices. Our strategies for meeting our objectives are outlined below.

3.1 Evaluation of Seals

We identified specific seals for both food and timber products based on their presence and popularity in certain European countries. We researched each of these seals individually to obtain more information about their specific standards and parameters. Once we discovered the seals and standards that we would be working with, we directed our attention to addressing the certifiers and companies.

To understand what types of certification are available in Costa Rica, we searched for certification agencies in Costa Rica that offered certification for export to the European Union for green and organic products. Research led us to the only three certification agencies registered by the Ministry of Agriculture and Cattle whose services involved awarding European certifications to green and organic producers. We investigated each of these agencies individually in order to determine which specific seals they offer and what their certification process entails. In addition to the standards related to these specific certifications, we reviewed the EU organic regulation EC 834/2007 extensively, which allowed us to understand the requirement for any product entering the EU organic market.

3.2 Interviews

We interviewed two of the three certifying agencies that offered certification for the European Union private market. The questions were directed towards analyzing the experience these agencies have had with the Costa Rican businesses with respect to obtaining certification for their products. We also asked about the types of products their clients produce, if they stimulated the interest of the Costa Rican businesses to obtain certification, their certification process, the seals and certifications they offered, and a brief explanation of such seals. The interviews, consisting of both standardized questions as well as questions pertaining to their

specific agency, provided information about where the Costa Rican businesses stood in terms of their green and organic products.

3.3 Questionnaires

In order to understand the level of preparedness for Costa Rican expanding in the European Union's private market, we developed a list of questions for 11 Costa Rican businesses that are associated with the CICR, including small and medium size companies operating in the food and timber product markets. The questionnaire for food products was based on the organic regulation EC 834/2007 as well as several standards for green initiatives and good agricultural practices. The companies were surveyed on how well each one fulfilled each standard, and where the companies did not meet certain criteria.

For companies that focused on timber products we developed a separate questionnaire that was based on the standards of the Forest Stewardship Council and a feasibility study on EU eco-labelling for furniture. Based on how well the timber businesses complied with the regulations and consumer preferences presented in these documents, we assessed their stance with respect to the EU demands in order to help them improve their production practices.

3.4 Data Analysis

The data collected from the interviews with the certifying agencies and the questionnaires were compiled and analyzed. Each section of the questionnaires the Costa Rican businesses completed was cross-correlated with the information from the certifier agencies in terms of the European Union private market requirements. The data was divided into areas where the companies were complying with the requirements and where they needed to improve. The suggestions on where the Costa Rican businesses could improve, based on each certifier's experience, were compiled and provided first hand, knowledgeable observations.

In addition, we assessed the companies' compliance with the European regulations by creating scorecards based on the requirements of the major seals we had studied. Both scorecards, one for food companies and another for timber industries, assessed benchmarks in the areas of raw material handling, the manufacturing process, packaging, waste management, record keeping, and exports. Based on the difficulty of each standard included in the scorecards, we ranked them and assigned each one a point value depending on its rank. Tables describing this ranking system can be found in Appendix C. From the responses to our questionnaires we measured the environmental considerations of each company using the criteria on the scorecards.

If a company met a standard, it received a number of points equivalent to the assigned point value of that criterion. If it did not meet the standard, or if we found that it did not apply to the company, we awarded zero points for that category. At the end we summed all of the points received for each criterion, and each company's score was expressed as a percentage of points received out of the number of points possible. Examples of the scorecards can be found in Appendix D.

3.5 Recommendation Development

We used the compiled results from the analysis of the questionnaires to create two brochures, one for food companies and another for timber industries, in order to better educate the companies on how to export green and organic products. The brochures were broken down into three sections and were directed specifically towards the Costa Rican companies interested in either expanding or entering their products into the European Union private market. The first part of the brochures contained information about seals in general, including an explanation of the purpose of eco-labels and descriptions of the different kinds of seals available. This section explained the differences between green and organic regulations as well as between national and private seals in Europe. The timber brochure discussed the different FSC seals, including an explanation of each seal's purpose.

The second part of the brochure explained the general regulations of the green and organic seals that we used to develop our questionnaire. This section listed the basic standards that were common to all of the seals we assessed, specifically in the areas of origin of raw material, production process, packaging and distribution, and waste management. In addition to general green practices, the timber brochure outlined the basic regulations of the FSC Forest Management, Chain of Custody, and Controlled Wood seals.

The third section, only included in the food brochure, explained the unique advantages that certified Costa Rican products have in European markets. The most prominent advantage outlined in this section was the equivalence of the Costa Rican organic legislation MAG 29872 and the EU organic regulation EC 834/2007.

Examples of the brochures for food and timber companies can be found in Appendix E.

Chapter Four: Results

The data gathered from our interviews and questionnaires revealed a wide range of information. We organized the responses we received in order to accomplish our original goals of assessing the companies' environmental responsibility with respect to EU green and organic regulations and seals, and identifying obstacles that businesses face during the certification process. This section will present these results under the categories of certification, evaluation of compliance with green standards, and fulfillment of European organic regulations.

4.1. Certification

The interviews with the certification agencies revealed an important fact concerning organic products in Costa Rica. After representatives from the EU visited the country and classified it as a developing country, it granted certain privileges to the businesses, such as reduced tariffs, to encourage exportation of Costa Rican goods to Europe. They also recognized Costa Rican organic products certified by the Ministry of Agriculture and Cattle (MAG), specifically under the regulation MAG 29872, as also compliant with EC 834/2007 because of the equivalence in the standards of these two legislations. This policy gives an advantage to Costa Rican organic companies and signifies an important step forward in introducing their products to the EU private market.

The certification process is viewed in different ways. Some companies see it as an advantage while others view it as a burden. From our interviews with certification agencies and companies we learned the general certification process, the current state of Costa Rican industries with respect to certification, and some of the obstacles that companies face when trying to obtain green or organic seals.

4.1.1 Certification Process

We established the general processes that each company must undergo in order to be certified. In our interviews, the certification agencies outlined the general process of certifying a company's production processes under such standards as EC 834/2007, GLOBALGAP, and Tesco Nurture. We discovered that every certifier follows a similar procedure that includes sending representatives to the location, after the organization has adjusted their operations according to certain standards, to assess all production processes. Applicants are subject to annual inspections and an internal control system so that the certifiers can keep track of their

performances effectively. Once the certifiers have assessed the production process, the application is given to an evaluation committee. If the committee finds that the process fulfills the regulations, then the company is awarded a certificate, indicating its compliance, which is valid for one year. If the company does not meet the standards, the certifier follows up with an explanation of the processes that must be improved in order to obtain the desired certification.

4.1.2 Views and Ambitions of Certification among Companies

In the questionnaires, the Costa Rican food and timber businesses were asked to provide details on their certification status for any seals they might have obtained already. Most of the companies were aware of the importance of certification in successfully exporting their products, but of the eleven companies that were interviewed, only four were certified under standards, not necessarily green or organic, recognized by the EU (see Figure 1). One of these companies was certified under ISO 22000, a food safety management standard, and another, in addition to actively pursuing ISO 14000 certification, was certified by two American quality-based coffee seals. This company was the only one that currently exported to the EU, despite not having green or organic certification. In our interview, the company representative commented that coffee is widely available in organic form, but since their location in Costa Rica is known internationally for producing high-quality coffee, he does not feel the need to adopt organic practices.

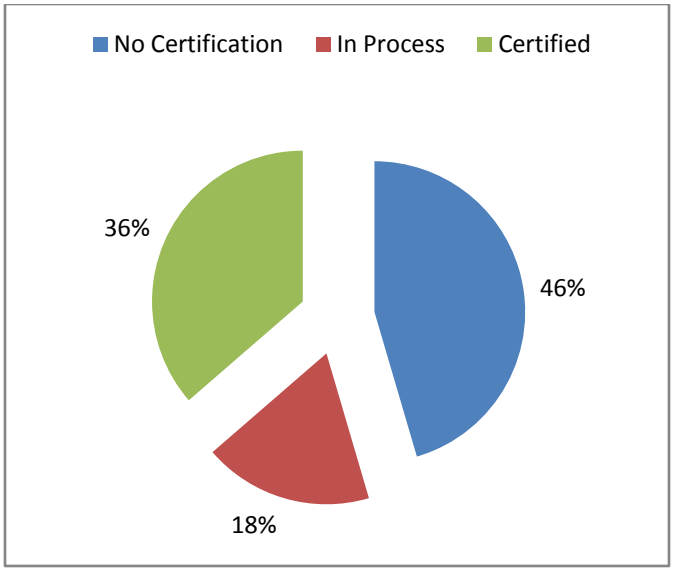

Figure 1: Certification status among interviewed companies.

Nine companies indicated and discussed their desire to export in their interviews. Among these companies, five were actively pursuing green certification for their products (see Figure 2).

The other companies either did not feel the need to certify their environmentally-friendly practices or did not have the capacity to obtain such seals. One company was not interested in exporting at all due to the limited capacity of its plant, and another found it more profitable to stay in domestic markets rather than fronting the extra costs associated with foreign markets. Nevertheless, it is clear that our data on certification shows a lack of initiative in many industries to obtain EU-recognized green or organic certifications.

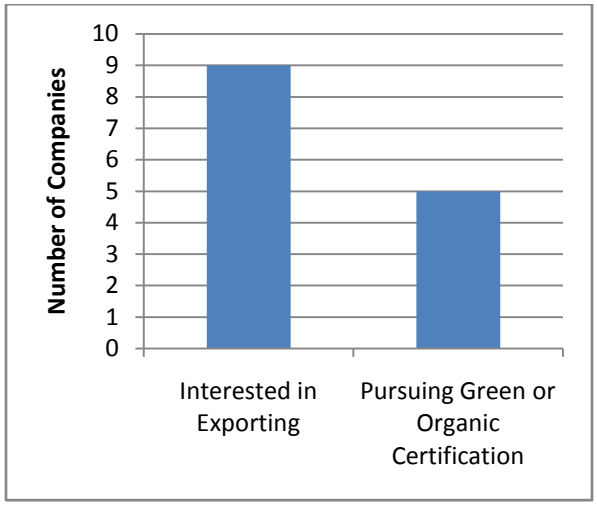

Figure 2: Number of companies interested in exporting and certification.

4.1.3 Obstacles

Our interviews revealed reasons why many companies in Costa Rica find the certification process overwhelmingly difficult. The first and most prominent explanation is the financial burden. Most small and medium-sized companies cannot afford the financial and time commitments of adopting environmentally-friendly and organic practices. For example, in order to obtain organic certification under EC 834/2007, a company must use organic practices for at least three years before a certifier can even evaluate them. In addition, the cost associated with obtaining this certification ranges from $500 to $20,000, depending on the size of the operation. In addition, the marketing and transportation necessary for exporting products can be very expensive and inhibit many small companies from entering foreign markets.

The businesses also generally have trouble demonstrating that they comply with the standards. For example, nine of the companies we interviewed kept a log of their own processes, but seven of them were not aware of the practices of their primary producers. This information must be well known and recorded in order to obtain organic certification in the EU, and is highly recommended for receiving green seals as well. These burdens cannot be ignored in this analysis,

but the lack of a seal does not necessarily mean that a company does not make efforts to be environmentally-friendly.

4.2. Companies' Compliance with Green Standards

Our second major finding concerns the companies' compliance with the standards of the European green seals. In the assessment of their production processes, we created five main criteria for analysis. These criteria were compiled from an analysis of the EU regulations for green products and processes. They included evaluation for recycling initiatives, waste management, energy conservation and management, pollution reduction, and water conservation and management. The results for each of these topics are outlined below.

4.2.1. Recycling Initiatives

During the interviews, when the companies were asked about their recycling initiatives, all of the companies responded that they had some initiatives already in place. These initiatives included recycling plastics, carton, and other by-products of the production and transportation processes. In total 75% of the companies had full recycling measures in place and the remaining 25% had some plans for developing recycling initiatives. Some companies' production processes, for example, included bottles, which they recycled by cleaning and reusing them. Others had similar processes to recycle by-products; however, one important observation was that most companies did not advertise the recycling of their packaging to their clients.

4.2.2. Solid Waste Management

All production processes observed produced waste that included extra raw material, by-products of the raw material, and leftover scraps. For the solid waste management of the food industries, 62.5% of the companies interviewed made strong attempts to reduce waste and 25% made only marginal efforts. The efforts of the food industries included selling their food waste products to other companies that would recycle it by using it for animal feed. Another effort included recycling the by-products of the material by turning them into compost for plants. The added costs and water use associated with waste reduction initiatives, however, prevented the other companies from implementing them. Timber industries had full compliance by making efforts to turn the wood scraps into additional ornaments or burning them to produce heat.

4.2.3. Energy Conservation and Management

Energy conservation and management was an issue that had good compliance among the Costa Rican businesses. Most of them had some kind of measures in place to ensure efficient use

of energy. In total 75% of the food industries and 33% of the timber industries had full compliance; however, 12% of the food industries and the remaining 67% of the timber industries had only some compliance. In order to conserve energy, businesses, for example, evaluated the peak energy times during the day so that they could devise a way to use the machinery efficiently. Others had much simpler ways, for example ensuring that the lights were off and that machinery not being used were turned off. One company in particular, in an effort to reduce harmful emissions and energy consumption, optimized the use of their machines by using them to make the products they needed all at once instead of turning the machines off and on throughout the day.

4.2.4. Environmental Impact and Pollution Reduction

With respect to pollution reduction, the companies were less aware of how to implement measures to control this aspect of the production process. Most companies were not aware of the environmental impact of their machines and most said that they were too small to make a significant impact. When trying to evaluate the environmental impact of the production process only 12.5% of the food industries and 33% of the timber industries had full compliance, 62.5% of the food industries and 33% of the timber industries had some compliance, and the remaining 25% of the food industries and 33% of the timber industries had no plans implemented. The measures of the fully compliant businesses included evaluating the environmental impact of their machinery so that they could find a way to reduce the pollution output during the production process. Out of all the companies interviewed only 20% had a plan implemented to reduce the emissions created by their trucks.

4.2.5. Water Conservation and Management

When analyzing water conservation and management, we only evaluated the food industry. This was done because when asking the timber industries about their water usage they expressed the need for very minimal amounts of water. The data for this section show that 37.5% of the companies had full compliance, 37.5% had some compliance, and 25% had no compliance. The full compliant 37.5% had measures that involved the recycling and treatment of water used so that it could be reused in the production. The somewhat compliant businesses made efforts, but had room to make additional efforts for a more efficient water conservation system. The non-compliant businesses had production processes that required constant water

usage and therefore controlling their handling of water would have required further expenditures for the company.

4.2.6. Summary of Green Analysis for Food Industries

Figure 3 shows the cumulative results for the food industries. It is clearly visible that pollution reduction and water consumption were the categories with overall low compliance. The remaining three categories of energy consumption, waste management, and recycling initiatives had higher percentages of compliance.

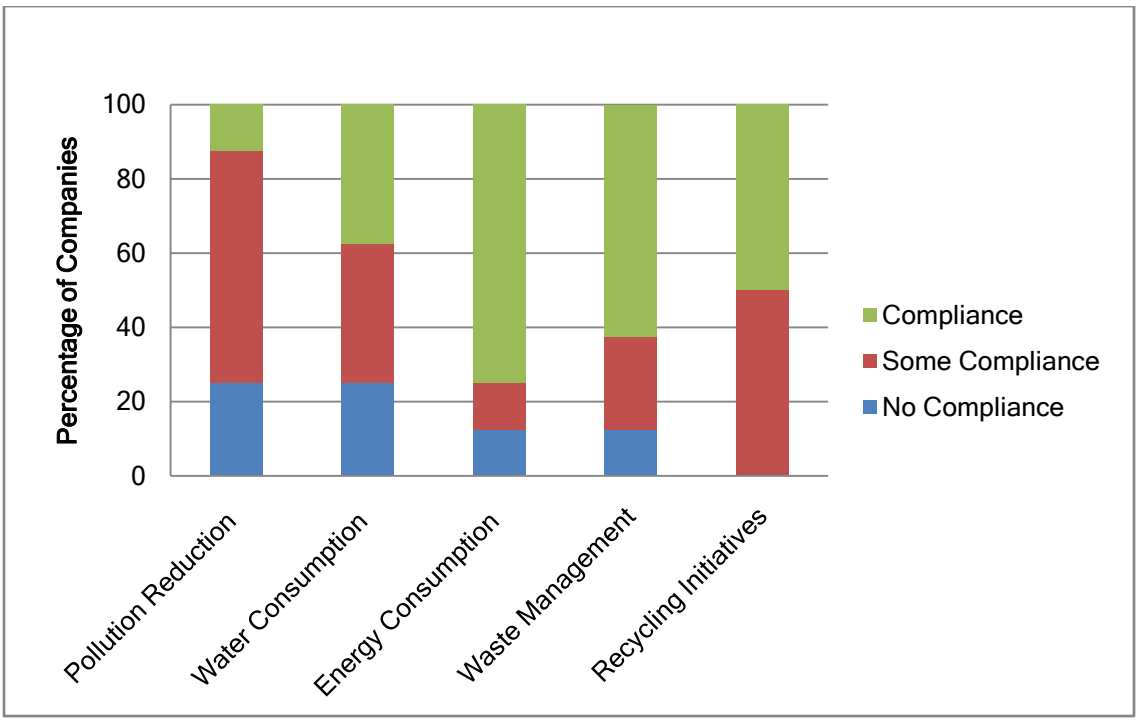

Figure 3: Assessment of "green" criteria in food companies.

4.2.6. Summary of Green Analysis for Timber Industries

Figure 4 shows the cumulative results for the timber industries. This graph demonstrates that pollution reduction and energy conservation were the categories with low compliance. The other categories of waste management and recycling initiatives had full compliance from the businesses.

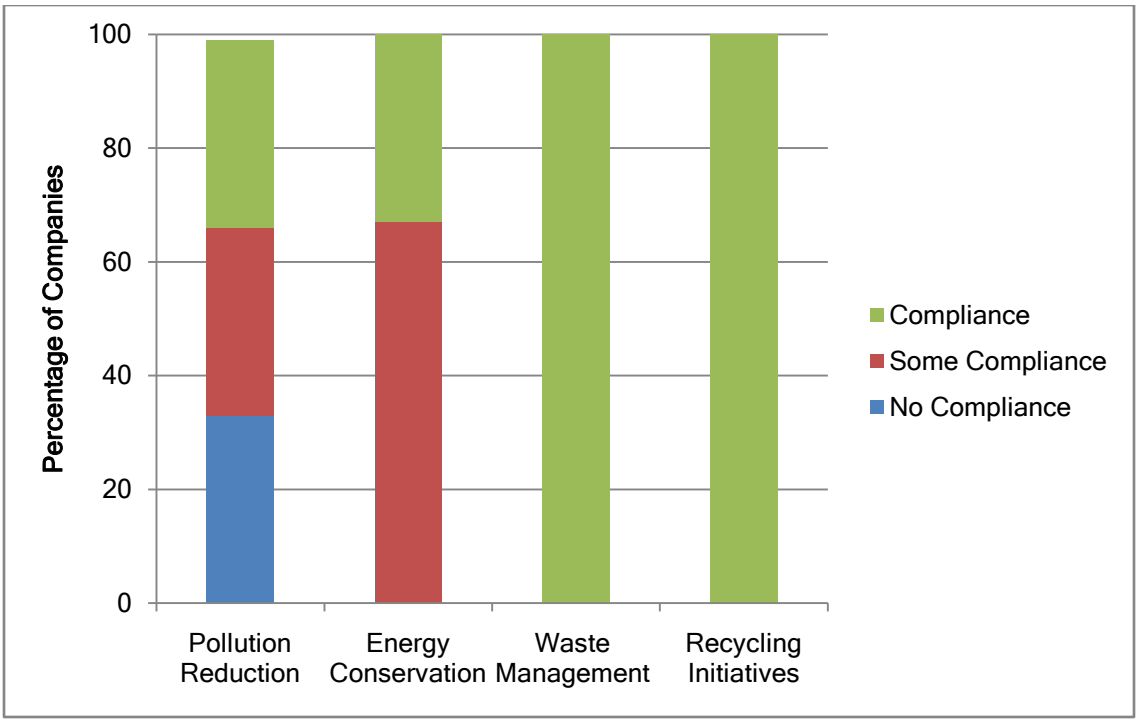

Figure 4: Assessment of "green" criteria in timber companies.

4.3. Analysis of Compliance with the EU Organic Regulations

After analyzing the various green initiatives of the Costa Rican companies, we shift our focus to understanding the level of agreement that company policies have with the different aspects of the EU regulations for organic products. By interviewing different companies in the food and timber sectors, we discovered important details with regard to EU regulation compliance. We based our analysis on the perspective of the production process of a company, and we made a general classification for production processes at food and timber industries. Our classification was based on these production stages: origin of raw materials, manufacturing process, packaging/distribution process, and other information (referring in general to their export activity). We determined important criteria that the companies should comply with in these different production phases.

4.3.2 Production Process

Figure 5: Stages of the production process.

Costa Rican companies have difficulties complying with organic regulations. Few companies expressed an interest in working with organic raw material because either there is not enough quantity of the material they need for their production in organic form or there are very vague details on the methods used to produce their raw material. Only one company expressed having a commitment to finding as many organic raw materials as possible for their production processes.

It is often difficult for producers to obtain some kinds of organic raw material because government institutions hold monopolies over some products, and demand documentation, tariffs, and other requirements before issuing permission to sell it. Some products already have value from their specific origin, as in the case of the coffee company previously mentioned, that makes it easy for them to enter international markets, so the idea of being organic was not seen as a priority.

The most significant problem with obtaining green raw material was that manufacturers were unaware of the practices used in the production of the raw material they acquired. Acquiring this information proved to be a difficult task since some companies imported their raw material from other countries such as Venezuela, Panama, and Nicaragua. Furniture industries, in

particular, faced this problem since none of the companies interviewed knew about the exact composition of the foams used and assumed that all foams contained harmful chemicals.

The manufacturing processes of the interviewed companies appeared organized and well documented, but none of them were certified as organic. Many companies held standards for food handling by the Ministry of Health in Costa Rica or the Ministry of Energy and Environment, but there was not a general "green" production process standard in place for Costa Rican companies. Another criterion we took into account was the certification by the International Standards Organization, which would help us show which companies were already complying with specific parameters. The most common ISO certifications were ISO 14000 and ISO 22000. However, we found that even though there is an interest in obtaining this certification, the process of obtaining it is very difficult for companies due to the strict standards and expensive fees of the organization, and only 4 out of the 8 interviewed food companies were certified by the ISO.

Companies kept detailed data for every aspect of their process such as weekly machine maintenance, pest controls, good employee and manufacturing practices, and water analysis. We also found that they had procedures for avoiding cross contamination between different types of raw materials during the production process. One company, for example, established a color code system for the different cleaning instruments according to the different areas. With respect to hygiene during the production process, most of the companies' employees wore protective gear such as hairnets, aprons, gloves, and, in the case of timber companies, helmets and face masks to avoid contact with chemicals.

Figure 6: Production plant of a Costa Rican company.

4.3.3 Packaging and Distribution

Many companies expressed their concerns about the environment by showing their recycling initiatives in their packaging and distribution phase. One company was conducting research for the potential use of a less contaminating plastic for primary packaging as well as the feasibility of use of biodegradable packaging made of corn.

With respect to the efforts on making the transportation process greener, a few companies demonstrated their commitment to the environment by participating in the Climate Change Friendly program in which trees are planted to offset truck emissions. Timber companies in general showed support for this program by displaying stickers on their trucks expressing their participation and the mission of the program.

4.3.4 Interest in Exporting Goods

We found that six of the eleven interviewed companies exported their products, and three of them exported to the EU. Even though the number of companies who had already established contacts in the EU private market was very low, they appeared to have a positive experience. Only one company shared having a bad experience when exporting to the EU. His main reasons were that its product had a very short useful life since it had to be exported fresh, and he found communication with the brokers very hard.

Nearly all of the companies acknowledged the possibility of expanding into the EU private market and expressed their interest in improving their production processes to meet the

EU standards. The companies that did not show any interested were limited because of their plant space, lack of contacts in foreign markets, or other issues they needed to fix first in their production before even considering exporting.

We assessed the different criteria and developed a numerical score for each of them. By adding each company's score, we determined the percentage of compliance with the different criteria applicable to each company's situation. Figures 5 and 6 show a summary of our findings for food and timber companies' compliance.

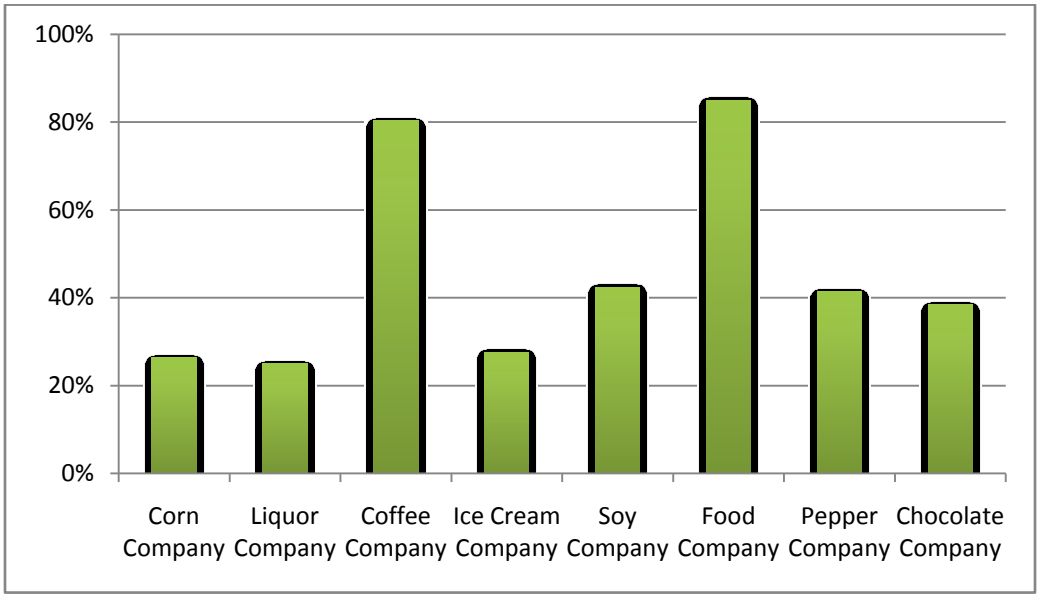

Figure 7: Compliance of food companies with EU organic criteria.

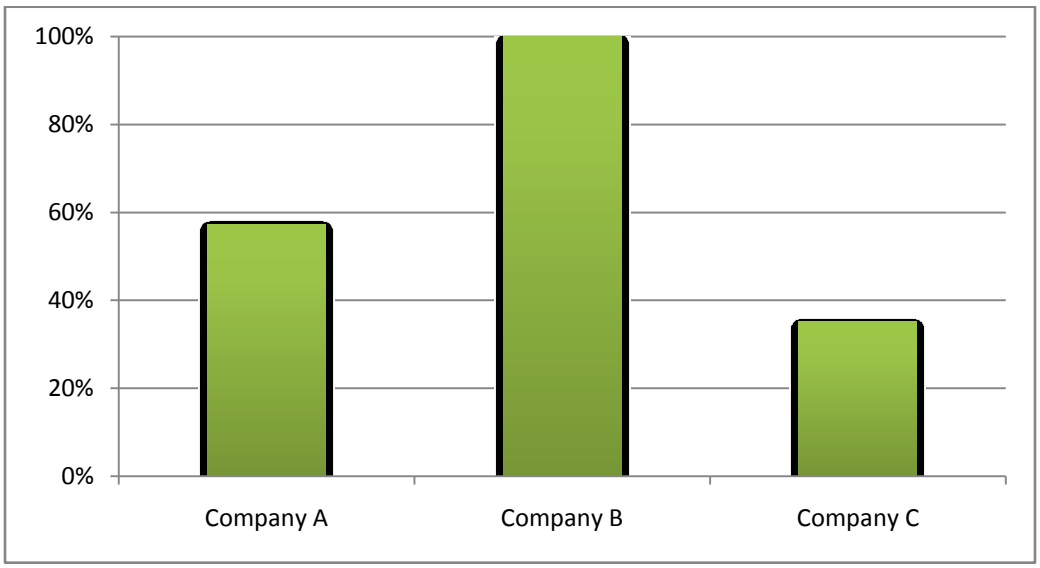

Figure 8: Compliance timber companies with EU criteria.

The companies had an average overall compliance of 50% with the European Union parameters. This number shows that although some efforts are being made to abide by organic and green standards, there are still some areas of low compliance. Many burdens prevent companies from fully complying with strict European Union legislations, including the lack of awareness for our environment in the Costa Rican culture, the low availability of organic raw materials, the absence of funding for certification, and the lack of knowledge of available markets for their products.

4.4 Recommendations

After analyzing each company's compliance with the European green and organic criteria, we found several challenges that many companies faced when considering certification. Therefore, we also developed recommendations that offered potential solutions to many of these obstacles. We published these recommendations in our brochures so that the companies could take notice of them. This section will outline the challenges that emerged from our findings and the resulting recommendations we developed for them.

We observed that obtaining raw material certified as organic or under any other green regulation was difficult for most companies. In terms of food industries, for example, many companies found that there were not enough organic or any other non-conventional raw materials available that would satisfy their production demand. Another issue faced by the companies was that the current consumer demand did not necessarily require non-conventional material. This holds true for some of the timber industries, who, when evaluating the consumer demand, did not see fit to pay for expensive FSC certified wood if consumers preferred to buy from the competition that used conventional material. We recommended that even if companies cannot afford or find enough of the raw material needed in organic or green form, that they use both green or organic and conventional ingredients in their production. Companies who implement such measures would just have to use caution in avoiding cross-contamination between the two types of material. This additional process would demonstrate the companies' commitment to the environment, and would be a step forward in obtaining green or organic certification for all processes.

Most of the interviewed companies used very effective recycling and solid waste management initiatives, but some food companies had trouble recycling their plastic packaging because of the food residue it contained. For this issue we recommended that the companies

implement a plan to clean the residue and then recycle the water for the same procedure. We considered the recycling of plastic of great importance since it usually takes 500-1000 years to degrade in the landfills (Lapidos, 2007).

We also observed that most companies had difficulties evaluating their pollution output in the manufacturing and transportation processes, and the most efficient methods for conserving water. We recommended that companies look into reducing their emissions by teaming with organizations that plant trees to outbalance these emissions, such as the Climate Change Friendly organization. This organization evaluates the carbon output of a vehicle and plants the amount of trees needed to balance those emissions. With regard to water conservation, companies could implement treatment and recycling measures for the water they use. Although such systems can be expensive to develop, it is something that all businesses can strive for, and it is a process that can reduce financial expendatures on water in the long run. We know that implementing the above recommendations would develop more eco-friendly production processes and the betterment of the environment.

Chapter 5: Conclusions

Our analysis was targeted to help Costa Rican secondary industries introduce their products into the European Union private market. Processed export products were found to be more profitable in foreign markets than raw materials since they last longer and the transformation process of primary produce adds value to the product. When exporting products from Costa Rica to the European Union, a middleman is responsible for its processing and distribution, keeping the largest percentage of the profit. However, if the transformation of that primary product occurs in Costa Rica, the nation keeps a higher percentage of the profits, and therefore, most of the income stays in Costa Rica creating more jobs in the country.

Through our questionnaires we were able to analyze the stance the Costa Rican companies have with respect to the regulations of the European Union. It was found that not all companies met the requirements of the most popular seals and regulations of the European Union private market. The questionnaires revealed that the lowest areas of compliance were in record-keeping, pollution reduction, and water conservations. Most companies kept accurate records of their production process, but did not maintain sufficient information about the raw material that would allow a traceability of the product necessary for many EU regulations. In terms of pollution reduction, many companies did not know how to evaluate the impact their production processes and transportation had on the environment, and hence had no measures to diminish this. For water conservation, we observed areas that companies could improve upon such as implementing measures to either recycle or treat the water for reuse.

Overall, it was clear that one of the major issues facing these companies was the lack of certification. This was affected by reasons such as the lack of financial resources, incomplete record-keeping, and inappropriate production processes. Most of the interviewees were small companies and therefore they did not have the resources available for certification. However, all companies that did not have any certification expressed their desire to obtain it. Therefore, it was evident that the companies knew the importance of certification, but not all had the resources to obtain it for their companies.

In an effort to resolve this issue we handed out brochures to both timber and food industries about the most identified seals in the EU, and with recommendations generated from the evaluation of the Costa Rican companies. We know that the brochures will open horizons into international markets for both the timber and food industries, specifically the European

Union private market, by guiding the companies into compliance with the EU regulations. We hope that the brochures aid the industries of Costa Rica in their expansion into European markets. We also hope that the companies can successfully market their products through the global perception of Costa Rica as a green country. Overall, we hope that our efforts created the first steps towards bridging the gap between Costa Rican products and the European Union private market consumer.

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Appendix A: Questionnaire for Food Companies

General Information

Date:

Name:

Representative/Position:

Phone:

Email:

Products Produced:

For the purposes of this project, "organic" will be defined as 'coming from or related to organic production', in which "organic production" means the use of the production method compliant with the rules established in EC 834/2007, at all stages of production, preparation, and distribution. This definition comes directly from Article 2 in the EU organic regulation EC 834/2007. In addition, our study will consider "organic" as anything that meets the criteria for certification as organic in Costa Rica, and therefore also in the EU, Japan and USA.

The term "green" will be defined as *products* and/or *processes* that abide by less strict regulations that measure a company's initiative to become more environmentally friendly.

The term "conventional" refers to *products* and/or *processes* that do not abide by any guidelines for organic, green, environmentally friendly, or sustainable practices.

The term "green market" refers to a system that consists on buying and selling goods that are environmentally friendly

Section A: Origin of raw material

1. Do you have any environmental considerations when you buy your raw materials?

If you answered "YES" to question 1, please continue with the following questions:

a. Is the raw material you buy certified as organic or as produced according to good agricultural practices (i.e. GLOBALGAP, UTZ, Tesco Nurture, etc.)? If so, what seal does your product have that proves the raw material you bought is organic (i.e. national, USA, Japan, EU) or green (GLOBALGAP, UTZ, Tesco Nurture, etc.)?

If you answered "No" or "Unknown" to Question 1, please continue with the following questions:

b. Do you know if your primary producers used pesticides/fungicides on the product you bought? If so, which ones?
c. Do you know if your primary producers used soluble fertilizers in the soil? If so, which ones?
d. Do you know if your primary producers used Genetically Modified Organisms (GMOs)? If so, which ones?

Section B: Manufacturing Process/ Handling of raw material

1. What if any measures has your company implemented to minimize the environmental impact of each production process?

2. Is your production process certified as organic by any regulation or environmentally friendly?

3. What kind of records does your company maintain and for what specific processes?

4. Does your company have any International Standards Organization (ISO) certification?

5. Has your company made efforts to reduce energy consumption in your production process? If yes, what percentage of energy consumption has been reduced?

6. What efforts has your company made to reduce water consumption in the production processes of your plant? If yes, what percentage of water consumption has been reduced?

7. How do you ensure that the usage of your raw material is performed effectively and efficiently?

8. Do you use ingredients in conventional form?
   a. **If you answered "yes",** Do you know if the ingredients that you use in conventional form are available in organic form or under good agricultural practices? If so, what are the reasons that made you opt for the conventional form?

Please answer questions 9-12 ONLY if your company uses organic raw material

9. Do you use GMOs as a processing aid in your production process? If so, which ones?

10. Do you use ionizing radiation in any of your production processes?

11. What measures do you take in order to prevent any outside pollutants into the production process?

12. Do you add any food or nutritional additives to the raw material during the production process? If so which ones?

Please answer questions 13-15 ONLY if your company does not use organic raw materials

13. Do you have any certifications that emphasize the "greenness" of your company's production processes?

14. Do you add any food or nutritional additives/micronutrients to the raw material during the production process? If so which ones?

15. What kind of chemicals do you use when handling the raw material?

16. Do you have different types of raw materials?

    If your answered "Yes" to question 16, During the production process, do you separate the different types of raw materials? And if so, how do you separate the different types of raw materials?

17. How do you clean your machinery to avoid cross-contamination?

18. Does your company support any green initiatives outside the plant or outside the company?

<u>Section C: Packaging/Distribution</u>

1. Is the primary packaging material recyclable or biodegradable after use?

   If you answered "Yes" to Question 1, please continue with the following questions:
   a. What percentage of the primary packaging is recyclable?
   b. What percentage of the primary packaging is biodegradable?

2. Is the material used for packaging for distribution recyclable or biodegradable after use?

If you answered "Yes" to Question 2, please continue with the following questions:

a. What percentage of the outer packaging is recyclable?
b. What percentage of the outer packaging is biodegradable?

If you answered "No" to Question 1 or 2, why not and has your company thought of implementing any measures to change this?

3. Has your company made any effort to implement measures for ensuring the best possible disposal of the packaging material? If so, which ones?

4. What is the process of transportation of your products?

    a. Do you keep record of transportation procedures?

5. Have measures been taken to make the transportation process more environmentally friendly?

6. What type of data do you display on the product label? Also, if you have any kind of certification what data are you required to display on the product label?

Section D: Waste procedures

1. Do you have any recycling initiatives?

2. Does your company have any practices to reduce solid waste?

If you answered "Yes" to Question 2, please continue with the following questions:

a. What mechanisms do you use?

b. How much solid waste has been reduced?

If you answered "No" to Question 2, please answer the following question:

c. Is your company considering adopting practices for reducing waste?

Section E: Other information

1. Has your company implemented measures to determine your company's carbon footprint? If so, which measures have you implemented or are you planning to implement within the next 12 months?

2. Do you currently export any of your products?

   If you answered "Yes" to Question 1, please continue with the following questions:
   a. To where?

   b. How long have you been exporting to these destinations?

   c. Which seals, if any, do you obtain for your products (in addition to any seals you may have already mentioned in answering prior questions)?

   If you answered "No" to Question 1, please answer the following questions:
   d. Has your company ever planned to export its products?

   e. Is your company aware of the requirements for exporting to such destinations as the EU, the United States, or Japan in their green markets?

   f. What are your future plans with respect to certification?

3. Are you currently exporting to the European Union?

   a. **If you answered "Yes"** what seals did you obtain for your products and what did you think of the certification process?

   If you answered "No" to question 2, please answer the following questions:
   b. Have you felt the need/desire to export to the EU? If not, what are the reasons?

   c. Has your company made any efforts to export any of your products to the EU? If so which products?

   d. Please tell us about your experience.

This questionnaire is based on the following standards:
- EU legislation for organic products
- ISO 14000 Standards
- Tesco
- Bio-Siegel
- Carrefour
- GLOBALGAP

Appendix B: Questionnaire for Timber Companies

General Information

Date:

Name:

Representative/Position:

Phone:

Email:

Products Produced:

The term "well managed forest" will be used for forests that are certified and audited to ensure they comply with environmentally sustainable practice and principles. Tropical hardwood and softwood trees are now grown in well managed forests and a number of organizations providing certification and standardization systems are used throughout the world, including FSC, FFCS, PEFC, SFI and CSA.

The term "clear cutting forest" refers to a forestry practice in which most of the trees in an area are cut down. It can also refer to the removal of the entire standing crop of trees.

Section A: Origin of raw material

1. Do you have any environmental considerations when obtaining your raw material? If so, which ones and for which products (i.e. do you ensure that the wood you use is from a well managed forest, or is certified by FSC or any other certification entity; if your use plastic parts, are these from recycled plastic or recyclable, etc.)? Do you or your providers use solvents that emit hazardous VOC's (Volatile Organic Compounds)? If so, which ones? If applicable: Do you or your provider have any plans in place for the reduction of clear cutting forests? If so, please elaborate.
2. Before the production processes, how do you handle your raw material?
3. Do you segregate the wood you use according to its origin (i.e. wood from plantations or wood from well managed forests as opposed to wood from conventional sources)?

Section B: Production Process

1. Does your company have any environmental considerations during the production process?
2. Does your product contain any kind of upholstery? If so, what kind of materials does your company use in the upholstery of the product?
3. Does the product contain any type of foams? If so, what chemicals are contained in that foam? (i.e. chlorofluorocarbons (CFCs), fluorocarbons (FCs), hydrochlorofluorocarbons (HCFCs) hyrdofluorocarbons (HFCs), or methylene chloride?
4. Do you impregnate wood with chemicals? If so, which chemicals?
5. What kind of additives does your company use for adhesives? If so, in which quantity?
6. Do you use any moth/flame retardants in your products? If so, which ones?
7. Do you use any synthetic material in the product? If so, which ones and for what parts?
8. Are there plastic parts in the products

   If you answered "Yes" to Question 7, please continue with the following questions:

   a. Are these parts heavier than 50 grams?
   b. Are these parts recyclable?
9. What kind of coating do you use in your products? Do you use heavy metals in coatings such as lead, cadmium, chromium, nickel, tin, mercury?
10. How does your company control VOC emissions in the production process?
11. Are there any metals used in the production process? If so, in what quantity?
12. Does your company test the products? If so, how?
13. Do your outdoor products meet any standards for robustness, durability and protection against water, insects, and effects of changing temperatures and exposure to light?
14. Does your company distinguish between products produced for private and commercial use?
15. How does your company control energy consumption during the production process?
16. Does your company outsource part of its production process?

    If you answered "Yes" to Question 15, continue with the following questions:

    a. Are you aware of the materials and practices used in the outsourced processes? If so, which ones?

b. Do you know if your contractors outsource part of the processing you hired them for? If so, what type of information does your company record about the subcontractors (i.e. names, contact details, records on the plant and production processes of the subcontractors, etc)?

Section C: Record Keeping

1. Does your company keep records of the raw materials used?
2. What kind of records of the production process does your company maintain and for what purposes?
3. What kind of records of suppliers does your company maintain and for what purposes?

Section D: Packaging/Distribution

7. Is the primary packaging material recyclable or biodegradable after use?

   If you answered "Yes" to Question 1, please continue with the following questions:

   a. What percentage of the primary packaging is recyclable?
   b. What percentage of the primary packaging is biodegradable?

8. Is the material used for packaging for distribution recyclable or biodegradable after use?

   If you answered "Yes" to Question 2, please continue with the following questions:

   a. What percentage of the outer packaging is recyclable?
   b. What percentage of the outer packaging is biodegradable?

   If you answered "No" to Question 1 or 2, why not and has your company thought of implementing any measures to change this?

9. What is the process of transportation of your products?
10. Have measures been taken to make the transportation process more environmentally friendly?
11. What type of data do you display on the product label?

Section E: Waste procedures

3. Do you have any recycling initiatives? Do you use any recyclable material in the production process? If so, in what quantity?

4. Can the product be easily disassembled at the end of its life cycle to facilitate recycling of its materials?
5. Has your company implemented measures to determine your company's carbon footprint? If so, which measures have you implemented or are you planning to implement within the next 12 months?

Section F: Other information

4. Do any of your products receive Forest Stewardship Council certification? If so, which label(s)?
5. Do you currently export any of your products?

   If you answered "Yes" to Question 1, please continue with the following questions:

   a. To where?
   b. How long have you been exporting to these destinations?
   c. Which seals, if any, do you obtain for your products (in addition to any seals you may have already mentioned in answering prior questions)?

   If you answered "No" to Question 1, please answer the following questions:

   d. Has your company ever planned to export its products?
   e. Is your company aware of the requirements for exporting to such destinations as the EU, the United States, or Japan in their green markets?
   f. What are your future plans with respect to certification?
6. Are you currently exporting to the European Union?
   a. **If you answered "Yes"** what seals did you obtain for your products and what did you think of the certification process?

   If you answered "No" to question 2, please answer the following questions:

   b. Have you felt the need/desire to export to the EU? If not, what are the reasons?
   c. Has your company made any efforts to export any of your products to the EU? If so which products?
   d. Please tell us about your experience.

This questionnaire is based on the following standards:

- Standards of FSC (Forest Stewardship Council)
- *The Feasibility of an EU Eco-label for Furniture* by Dr. Jürgen Bärsch

Appendix C: Feasibility Tables

Feasibility Table for Food Companies

Feasibility level	Explanation	Examples
Level A: Easy (1 POINT)	The change in the production process phase can be easily implemented. It doesn't involve important economic investment and the resources needed are easily available.	Efforts to reduce energy consumption Separates different types of raw materials Primary packaging recyclable or biodegradable Packaging for distribution recyclable or biodegradable
Level B: Moderate (2 POINTS)	The change in the production process phase can be implemented. Resources are needed as well as research to identify any costs associated with the change.	Efforts to reduce water consumption Maintaining records for all the processes Cleans machinery to avoid cross contamination Measures for making transportation process greener Recycling initiatives Environmental considerations for raw materials Practices for reducing solid waste Absence of unauthorized food or nutritional additives
Level C: Moderate-Difficult (3 POINTS)	The change in the production process face involves identification of sources with specific characteristics as well as economic investment	No presence of pesticides/fungicides No presence of soluble fertilizers No presence of GMO's No use of ionizing radiation No use of harmful or unnatural chemicals Takes measures to prevent outside pollutants Efforts to reduce environmental impact

Level D: Difficult (4 POINTS)	The change in the production process involves a significant amount of resources and knowledge which is not easy to find	Currently exports products Measures to reduce carbon footprint Supports green initiatives outside the company Does not mix organic/GAP material with conventional raw materials
Level E: Extremely Difficult (5 POINTS)	The change in the production process requires a vast expenditure as well as significant efforts and time	Production process certified as green or organic (i.e. Tesco, Starbucks, Carrefour) Use of certified organic or GAP raw materials ISO certification Currently exports to the EU

Feasibility Table for Timber Companies

Feasibility level	Explanation	Examples
Level A: Easy (1 POINT)	The change in the production process phase can be easily implemented. It doesn't involve important economic investment and the resources needed are easily available.	Reduction of energy consumption Primary packaging recyclable or biodegradable Packaging for distribution recyclable or biodegradable Maintains records of the suppliers
Level B: Moderate (2 POINTS)	The change in the production process phase can be implemented. Resources are needed as well as research to identify any costs associated with the change.	Environmental considerations for raw material Absence of metals in the production process Usage of recyclable plastic parts on the product Testing of product/quality control

		Maintains records of the raw materials used Maintains records of the production process Recycling initiatives Ease of disassemble to recycle parts
Level C: Moderate-Difficult (3 POINTS)	The change in the production process face involves identification of sources with specific characteristics as well as economic investment	Environmental considerations during production process Wood classification according to origin No use of chemicals for impregnating the wood No usage of solvents that produce VOC emissions Measures in place to control VOC emissions Has taken measures to make transportation process greener
Level D: Difficult (4 POINTS)	The change in the production process involves a significant amount of resources and knowledge which is not easy to find	No presence of hazardous chemicals in the foams used Absence of contaminating coating on the product No presence of upholstery with contaminating materials Absence of contaminating moth/flame retardants on the wood Currently exports products Implemented measures to reduce carbon footprint
Level E: Extremely Difficult (5 POINTS)	The change in the production process requires a vast expenditure as well as significant efforts and time	Usage of certified FSC wood Production process certified (i.e. FSC COC) Currently exports to the EU

Appendix D: Scorecards

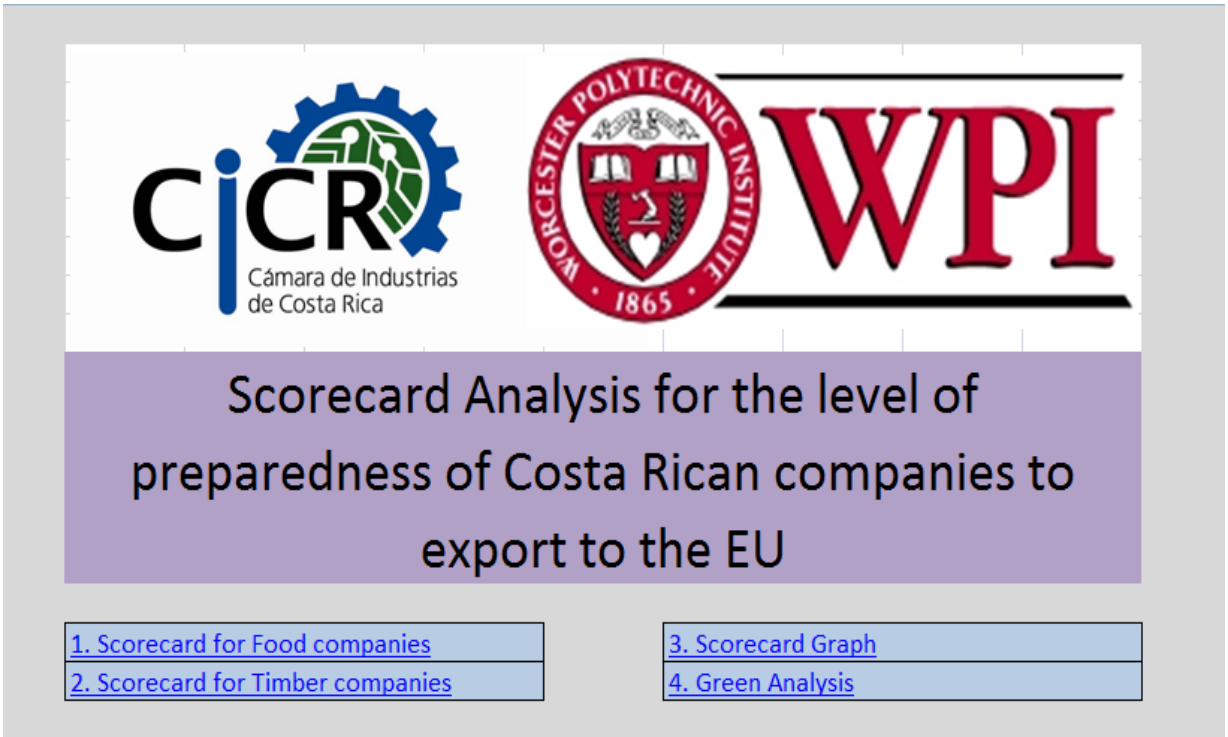
The scorecards were developed on Microsoft Excel as a tool to evaluate all the data gathered through the questionnaires. The main menu contains the different tabs developed for our analysis: food companies' scorecard, timber companies' scorecard, scorecard graphs and green analysis. The scorecard graphs are a representation of the compliance of companies with several criteria that we considered important in the stages of production and the green analysis tab represents different tables developed to illustrate our presentation. In this appendix we will show the two scorecards made for the EU criteria with respects to green products and timber products.

Criteria are classified in the different stages of production and are identified with a specific color. They are also classified according to the feasibility level mentioned before. This is an example for one of the companies we interviewed on November 19th, 2009. It is important to mention that the images shown in this appendix are just an example of the analysis for one company. The same analysis was made for the 9 food companies and the 3 timber companies. Under each company analysis, there are two columns. The first one represents the compliance or non-compliance of the company with the specific criteria and the second column represents the score awarded for compliance with a criterion according to the feasibility level of the criteria. In this example we can see how the food company did not comply with any of the criteria under the "origin of raw materials" which is why the second column shows a score of "0" for all those criteria.

Some criteria have a dash indicating that it was not applicable to the company we were interviewing. At the bottom of the scorecard, three rows are shown: total score, potential high score, and compliance percentage. The total score is the sum of the score column. The potential high score represents the sum of all the scores that the company could have obtained if it complied with all the criteria that could be applicable for analysis. The compliance percentage is calculated with the two aforementioned results and it is the true image of the company performance with respects to its preparedness to export to the European Union private market.

Appendix D: Scorecards

Main Menu



Food Companies' Scorecard

			Feasibility Level	11/19/2009	
	Company Name			Food Company	
				Compliance	Score
Origin of raw materials	Environmental considerations		B	X	0
	Usage of certified organic or GAP raw materials		E	X	0
	No presence of pesticides/fungicides		C	X	0
	No presence soluble fertilizers		C	X	0
	No presence of GMO's		C	X	0
Manufacturing Process	Maintains records for all processes		B	✓	2
	ISO certification		E	X	0
	Has made strong efforts to reduce energy consumption		A	✓	1
	Has made strong efforts to reduce water consumption		B	✓	2
	Has implemented measures to reduce environmental impact		C	X	0
	Production process certified as green or organic		E	X	0
	Organic raw material	No use of GMOs	C	-	-
		No use of ionizing radiation	C	-	-
		Takes measures to prevent outside pollutants	C	-	-
		Absence of unauthorized food or nutritional additives	B	-	-
	No usage of organic raw material	Processes certified as "green"	E	X	0
		Absence of unauthorized food or nutritional additives	B	✓	2
		No use of harmful or unnatural chemicals	C	✓	3
		Does not mix organic/GAP with conventional material	D	-	-
		Separates different types of raw materials	A	✓	1
		Cleans machinery to avoid cross-contamination	B	✓	2
		Supports green initiatives outside of the company	D	X	0
Packaging	Primary packaging recyclable or biodegradable		A	✓	1
	Packaging for distribution material recyclable or biodegradable		A	✓	1
	Has taken measures to make transportation process greener		B	X	0
Waste	Has recycling initiatives		B	✓	2
	Practices for reducing solid waste		B	✓	2
Other Information	Currently exports products		D	X	0
	Currently exports to the EU		E	X	0
	Has implemented measures to reduce carbon footprint		D	X	0

TOTAL SCORE	19
Potential high score	72
Compliance percentage	26.38

Timber Companies' Scorecard

		Feasibility Level	11/30/2009	
	Company Name		Timber Company	
			Compliance	Score
Origin of raw materials	Environmental considerations	B	✓	2
	Usage of FSC certified wood	E	✓	5
	No usage of solvents that produce VOC emissions	C	✓	3
	Wood classification according to origin (plantations vs. forests)	C	X	0
Manufacturing Process	Environmental considerations during the production process	C	✓	3
	No presence of synthetic material on the upholstery of the product	D	✓	4
	No presence of hazardous chemicals in the foams used	D	X	0
	No use of chemicals for impregnating the wood	C	X	0
	Absence of contaminating moth/flame retardants on the wood	D	✓	4
	Usage of recyclable plastic parts in the product	B	-	-
	Absence of contaminating coating on the product	D	X	0
	Measures in place to control VOC emissions	C	X	0
	Absence of metals in the production process	B	✓	2
	Testing of product/quality control	B	X	0
	Reduction of energy consumption	A	✓	1
Record keeping	Records of raw materials used available	B	✓	2
	Records of production process available	B	X	0
	Records of suppliers available	A	X	0
Packaging	Primary packaging recyclable or biodegradable	A	✓	1
	Packaging for distribution material recyclable or biodegradable	A	✓	1
	Has taken measures to make transportation process greener	C	✓	3
Waste	Has recycling initiatives	B	✓	2
	Easiness to disassemble the product for recycling its parts	B	✓	2
Other Information	FSC certified products	E	X	0
	Currently exports products	D	✓	4
	Currently exports to the EU	E	X	0
	Has implemented measures to reduce carbon footprint	D	✓	4

	TOTAL SCORE	43
	Potential high score	75
	Percentage score	57.30

Appendix E: Brochures

Brochure for Food Companies

"La típica fruta que no es orgánica contiene más de 20 pesticidas"

http://www.organicfoodinfo.net

Ventaja de Costa Rica

En el año 2000, una comisión de la Unión Europea vino a Costa Rica y acredito al país como un país tercero ante la Unión Europea. Es por ello que Costa Rica goza de ciertos beneficios en la UE con respecto a la entrada de productos en mercados verdes.

La ventaja principal que tiene Costa Rica es que la certificación nacional para exportar productos orgánicos que emite el Ministerio de Agricultura y Ganadería (MAG) bajo la ley MAG 29732 es reconocida por la Unión Europea. Esto quiere decir que los productos certificados como orgánicos bajo leyes nacionales, automáticamente están certificados bajo la ley Europea para productos orgánicos EC 834/2007.

Cámara de Industrias de Costa Rica

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Más información sobre sellos

http://www.agriquality.co.nz/becoming-certified-to-the-tesco-nurture-scheme.cfm
http://www.bio-siegel.de/english/homepage/
http://www.carrefour.com/cdc/responsible-commerce/our-commitment-to-the-environment/developing-responsible-products/products.html

Información Sobre Reglamentos y Sellos Verdes y Orgánicos en la Unión Europea

Cámara de Industrias de Costa Rica

Reglamentos Verdes y Orgánicos de la UE

Para poder analizar de manera adecuada los distintos requisitos de la UE, nos basamos en distintas legislaciones de sellos verdes y orgánicos e identificamos ciertos parámetros con los que se debe cumplir en general para obtener certificación. Dichos parámetros son:

- Ley de la UE para productos orgánicos EC 834/2007
- Estándares de Biosiegel
- Estándares de la ISO 14000
- Estándares de Tesco
- Estándares de Carrefour

Los criterios han sido clasificados en 4 áreas del proceso de producción y los requisitos más comunes son:

1. Origen de la Materia Prima:
- Uso de materia prima certificada como orgánica
- Prohibición del uso de Organismos Genéticamente Modificados
- Prohibición del uso de radiación de ionización
- Ausencia de fertilizantes solubles en la obtención de materia prima
- Ausencia de pesticidas y fungicidas en la obtención de materia prima

2. Proceso de Producción
- Proceso de producción certificado como "verde" u "orgánico"
- Ausencia del uso de aditivos nutricionales
- Ausencia del uso de químicos dañinos
- Presencia de métodos para evadir la contaminación cruzada
- En el caso de uso de materia prima orgánica y convencional, presencia de métodos de separación adecuados entre materia orgánica y materia convencional

3. Empaquetado y Distribución
- Uso de materiales reciclables o biodegradables para empaque primario
- Existencia de medidas para hacer el proceso de transporte más amigable con el medio ambiente

4. Manejo de Desechos
- Existencia de prácticas para la reducción de los desechos sólidos
- Iniciativas o programas de reciclaje

Sellos de Certificación

Los sellos de certificación son una insignia creada con la finalidad de distinguir aquellos productos que han sido obtenidos utilizando prácticas amigables con el ambiente de aquellos producidos de manera convencional. En el mercado de productos verdes europeos, los sellos de certificación tienen un rol muy importante ya que transmiten a los consumidores la confianza de que al comprar el producto identificado con el sello ellos están contribuyendo con la conservación del planeta.

Clasificación de los Sellos

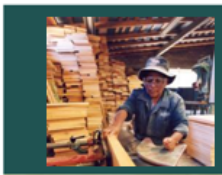
Sellos Nacionales: Creados por entidades gubernamentales, son específicos de ciertos países. Estos sellos crean más confianza en los consumidores. Ej. Biosiegel, creado por autoridades alemanas. Está basado en los reglamentos de la norma europea para productos orgánicos EC 834/2007.

Sellos Privados: Creados por cadenas de supermercados para identificar aquellos productos con carácter ambiental que mantienen la filosofía "verde". Algunos de estos sellos no tienen un parámetro específico pero si tienen ciertas especificaciones más generales que no son tan estrictas como las normas para productos orgánicos. Un ejemplo de estos sellos es el Nurture de la cadena de supermercados Tesco en el Reino Unido.

Sellos Orgánicos: Están basados en legislaciones para productos orgánicos y tienen criterios estrictos y específicos. Ej. Prohíben el uso de organismos genéticamente modificados. Un ejemplo de este sello es el sello de agricultura orgánica de la Unión Europea.

Sellos Verdes: Están basados en parámetros generales sobre la conservación del ambiente. Hacen referencia al uso de buenas prácticas agrícolas en la obtención de productos verdes y están basados en criterios menos estrictos que los criterios orgánicos.

Brochure for Timber Companies



FSC certified chain of custody operation, Mexico ® Juan Carlos Reyes / FSC

Guía para la Producción Verde (Continuada)

Empaquetado:

- Se sugiere que las compañías investiguen alternativas reciclables o biodegradables para su empaquetado.
- Adicionalmente, las compañías deberían implementar maneras de informar a sus clientes de la manera adecuada de deshacerse del material de empaque.

Proceso de Transporte:

- Ya que fue observado que la mayoría de las compañías no saben cómo hacer el proceso de transporte más verde, recomendamos que investiguen programas como Climate Change Friendly (Cambio Climático Amigable). La misión de este programa es compensar las emisiones de carbono creadas en el proceso de transporte con la cantidad equivalente de arboles necesarios para neutralizar esta contaminación.

Reducción de Desechos Sólidos:

- Para reducir los desechos sólidos las compañías pueden implementar ciertas medidas como la donación/venta de estos a terceros.
- Recomendamos que las compañías también implementen medidas de reciclaje para los materiales de oficina y para reducir el consumo de papel encomendamos que las compañías mantengan sus registros electrónicamente.

EL CONSEJO DE ADMINISTRACION DE BOSQUES (FSC)

"Los bosques nos brindan agua limpia, aire fresco y nos ayudan a combatir el calentamiento global. Ellos también nos proveen con comida, medicina y recursos naturales importantes, como la madera y el papel. Si son manejados apropiadamente, los bosques y las plantaciones benefician a la gente – tanto las personas que dependen de los bosques como la comunidad global en general."

-La pagina web de FSC

CICR

Cámara de Industrias de Costa Rica

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FSC – El Consejo de la Administración de Bosques
Página Web: www.fsc.org
Para información sobre adquisición de la certificación de FSC contacte: info@accreditation-services.com

LA CAMARA DE INDUSTRIAS DE COSTA RICA

CICR

Cámara de Industrias de Costa Rica

Entrada al Mercado de la Unión Europea para Productos de Madera Ambientalmente Amigables: La Certificación FSC

"... los expertos estiman que los bosques que quedan serán consumidos en menos de 40 años."

- http://www.rain-tree.com/facts.htm

® Eric Goethals / FSC

Reglamentos de FSC

Certificación FSC del Mantenimiento de Bosques

Para obtener esta certificación su bosque tendrá que someterse a una evaluación sobre el mantenimiento de bosques por una organización independiente. Este tendrá que cumplir con los principios y criterios del FSC sobre el buen mantenimiento de los bosques. Los puntos que requieren los criterios de FSC son:

- La prohibición de la conversión de bosques para cualquier otro uso.
- Respeto a los derechos internacionales del trabajador.
- Respeto a los Derechos Humanos con atención particular a los indígenas.
- La prohibición del uso de químicos peligrosos.
- Seguir toda ley aplicable.
- Identificación y mantenimiento apropiado en las áreas que requieren protección especial.

Certificación de la Cadena de Custodia de FSC

Esta certificación es otorgada a compañías que usan materia prima certificada por FSC. En este caso después de que la materia prima sea cosechada, se evalúan todas las etapas sucesivas de procesamiento, transformación, fabricación y distribución. Durante estas etapas la compañía debe mantener procedimientos que sean aprobados por FSC. Por ejemplo, todos los procedimientos deben ser ambientalmente amigables.

Madera Controlada de FSC

Aunque FSC es una organización que ha incrementado la disponibilidad de materia prima que certifica, FSC no puede cubrir la demanda. Por esta razón, FSC ha implementado certificación de madera controlada para la madera que no está certificada por FSC pero que cumple algunos de los requisitos. Para obtener la certificación de Madera Controlada FSC los siguientes cinco parámetros deben ser evitados:

1. La cosecha de madera ilegal.
2. Madera cosechada en condiciones que violan los derechos humanos.
3. Madera cosechada en zonas de Alto Valor de Conservación (particularmente áreas altamente protegidas) que sean amenazados por actividades de mantenimiento.
4. Madera cosechada en zonas que provienen de la conversión de bosques naturales.
5. Madera proveniente de arboles genéticamente modificados.

Guía para la Producción Verde

Origen de la Materia Prima:

- Se recomienda obtener materia prima certificada con el FSC o de algún otro recurso controlado.
- Si la materia prima FSC no da abasto sería beneficioso usar madera FSC y convencional.
- El mantenimiento de registros para la trazabilidad es elemental para la certificación.

Proceso de Fabricación:

- Las compañías deberían evaluar el impacto ambiental del proceso de producción (ej. la maquinaria) y disminuirlo.
- También recomendamos que las compañías midan la huella de carbono de todos sus procesos y transporte.

FSC

El Consejo de Administración de Bosques (FSC) es el sello más reconocido por los consumidores de productos de madera en la Unión Europea.