Environmental Certification in Costa Rica:

Developing a Tool to Guide SMEs' Decisions

An Interactive Qualifying Project

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Table of Authorship

Section	Primary Author(s)	Primary Editor(s)
Acknowledgements	Brooke	Paul, Cori
Abstract	Cori	Cori, Paul, Buddy
Executive Summary	Cori	All
1 Introduction	Brooke	All
2 Literature Review		
2.1 National Initiatives	Charles, Cori	All
2.2 Certification Companies	Charles, Cori	All
2.3 Protocols and Certifications	Cori	All
2.4 Trends	Charles, Paul	All
2.5 Case Study: Coopedota	Brooke	All
2.6 Summary	All	All
3 Methodology		
3.1 Objective 1	Cori	All
3.2 Objective 2	Brooke	All
3.3 Objective 3	Cori	All
3.4 Objective 4	Charles	All
3.5 Methodology Summary	Charles, Cori	All
4 Results		
4.1 Attractiveness	Cori	All
4.2 Objectives and Concerns	Cori, Paul, Brooke	All
4.3 Comparison Chart	Charles, Brooke, Cori	All
4.4 Decision Tree	Charles, Cori	All
5 Conclusion	Cori, Charles, Paul	All
References	Cori	Paul
Appendices		
Appendix A	Charles	All
Appendix B	Paul	All
Appendix C	Paul	All
Appendix D	Brooke	All
Appendix E	Paul	All
Appendix F	Paul	Brooke
Appendix G	Brooke	All
Appendix H	Charles	All
Appendix I	Charles	Paul
Appendix J	Charles	Paul

Abstract

Many small- and medium-sized enterprises (SMEs) in Costa Rica are confused or not fully aware of the various international and national environmental certifications. The goal of this project was to provide the Centro Nacional para la Producción más Limpia (CNP+L) with tools to assist SMEs in choosing which environmental certification will be most beneficial for their company. We researched applicable certifications and standards, and then conducted interviews with representatives from Costa Rican companies to gain their perspectives on and first-hand experiences with the certifications and standards. Using this information, we gathered the overlapping viewpoints and created a comparison chart to further educate SMEs on the differences among the standards. Finally, we designed a decision tree to aid SMEs in choosing the most appropriate certification based upon their unique situation.

Executive Summary

Over the past couple of decades, growing concern regarding environmental impact has spawned global efforts to reduce carbon emissions. Costa Rica recently announced a goal of becoming carbon neutral by the year 2021, chosen particularly to commemorate the 200th anniversary of independence from Spain. In support of this initiative, governmental organizations, such as the Centro Nacional para la Producción más Limpia (CNP+L), are working with companies to lessen their environmental impact by guiding them through the emissions reduction process required for various international and national certifications. Furthermore, businesses can use these certifications to advertise their environmental efforts to clients, and thus gain an advantage within their respective markets. The CNP+L wishes to guide small- and medium-sized enterprises (SMEs) toward the appropriate certification choice to match the company's needs and assist the company in becoming more environmentally conscious. Moreover, the right certification will result in benefits for the SME, such as energy and manufacturing efficiency as well as distinction within their target markets.

Background

This chapter reviews Costa Rica's national environmental initiatives and the various international and national environmental certifications available for Costa Rican SMEs. While the CNP+L was established as one of the United Nation's National Cleaner Production Centers, Costa Rica has pioneered additional initiatives on its own to reduce environmental impact. Acknowledging that much of the country's emissions fall under the control of private businesses, the government established programs to provide incentives and funding for companies working to reduce their environmental impact. In addition, the CNP+L assists companies by supplying guidance and education, especially focusing on SMEs.

The CNP+L provides aid for SMEs in undertaking the process of obtaining environmental certifications. Overall, the process depends on which certification or standard the business decides to pursue; however, all certifications and standards involve authentication by a third-party certification company in order to ensure the business' compliance with the desired standard. For most standards and certifications, the process begins with the business creating an emissions inventory in accordance with the chosen standard's guidelines. While verification of this inventory by a certification company covers the final result for the standards, businesses

pursuing certifications continue by implementing the necessary changes to satisfy the additional requirements. Official certification concludes when the certification company confirms that the business has met the conditions within the certification.

The available environmental standards that we researched were ISO 14064 and ISO 14044, while the environmental certifications we investigated were ISO 14001, PAS 2050, PAS 2060 and the Costa Rican National Plan for Carbon Neutrality (INTE 12-01-06). As environmental standards, ISO 14064 and ISO 14044 only verify an emissions inventory as appropriate and accurate. ISO 14064 outlines the requirements for an acceptable emissions inventory for a company, while ISO 14044 establishes the guidelines for evaluating the emissions inventory of a product over the course of its life cycle. The environmental certification ISO 14001 involves the certification of a company's implementation of an Environmental Management System, or an internal program established to regulate the company's emissions. PAS 2050 certifies an individual product by calculating its carbon footprint from its manufacture and use. Finally, both PAS 2060 and INTE 12-01-06 are certifications in carbon neutrality.

Methodology

Our task for the CNP+L involved creating guidelines to assist companies interested in pursuing environmental certifications choose the standard or certification appropriate for their goals and target markets. In order to achieve that outcome, we established four objectives:

1. Identify the attractiveness of environmental certifications in both national and international markets.
2. Identify objectives and concerns of companies pursuing certification.
3. Create a comparison chart of certifications and standards.
4. Develop a "decision tree" to help SMEs pursuing certification decide on the best path.

To accomplish these objectives, we conducted interviews with representatives from certification companies, companies that have already obtained certifications, and companies interested in pursuing certification. Through these interviews, our team gathered information

regarding the reputations of different certifications, companies' motivations for certification, the costs involved in certification, as well as the overall benefits of obtaining certification. We then compiled this information into a comparison chart to evaluate the various certifications and standards. Using this comparison chart, our team created a "decision tree" as a tool for SMEs to choose the most beneficial certification or standard for their company to pursue.

Results

The interviews revealed knowledge about the certifications and standards primarily pertaining to their reputation in certain markets, their appeal to companies, their relative cost, and the overall benefits they generate for a company.

In terms of reputation, the ISO and PAS standards were published by widely esteemed international organizations and therefore innately carried international distinction. The most reputable certifications were ISO 14001 and PAS 2060. In most international markets, ISO 14001 has become an unofficial requirement in order for a business' exports to be competitive. Regarding the newly developed category of certifications concerning carbon neutrality, PAS 2060 currently stands as the most widely respected certification. While Costa Rica also recently published its own National Plan for Carbon Neutrality, the certification has not obtained much recognition outside of the Central American regions.

Our interviews revealed that the central motivation of Costa Rican SMEs pursuing certifications involved gaining a competitive edge in their target markets. Largely because of the costs of labor in Costa Rica, most SMEs cannot match their competitors' price and therefore seek unique advantages, such as lower emissions, that give their products a higher perceived value. Several companies also expressed the additional motivation of becoming pioneers in their field as the first companies to obtain environmental certifications as well as becoming pioneers among Costa Rican SMEs pursuing the new National Plan. Local companies viewed the future development of INTE and other auxiliary national programs as potential assets to the continuing growth of their market popularity.

The greatest variable in the cost of verification and certification results from the company's structure, size, and initial emissions level. Greater complexity, scope, and environmental impact require a more extensive and more expensive auditing process of the emissions inventory. Beyond inventory verification, the highest cost of certification comes

during the implementation phase where the company must employ all the necessary changes in order to comply with the certification requirements. For a typical SME pursuing carbon neutrality, the total cost of the entire certification process can be around $90,000; however, significant funding is available for SMEs pursuing the National Plan through a governmental program that covers around 75% of the total costs as grants.

According to the representatives of the certified companies that we interviewed, obtaining environmental certification carries the benefits of increased sales and market popularity, and improvements in the efficiency of production. Companies pursuing certification expressed their desire for greater recognition within their market as a result of achieving carbon neutrality certifications. However, the effectiveness of the certification depended on its demand and perceived value within the company's target market, as well as the perceived credibility of the third party organization chosen to perform the certification. A lack in recognition of either factor decreases the associated benefits of the certification. Exemplifying this differential, PAS 2060 is highly regarded internationally, while the National Plan for Carbon Neutrality currently only holds a high regard within the Central American region; however, national efforts to campaign INTE abroad are planned for 2013.

Using the information gathered in the background research and interviews, our team then created a comparison chart to organize all the certifications and standards. The chart focuses on the major points of concern as identified by the SMEs we interviewed, in order to highlight the key differences among the certifications and standards. We then developed a decision tree to help guide businesses' choices of environmental certification, taking into account their financial situation and desired outcomes. To further facilitate businesses' effective use of the tree, we added a supplemental list of fundamental facts about certain certifications and national initiatives that correspond to certain decision or end points in the tree.. The list serves to help clarify any uncertainties that may arise when the business considers their situation in regards to the various decision points.

Summary

These complementary tools will facilitate the CNP+L in guiding Costa Rican SMEs toward emissions monitoring and reduction. First, the comparison chart informs companies of the advantages and disadvantages of the various certifications and standards. With that

knowledge and support from the supplemental list, companies can use the decision tree to make an educated choice as to which certification or standard best suits their objectives and needs. Within the current framework of Costa Rican promotions involving the National Plan and the campaign for the National Brand Program, these tools will direct SMEs on a path of environmental consciousness. By leading SMEs in this direction, our tools will aid the movement of the private sector in Costa Rica to embody the ideals of the National Brand Program. The progress of SMEs will give Costa Rica the ability to distinguish themselves in the global market as environmental pioneers and further the nation's efforts to become carbon neutral by 2021.

Table of Contents

List of Figures

List of Tables

List of Equations

Glossary of Terms

ACP	African, Caribbean, and Pacific Group of States
BSI	British Standards Institution
CADEXCO	Cámara de Exportadores de Costa Rica
CAFTA-DR	US – Central America – Dominican Republic Free Trade Agreement
CICR	Cámara de Industrias de Costa Rica
CNP+L	Centro Nacional para la Producción más Limpia
CONICIT	Consejo Nacional para Investigaciones Científicas y Tecnológicas
CP	Cleaner Production
ECA	Ente Costarricense de Acreditación
EEC	Article 11 of Regulation
EU	European Union
FLO	Fair Trade Labeling Organization
FODEMIPYME	Fondo para el desarrollo de las micro, pequeñas y medianas empresas
FONAFIFO	Fondo Nacional de Financiamiento Forestal
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GWP	Global Warming Potential
INTECO	Instituto de Normas Técnicas
IPCC	International Panel on Climate Change
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
MICIT	Ministero Ciencia y Technología
MINAET	Ministerio del Ambiente Energía y Telecomunicaciones

NCPC   National Cleaner Production Center

NGO   Non-governmental Organization

PAS   Publically Available Specifications

PES   Payment for Environmental Services

PROCOMER   Promotora del Comercio Exterior de Costa Rica

PROPYME   Programa de Fortalecimiento para la Innovación y Desarrollo Tecnológico de las Pequeñas y Medianas Empresas

PYME   Pequeñas y Medianas Empresas (Small- and Medium-Sized Enterprises)

SME   Small- and Medium-Sized Enterprises

UK   United Kingdom

UNEP   United Nations Environmental Program

1   Introduction

In 1997, amidst growing global concerns about the environment, the United Nations Framework Convention on Climate Change began formulating the Kyoto Protocol. Enacted in 2005, it required developed countries to decrease their carbon emissions to five percent below their levels from 1990 over a five-year period (UNFCCC, 2012). Although not considered a developed country, Costa Rica has demonstrated its commitment to reducing its environmental impact by protecting the country's natural environment. These include efforts to reduce logging of rainforest trees—the habitat of much of the country's rich diversity of plant and animal life—and to prevent pollution. Due to its success with national environmental initiatives, Costa Rica has declared its new goal to become carbon neutral by 2021.

Building upon the country's desire to maintain the integrity of the environment, the goal of carbon neutrality is as an effective incentive for Costa Rica's economy. The Kyoto Protocol provided a mechanism for countries, mostly industrialized nations, to avoid penalties for failing to meet emissions targets by purchasing extra allowances from developing countries, whose emissions fall below their limit. Since Costa Rica is still developing and has already made lowering their carbon emissions a priority, it has a large bank of emissions allowances to sell to other countries through this carbon emissions trading program (UNFCCC, 2012). Therefore, Costa Rica's economy can prosper by continuing to keep carbon emissions low.

As a part of the effort to combat climate change, the UN introduced the idea of National Cleaner Production Centers (NCPCs) to animate several developing countries to encourage environmentally-friendly business practices. The Centro Nacional para la Producción más Limpia (CNP+L) of Costa Rica was created in 1998 as one of these NCPCs. Since its conception, the CNP+L has played an instrumental role in reducing wasteful byproducts of production processes and improving large-scale industrial conditions in areas such as chemical waste handling (O'Donnell, et al., 2010). The CNP+L supports Costa Rica's goal of becoming carbon neutral by 2021 and hopes to facilitate the ambition by motivating the private sector, specifically targeting small- and medium-sized enterprises (SMEs), to move in that direction.

In order for Costa Rican companies to remain competitive, especially in foreign markets, they must take advantage of the growing demand for companies to exhibit environmental consciousness in those markets. Obtaining environmental certifications or standards is an

effective strategy to demonstrate a company's environmental commitment to its clients and to distinguish itself within a market. Several SMEs have already taken steps toward improving their production practices and are pursuing various environmental certifications and standards related to carbon emissions. However, few SMEs fully understand the differences among certifications and standards as well as which are the most appropriate for their target markets (Carlos Perera, personal communication, 23 October 2012). We found through our research that there are several international and national environmental certifications and standards available to interested Costa Rican SMEs. In order to obtain a certification or standard, the company must comply with the desired standard's requirements. The entire process of obtaining a certification or standard can be complex and costly. Many small companies do not perform in depth market research to explore whether the certification or standard they want will improve their sales and reputation in the market.

To address this problem, our team worked with the CNP+L to develop tools for assisting SMEs in choosing the certifications or standards most beneficial to them. The final tools intend to increase SMEs' knowledge about the certifications and assist SMEs in selecting the most appropriate certification or standard. In order to accomplish this, we first researched the environmental certifications and standards most prominent internationally and within Costa Rica. We discussed these certifications with our sponsor at the CNP+L and conducted interviews with companies that issue certifications to gather more information. Additionally, we interviewed certified companies to obtain their insight into the challenges and benefits of the certification process. Finally, we interviewed companies that had just begun the certification process to learn their motivations, expectations, and reasons for pursuing certain standards. We compiled the information obtained from the interviews into a comparison chart to inform SMEs of the differences among certifications and standards. Using this chart, our team then developed the final decision tree outlining the ideal environmental certifications and standards for different SMEs based upon their company situation and desired outcomes.

2   Literature Review

This chapter outlines the pertinent national and international initiatives that shape Costa Rican policy regarding greenhouse gas reduction. In addition, this chapter presents an exploration into the relevant certifications and standards involving emissions reduction or recording. Finally, we present an analysis of the relative interest surrounding environmentally friendly products in Costa Rica's main export markets, including the United States and Europe.

2.1   National Initiatives

Prior to the creation of the Kyoto Protocol by the United Nations Environmental Program (UNEP), the Costa Rican government instituted a national program known as Payment for Environmental Services (PES) in 1987. On a broad scale, the program attempts to charge businesses for their use of environmental resources, and then redirects that money to pay participating landowners to keep their land in its natural state. The PES aims to reduce greenhouse gas emissions while protecting the natural biodiversity and beauty of Costa Rica (Pagiola, 2008). This program later developed into the Pax Natura Project in 2009, which seeks to protect Costa Rica's scenic beauty as well as to achieve more quantitative goals such as preventing the release of over 500,000 metric tons of carbon emissions. Both of these programs are monitored by the Fondo Nacional de Financiamiento Forestal (FONAFIFO) whose mission is to protect the forests of Costa Rica by providing businesses with the funds they need to reduce their impact on the environment (Garcia, 2012).

The CNP+L of Costa Rica works closely with FONAFIFO. As one of twelve National Cleaner Production Centers in Central and South America, the CNP+L promotes and monitors the clean production practices of the business sector in Costa Rica (Perera, 2012). While FONAFIFO focuses mainly on monitoring the use of natural resources and ensuring that land owners are paid in accordance with PES, the CNP+L is responsible for communicating the advantages of cleaner production to enterprises in Costa Rica.

The official concept of Cleaner Production (CP) originated from UNEP in 1989. UNEP introduced CP to its member countries as a preventive strategy to achieve the efficient use of natural resources while minimizing waste and risks to humans and the environment (United Nations Environmental Programme, 2012). With the government providing monetary,

educational, and consulting assistance for businesses considering re-evaluating their practices, CP became an attainable goal for SMEs in Costa Rica. While many of the governmental benefits initially spanned several legal documents, they have recently been combined into "Ley PYME", or Act 8262, in 2002 (Rojas, 2009). In this legislation, many of these incentives have been reworked to apply specifically to SMEs, and include funds and grants which are guaranteed by the Fondo Para el Desarrollo de las Micro, Pequeñas y Medianas Empresas (FODEMIPYME) and the Programa de Fortalecimiento para la Innovación y Desarrollo Tecnológico de las Pequeñas y Medianas Empresas (PROPYME). These programs provide up to eighty percent of the required finances for projects geared towards developing and strengthening small businesses. Through this funding, the programs aim to increase competitiveness of SMEs in the marketplace (Ministry of Science and Technology, 2012). In addition to the FODEMIPYME and PROPYME, the CNP+L has worked with private and public banks to establish credit lines for small businesses looking to finance cleaner production initiatives even further (Rojas, 2009).

In addition to providing guidance to help businesses achieve cleaner production, the CNP+L provides essential services such as energy and safety training and audits for companies of all sizes. The organization assists companies in complying with the regulations established by international policies, such as the Kyoto Protocol, the Stockholm Protocol (which mandates the reduction of carcinogenic pollution) and the Basel Protocol (which mandates the safe handling of hazardous waste). The audits identify strategies for reducing the pollution levels of individual SMEs, such as installing more efficient lighting and protecting employees from work-associated risks (Perera, 2012). The CNP+L also provides training for clients pursuing cleaner production practices, allowing them to monitor their own production practices independent of the CNP+L.

2.2   Certification Companies

In order to become officially certified under a national or international certification or standard, a business must apply through a certification company. Upon receiving the request, the certification company will perform an initial audit of the company to generate a full report that details all emissions in accordance with the business' desired standard. This step coincides with the first step toward certification: verifying the accuracy of a company's emissions inventory. While some standards solely comprise the verification of inventory, the business may choose to achieve a higher level of certification. If the business does choose to pursue a certification that

involves additional implementation, they must devise a corrective plan of action in a certain time period mandated by the certification agency. If the certification company determines that the implementation of this plan satisfies the requirements of the desired certification, the agency will award the business with the certification (INTECO, 2012; Manuel Gonzalez, personal communication, 25 October 2012). A graphical representation of the verification and certification process is presented below in Figure 1.
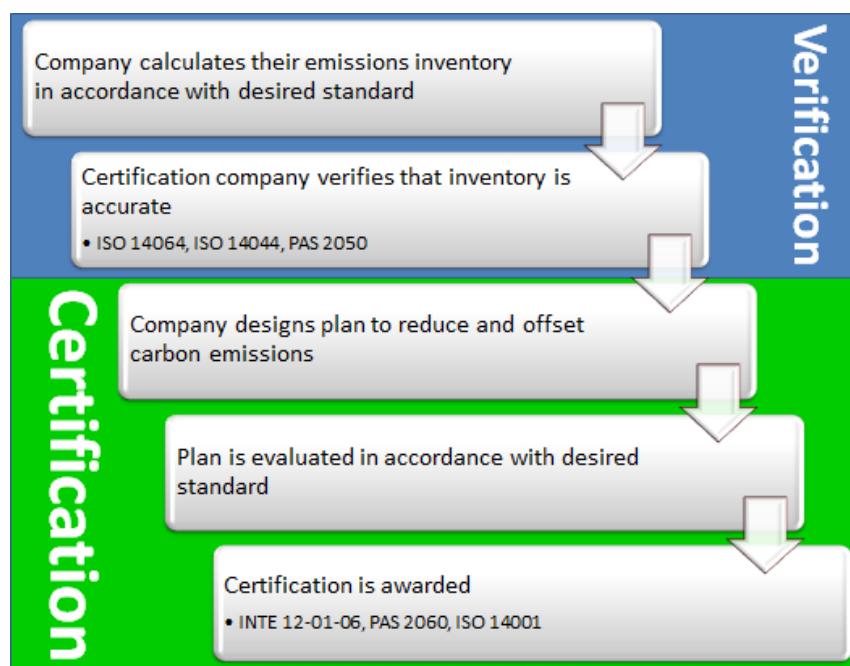
Figure 1: Flowchart illustrating processes of verification and certification.

While this implementation process is costly in both time and money, there are many benefits to certification. First, in order to satisfy certification requirements a company must become more efficient in areas such as electricity use and waste reduction. As a result of the improved efficiency, the company will also reduce operating costs (International Standards Organization, 2012). The cost of the process of verification or certification by a certification company depends on the business' initial level of emissions. For a typical SME, the emissions tend to fall in the first level of less than 1,000 tons per year, thereby amounting to a yearly cost of around $3,000. Consequently, the next level markers of 10,000 tons per year and 100,000 tons per year would increase a company's cost. The cost differentials between levels account for

the additional work required by the certification companies in order to properly verify the inventory (Manuel Gonzalez, personal communication, 25 October 2012).

2.3   Protocols and Certifications

Various national and international certifications and standards are available for companies to pursue. Below are descriptions of applicable protocols, certifications and standards involving the documentation and reduction of environmental impact.

2.3.1   GHG Protocol

Accompanying the United Nations' efforts to motivate countries to reduce greenhouse gas (GHG) emissions, the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) realized the need for a standardized method of accounting for and reporting these emissions. Beginning in 1998, leaders from WRI and WBCSD agreed to work toward a non-governmental organization (NGO) and business partnership that would standardize procedures for measuring greenhouse gas (GHG) emissions. In 2001, the cooperation yielded the first edition of the GHG Protocol, *A Corporate Accounting and Reporting Standard*, commonly referred to as "The Corporate Standard". In its entirety, the GHG Protocol initiative included three distinct sections for public, corporate and project use to aid in accounting and reporting of their GHG inventory. This inventory is a compilation of the organization's GHG emissions with respect to the six greenhouse gases outlined in the Kyoto Protocol: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (WRI & WBCSD, 2012).

"The Corporate Standard" version of the GHG Protocol was initially designed specifically for business practices.   With the goal of simplifying and reducing the cost of compiling GHG inventory, the document suggests effective approaches for managing and reducing emissions. Overall, the step-by-step guide targets the consistency and transparency of GHG recording. To aid these goals, the GHG Protocol includes tools for inventory calculation, both across and within various industry sectors. Consistent with the means previously proposed by the International Panel on Climate Change (IPCC), the calculation tools in the GHG protocol have been adapted for non-technical company personnel (GHG Protocol, 2012). Different

industry groups such as the International Aluminum Institute, International Council of Forest and Paper Association, and WBCSD Cement Sustainability Initiative, have also partnered with the GHG Protocol to further develop trade-specific tools (WRI & WBCSD, 2012). These tools enable the companies to incorporate the protocol into their work environment smoothly with as few changes as necessary.

2.3.2   ISO 14064

Following the GHG Protocol, the International Organization for Standardization (ISO) created a Technical Management Board Ad Hoc Group on Climate Change in 2002 to combat businesses' problematic efforts in accounting for GHG emissions. Since the protocol did not include specific requirements, businesses' efforts still seemed disjointed. After four years of development by over 175 representatives from 45 countries, they released ISO 14064 as a more structured directive for recording an accurate greenhouse gas inventory (Boehmer & Weng, 2006).

This three part standard defines a method for quantifying and reporting emissions, including minimum requirements for an acceptable inventory. Part 1 of ISO 14064 outlines the specifications and gives guidance concerning accurately computing and reporting greenhouse gas emissions inventories, deriving its core principles from the GHG Corporate Standard Protocol (Delany & Wintergreen, 2010). The section begins by establishing the foundational criteria for an accurate inventory, taken directly from the GHG Protocol: relevance, completeness, consistency, transparency, and accuracy. Relevance covers the inventory's appropriate reflection of the company, completeness ensures the inclusion of all sources or activities pertaining to GHG emissions, and consistency entails the use of constant methods over time to enable long-term comparisons. Transparency calls for the report of all relevant information, issues, or assumptions during the process so as to develop a clear account of all calculations. Finally, accuracy declares that the reported GHG emission levels in the inventory actually represent the true amount of emissions the company produces (WRI & WBCSD, 2012).

With these principles in place, the document continues by defining the three key aspects of establishing inventory boundaries, quantifying greenhouse gases, and reporting the GHG emissions. The first aspect of setting boundaries for the inventory serves as a crucial step to define the scope of the entire inventory, breaking down organizational and operational

boundaries. Organizational boundaries outline the establishment of which facilities are involved in the scope of the inventory. Depending on the company's targeted evaluation goal, ISO 14064 suggests two different approaches of "control" or "equity share" boundaries. For "control" boundaries, only facilities where the company has authoritative control are included, whereas with "equity share" boundaries, all facilities where the company has interest or investment are included. These definitions set the stage for the next tier of "operational boundaries" that identify which processes within the established borders apply to the accounting of GHG emissions. Furthermore, these emissions are categorized into direct and indirect emissions. This breakdown serves to differentiate between emissions originating from within the organizational boundaries, classified as "direct", or outside the company's organizational boundaries, classified as "indirect" (Delany & Wintergreen, 2010). By establishing these definitions, the company can then carry out the next two aspects of quantifying and reporting their emissions within the appropriate scope.

Part 3 of ISO 14064 involves the addition of new requirements for businesses in order to officially verify their inventories. Titled "Specifications with guidance for the validation and verification of GHG assertions", the section outlines the requisites for a company to declare their inventory as compliant with the process detailed in Part 1 of the standard. In order to achieve official verification, the company must have their inventory authenticated by an accredited third party organization, such as INTECO (Carlos Perera, personal communication, 23 October 2012). Due to its structure, ISO 14064 does not pertain to individual products since the guidelines in Part 1 specifically apply to the emissions of the company overall. Furthermore, at the completion of the inventory the company receives an official verification; but, the company does not actually get certified in anything beyond a declaration of accuracy of their inventory (Manuel Gonzalez, personal communication, 25 October 2012).

2.3.3   ISO 14001

Established alongside 14064 as a part of ISO's 14000 Environmental Series, ISO 14001 defines an Environmental Management System (EMS) that large businesses can use to identify, measure, and control their environmental impact. The standard comprises six steps required of the firm for official implementation: (1) develop an environmental policy, (2) identify direct interactions with the environment, (3) identify applicable legislative and regulatory requirements,

(4) establish priorities and set objectives and targets for environmental impact reduction, (5) reorganize structure, such as responsibilities, documentation, and communication, in order to reflect objectives, and (6) check the EMS for compliance and correct any misalignments (Bansal & Hunder, 2003). In line with the requirements of the other ISO standards, a company must certify their implementation of the EMS through an accredited third party in order to obtain certification under ISO 14001. Similar to ISO 14064, the certification represents a process operation applied to the company rather than a measure of performance that could be applied to a specific product. Consequently, ISO 14001 certification signifies a company's implementation of an official environmental management system and identification of a pollution prevention process, but does not necessarily equate to any reduction in environmental impact. The built-in flexibility of the certification allows for application across different countries and business sizes. From a financial standpoint, the initial 14001 certification process can cost from $10,000 to $128,000 depending on the size and intricacy of an organization's structure, while the yearly re-certification maintenance costs $5,000 to $10,000 (Bansal & Hunder, 2003).

2.3.4   ISO 14040 and 14044

Continuing in their environmental series, ISO published the standards 14040 through 14043 from 1997 to 2000 to develop guidelines for the evaluation of products through Life Cycle Assessment (LCA). LCA examines the impact a product has on the environment throughout its production, use, and eventual disposal. To simplify the documents, ISO organized an ad-hoc committee to reorganize the information by combining all the regulatory statements into a new document and keeping the structural outlines of scope, inventory, and impact assessment in the original ISO 14040 (see Figure 2). The results yielded two documents: ISO 14040, titled "LCA – Principles and Framework" and ISO 14044, titled "LCA – Guidelines and Requirements". Figure 2 below diagrams this reorganization.
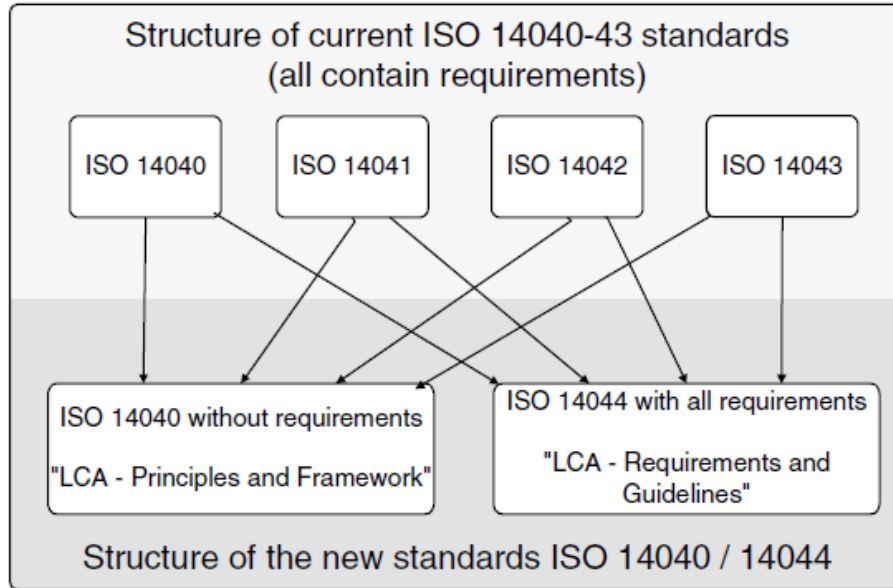
Figure 2: Flow chart illustrating reorganization of ISO 14040 -14043 standards

ISO 14040 includes a definition for the LCA perspective by specifying the categories of environmental focus, transparency, comprehensiveness, and scientific approach. ISO 14044 includes all of the requirements originally found in the 14040-14043 documents, as well as references to the 14040 document to explicitly establish the guidelines for the requirements (Christiansen et al., 2006). Similar to ISO 14064, the official verification process requires the authentication by an accredited third party and represents an affirmation of LCA accuracy rather than a statement on the product's performance. Therefore, the verification states that the Life Cycle Assessment of the product is in accordance with the guidelines of ISO 14040 and follows the requirements of ISO 14044.

2.3.5 PAS 2050

The Publically Available Specification (PAS) 2050 defines a more explicit evaluation of a product's carbon footprint. PAS 2050 was published in October 2008 by the British Standards Institute (BSI) and sponsored by the Carbon Trust and UK Department of Environment, Food and Rural Affairs in response to the increasing demand for communicating carbon footprint values on products. The driving group of 11 authors consisted of representatives from business, industry, academia, government and non-governmental organizations. The resulting PAS 2050 covered specific requirements for the evaluation of a product's Life Cycle Assessment (LCA) as

a means of establishing its carbon footprint. Building upon the guidance and requirements chartered in the ISO 14000 series as well as the GHG Protocol, the PAS 2050 added to the previous methods by defining explicit, numerical evaluations of a carbon footprint assessment (Sinden, 2009). The certification streamlines the evaluation process for businesses by assessing GHG emissions correlated with the life cycle of a product and computing a specific carbon footprint value. Additionally, PAS 2050 outlines a method for businesses to create a label with this value in order to easily communicate the information to the public. To further facilitate the certification's use by businesses, PAS 2050 simplifies the mandatory elements that ISO 14044 outlines as necessary for the assessment of a product's life cycle impact. The certification solely addresses the impact category of global warming, thereby saving businesses from having to select categories of focus and evaluate their weighted importance amongst other areas such as of human health, natural environment, natural resources, and man-made environment (Finnveden et al., 1999). The calculations for impact are also specified as multiplying the global warming potential (GWP), as seen in Table 1, of each GHG released by its emissions mass and summing all the results (GHG Protocol, 2012).

Table 1: Global Warming Potentials (GWPs) for GHG Protocol Gases

Greenhouse Gas	Global Warming Potential (CO2 Equivalence per kg)
Carbon Dioxide	1
Methane	25
Nitrous Oxide	298
Hydrofluorocarbons	14,800
Perfluorocarbons	6,500
Sulfur Hexafluoride	22,800

After undergoing both the verification and certification process through an accredited third party, the company can then use the results of these calculations to advertise the carbon footprint of their specific product in a label for prospective buyers to see.

2.3.6 PAS 2060

Most recently in 2010, the BSI published the PAS 2060 as a standard for carbon neutrality of an organization. Due to its newer release, the document itself is not as easily accessible to the public as other PAS or ISO certifications. Based on the information the team was able to gather, the standard still requires the same fundamental process of first verifying an emissions inventory and then certifying the company's implementation of practices. However, as pointed out by Manuel Gonzalez, an executive at INTECO, "additional levels of claims" are involved within the verification and certification requirements which can prove "tricky" for companies to follow (Manuel Gonzalez, personal communication, 25 October 2012). As a whole, this difficulty can translate to a potentially longer and more expensive process for certification. The standard also defines carbon neutrality based on the equation:

Equation 1: Equation for carbon neutrality- PAS 2060

$$Emissions_{x-1} - Compensation_x - Reduction_x = Emissions_{base\ year}$$

Where *x* represents the current year of certification, this equation translates to the statement that a company is carbon neutral if there is no net change from the emissions of the company's base year, established as the first year of a qualified emissions inventory. By this definition, a company must still re-certify for carbon neutrality every year; however, every year is still in relation to the defined base year (Manuel Gonzalez, personal communication, 25 October 2012).

2.3.7 National Plan for Carbon Neutrality: INTE 12-01-06

Recently, Costa Rica has put forth a greater effort to work toward their goal of carbon neutrality by 2021. In 2009, the Ministerio del Ambiente Energía y Telecomunicaciones (MINAET) published the National Plan for Carbon Neutrality, or INTE 12-01-06. The document outlined a voluntary program which businesses could follow to become certified as carbon neutral. After its initial publication, the initiative underwent governmental review and an editing process which involved the incorporation of aspects of current international documents on emissions accounting, such as the GHG Protocol and ISO 14000 series. The National Plan was then republished in 2011 with revisions based upon the research gathered from the various

international standards by MINAET (INTE, 2012; Carlos Perera, personal communication, 23 October 2012).

As a whole, the standard involves a five step methodology that includes both the official verification of inventory and certification of carbon neutrality in one process. The first step of reporting the inventory requires direct compliance with the inventory methodology of GHG Protocol Corporate Standard, ISO 14064 Part 1, and focusing the greenhouse gas inventory on control of operations within the defined boundaries.   Next, the verification of the inventory must be performed by an organization accredited by the Ente Costarricense de Acreditación (ECA). However, as a corollary to this step, organizations accredited in other countries under ISO 14065 or who have a plan to become nationally accredited within one year may serve as viable verifiers as well. This requisite differs from the PAS 2060 certification where a non-accredited certification company can still certify a business according to the standard.

Following inventory verification, the company can continue by pursuing the certification of carbon neutrality in accordance with the standards stated in the section "System of Steps to Demonstrate Carbon Neutrality". The core definition of carbon neutrality is included within this section in the form of an equation:

Equation 2: Equation for carbon neutrality- INTE 12-01-06

$$Emissions_{x-1} - Compensation_x - Reduction_x = 0$$

Where x represents the current year of certification, this equation states that a company is carbon neutral only if the emissions of the previous year are completely offset by this year's compensation and reduction efforts. By this constraint, the standard differs from the definition in PAS 2060 because a company must prove that it maintains carbon neutrality year to year, rather than compared to a base year. Similar to PAS 2060, a company can only achieve carbon neutrality certification for one year at a time, thereby requiring annual recertification in order to maintain the mark of carbon neutrality. Again, the certification of carbon neutrality must also be carried out by an accredited organization according to the same requisites as previously stated for the inventory verifiers.

The final two steps of the program include the process of compensation and final documentation and registration of emissions. Under the process of compensation, a company

can follow any of three options: certified emissions reduction (CER), voluntary emissions reduction (VER) or Unidades Costarricenses de Compensación (UCC). The first two involve the realized actions to compensate for a company's emissions, while the third option involves a local carbon market where companies can purchase emissions compensation from other companies. Despite this market's inclusion in the INTE 12-01-06 document, it is still becoming formalized through the MINAET. Consequently, the document currently states that until its official establishment, companies may use FONAFIFO as a replacement. Finally, the company must register with MINAET through a "solicitation of participation in the National Program" and indicate their level of participation (INTE, 2012).

2.4   Trends Regarding Certifications in the US and European Markets

2.4.1   United States

The United States is one of Costa Rica's main export markets, and therefore it is important to understand how Costa Rica's environmentally friendly initiatives in business apply to the US market. First and foremost, US consumers overwhelmingly state in surveys that they would like to purchase green products, with 87% indicating that they are concerned about the environmental impacts of the products they buy. Despite this huge majority, only a third of those surveyed say they are ready to actively seek out and purchase products deemed 'environmentally friendly'. Adding to this discrepancy is the fact that only a quarter of consumers report that they have ever actually bought a product, other than food or lighting, because of the reduced environmental impact. As a result of this consumer disconnect between purchasing intention and decision, products cast as "environmentally friendly" make up less than 5% of their respective markets (Bonini & Oppenheim, 2008).

US consumers have many reasons not to purchase these products, the most common being that they are more expensive than their mainstream alternatives. On the consumer side, the low success rate of these products is attributed to poor marketing campaigns, which provide little information to potential customers about these products. These poor marketing campaigns are demonstrated by the fact that two-thirds of American consumers cannot name a green brand (Bonini & Oppenheim, 2008). In addition, over 61% of American consumers believe that

environmentally friendly products are inferior to their 'normal' counterparts, and consumers in general tend to distrust any "eco-friendly" claim made by the government, media or company itself (Bonini & Oppenheim, 2008). On the business end, reducing environmental impact often involves taking steps to use biodegradable packaging and to increase recycling of waste material. These practices are neither economical nor practical for most companies due to the lack of government incentive to develop either of them (Min & Galle, 2006). This is supported in part by the fact that, in comparison to most developed nations, there is relatively little regulation of business practices in regards to their environmental impacts in the US (Hong Kong Trade Development Council, 2012).

2.4.2   Europe

Unlike US consumers, European consumers have acted upon their interest in purchasing products based on their environmental impact. Observations show that European consumers are beginning to pay attention to carbon emissions, much as they responded to the dangers of lead pollution years ago (Manuel Gonzalez, personal communication, 25 October 2012). Consequently, more nations have begun to develop and enforce trade barriers as tools to limit the release of carbon-based pollutants. For instance, the London Stock Exchange in Great Britain recently announced that companies must submit reports documenting their emissions in order to remain a publically traded company. In addition, France is working on a second amendment to their environmental laws which will require companies to report emissions (Manuel Gonzalez, personal communication, 25 October 2012).

These developments have concentrated on requiring companies to accurately document their emissions; however, they do not directly specify restrictions on the products or services provided by these companies. In fact, among Europeans, people have exhibited a more positive responsive to certified product labels, evidenced by the strong demand in European nations for "fair trade" and "organic" merchandise. Customers have also demonstrated purchasing preferences for produce and other materials if they display information about the carbon footprint, as in Figure 3 below (Kilian, et al., 2011).

Figure 3: A product label which shows carbon footprint data.

On the other hand, Europeans have shown a desire for companies to pursue environmental initiatives. In polls on European public opinion regarding climate change, conducted in March 2008 to August 2009, respondents were asked to indicate how they felt the EU was handling climate change through its policy making. Majorities in both polls, 58% in March 2008 and 55% in August 2009, felt that the current EU policies did not demonstrate enough effort in combatting climate change. However, participants disapproved of corporate environmental policy efforts even more than the governmental efforts. Polls each year showed that over 70% of the public felt that corporations were not adequately addressing the issue of climate change (Knox-Hayes and Hayes, 2010). Given this public dissatisfaction and the recent British and French policy movements, there is a potential opening in the EU market for companies pursuing emission reduction efforts.

2.5   Case Study: Coopedota

Coopedota, a large co-op of coffee growers in Los Santos, Costa Rica, is the first company outside of Europe to be certified as carbon neutral, certified by Carbon Clear using the PAS 2060 standard (Carbon Clear, 2011). The company logo for Coopedota is shown below in Figure 4. About fifteen years ago, in light of the goals set out in the Kyoto Protocol, the co-op began lowering their greenhouse gas emissions. In 2009, after the climate summit in Copenhagen, they broadened their focus to include becoming carbon-neutral. Their efforts have been so effective that in March of 2011, Coopedota's coffee became the first carbon-neutral coffee in the world (Solis, 2011b; Voinea, 2012). Carbon Clear, a European third-party

certification company, verified the roasted and unroasted coffee beans as carbon neutral according to the PAS standard (Solis, 2011a).

Figure 4: Company logo for Coopedota, R.L. in Costa Rica

Unlike other coffee companies, Coopedota's PAS 2060 certification means it has offset its greenhouse gas emissions released during the coffee life cycle, which includes the production, transportation, and sale of the coffee beans (BSI, 2010; Carbon Clear, 2011). Coopedota has received international recognition as an environmentally conscious company since becoming carbon neutral under PAS 2060, adding to their previous acclaims for quality coffee (Carbon Clear, 2011). However, this recognition is most likely due in part to the use of Carbon Clear as the verification party. Carbon Clear has gained respect within the European customer base for its work with famous companies such as Hyatt Hotels and EuroStar (Solis, 2011b). Coopedota's success with PAS 2060 may encourage other coffee companies to strive for this standard. However, as in the case of Coopedota, the verification company can greatly influence the recognition the companies receive for becoming carbon neutral.

2.6   Summary

As demonstrated by the international and national initiatives in recent years, the emphasis on reducing global environmental impact has become a major priority of the UN and Costa Rica. Despite the substantial progress that Costa Rica has made, the country can move closer to their goal of carbon neutrality by 2021 through encouraging SMEs to pursue carbon-neutral market opportunities. Both Costa Rican and international markets, such as those in Europe, are evolving with an increasing emphasis on carbon consciousness. By taking advantage of these market openings through obtaining the appropriate certification, SMEs can help increase their own profitability as well as aid the reduction of carbon emissions in Costa Rica.

3   Methodology

The goal of this project was to develop strategies that would help the CNP+L guide Costa Rican SMEs on deciding which environmental certifications or standards would provide the greatest benefits in their respective markets. This outcome will be achieved by completing the following objectives:

1. Identify the attractiveness of environmental certifications and standards in both national and international markets.
2. Identify objectives and concerns of companies pursuing certifications and standards.
3. Create a comparison chart of certifications and standards.
4. Develop a "decision tree" to help SMEs pursuing certifications decide on the best path.

3.1   Objective 1: Identify the Attractiveness of Environmental Certifications and Standards in Both National and International Markets

Our first objective was to determine which of the various national and international certifications or standards will get the attention of customers in different markets. To achieve this objective, we first researched online the applicable international certifications and standards available for companies wishing to exhibit environmental efforts. After the initial research, our team consulted with Carlos Perera at the CNP+L once on site regarding national certifications. We also inquired about which certifications or standards he felt were the most relevant to Costa Rican SMEs.

After this meeting, we consulted with companies in our Group A category: two companies that perform verification and certification (INTECO and SCS Global Services) as well as the Costa Rican national accreditation body (ECA). Sr. Perera initiated contact with these companies by emailing representatives at each company, introducing our team and requesting a meeting for us to conduct an interview. From that point, the team followed up the correspondence and scheduled interviews with each representative accordingly. Using a semi-structured interview style, the team prepared general goals before the interview to establish the desired discussion topics.   The topics included the companies' general observations on the outcomes of the various certifications and standards, their perceived pros and cons of the

certifications and standards, and their opinions regarding the Costa Rican National Plan for Carbon Neutrality.

For the first topic of discussion on general observations, we directed questions toward the popularity of the national and international certifications and standards. Specifically, we asked about their attractiveness depending on different market variables. The team inquired about the effects of client location, industry, and the company's position in the supply chain. For the second topic, we sought to gain information comparing the pros and cons of these certifications and standards. To isolate the different positive factors, we asked questions about which were more highly regarded as well as which increased a business' competitiveness within markets. Conversely, for the negative aspects, we asked questions about which standards were viewed less favorably as well as about the comparative costs associated with each standard.

In the third topic of discussion, we focused on the Costa Rican National Plan. First, we asked about the reputation of the National Plan for Carbon Neutrality within the country and within foreign markets. To understand more about this topic, we asked if any governmental efforts existed for promoting the certification and when they felt it would become more well-known. Continuing with the national focus, the team directed questions toward the developing local Costa Rican carbon emissions trading market included within the National Plan. Specifically, we inquired about its projected formalization timeline through MINAET as well as its potential incentives for participating SMEs.

3.2   Objective 2: Identify Objectives and Concerns of Companies Pursuing Certifications and Standards

To accomplish this objective our team interviewed companies that have progressed significantly toward becoming certified (Group B), as well as those interested in pursuing certification (Group C). Our team chose the companies La Flor AgroIndustrias and Florex to represent Group B based on recommendations from Sr. Perera. For Group C, the companies consisted of SME clients of the CNP+L selected by Sr. Perera: Atemisa Precision S.A., Biorganic S.A., and Beneficio Ecológico Cerro Alto. With each company in Groups B and C, Sr. Perera emailed representatives to introduce our team and to request a meeting to conduct an interview. The next step was to coordinate timing and transportation with the corporate

representatives and to conduct the interviews. Similar to the first objective, these interviews were semi-structured. The team prepared various points to discuss before the interview and directed questions toward those topics accordingly.

For the companies in Group B, the main interview topics involved the companies' motivations for pursuing certification, their experience with the process of certification, and the benefits resulting from certification. To address the first topic we directed questions toward the companies' original rationales for becoming certified. In particular, our team inquired about the companies' initial market status and their predicted outcomes at the beginning of the certification process. Furthermore, investigating the companies' choice of certifications served as another crucial data point for this topic.

For the second topic, our team examined Group B's perspectives on the process of verification and certification. We inquired about the difficulties encountered in the process and the associated costs. In regards to the difficulties, we asked questions pertaining to whether the companies encountered any issues with time commitment, itemizing inventories, or implementing necessary changes to comply with the certifications. In addition, we requested any financial information available about the costs accrued during the entire process. Particularly, we were interested in the separation between the costs associated with obtaining the verification or certification itself, versus the costs associated with any changes necessary for compliance.

Finally, the third topic covered in the Group B interviews was to extract information regarding the benefits resulting from certification. To break down this topic, we asked the companies about their overall post-certification status compared to their prior market status. First, we inquired about relative market popularity of their certifications. Secondly, we focused on their financial situation and asked about any increases in sales and profit that came about after certification. Finally, our team directed questions toward the companies' current reputation and whether certification impacted their recognition within their market.

For the last group of companies in Group C, we interviewed three SMEs: Biorganic S.A., Atemisa Precision S.A., and Beneficio Ecológico Cerro Alto. With these companies, questions revolved around the main topics of motivations, any existing inclinations toward certain certifications or standards, and any foreseen obstacles. Pertaining to the companies' motivations, we inquired about their target markets as well as their desired outcomes from obtaining certification. Establishing the companies' target markets served as an important point in order to

assess the applicability of different certifications and standards. Furthermore, gauging the appropriateness of various certifications or standards also depended on the companies' desired outcomes.

Secondly, the CNP+L conveyed to our team that some companies already had certain certifications in mind. Therefore, in the interview we asked these companies about the reasoning behind their preference. We asked questions about any research they conducted regarding the certification's popularity within their market and current client base. Lastly, we inquired about any obstacles the companies are currently encountering or foresee within the verification or certification process. These questions were meant to uncover barriers in reporting their emissions, implementing requirements, as well as any potential funding dilemmas. Since detailed financial information was not previously found through database research, inquiring about the companies' approximate budgets for certification was also a crucial question for the team to ask.

3.3   Objective 3: Create a Comparison Chart of Certifications and Standards

After completing all the interviews with our three groups of companies, we compiled the findings obtained in order to compare the certifications and standards. From our preparatory background research, we determined that our targeted certifications and standards divide into two categories. The first category encompasses standards and certifications that did not involve carbon neutrality: ISO 14044, ISO 14064, ISO 14001 and PAS 2050. The other category encompasses certifications of carbon neutrality: PAS 2060 and the Costa Rican National Plan for Carbon Neutrality. By separating the certifications and standards into these sections, we were able to effectively compare each certification and standard against the others similar in purpose.

The next step involved identifying different factors for comparison. From the preliminary background research, our team defined cost, application, and reputation as the primary aspects that would differentiate these certifications and standards. Since SMEs are more limited in their financial resources than larger companies, the costs of obtaining certification serves as a pivotal criterion. The application of a standard is whether it evaluates an individual product or whether it assesses the whole company. Lastly, the reputation of the standard compares the perception of the certification or standard in different international and national markets. Using these comparison factors, we organized the information gathered from the interviews by comparing the advantages and disadvantages of specific certifications accordingly.

3.4   Objective 4: Develop a "Decision Tree" to Help SMEs Pursuing Certifications Decide on the Best Path

We designed a decision tree to assist the SMEs interested in pursuing certification in choosing which certifications would be the most beneficial for them. To begin guiding companies, the initial division point of the tree was whether the company is interested in pursuing carbon neutrality. We determined this to be a crucial first division based on the background research.   After the initial division point, we used the information synthesized in the comparison chart to direct companies further down the decision tree. Division points were created based upon the factors established within the comparison chart. Using those points, the decision tree channels companies toward the most beneficial certification depending upon how their situation corresponds to the previous factors. We designed the questions for the decision points to pertain to a business' situation so that the basic structure of the tree could stand independent of the certifications and standards it involves. Consequently, changes with available certifications and standards can be incorporated into the tree depending on the change's effect on businesses.

3.5   Methodology Summary

Figure 5 below shows an illustration of our team's process for our methodology. The blocks of observations, first-hand effects, and motivations highlight the central foci of the interviews with each company group.
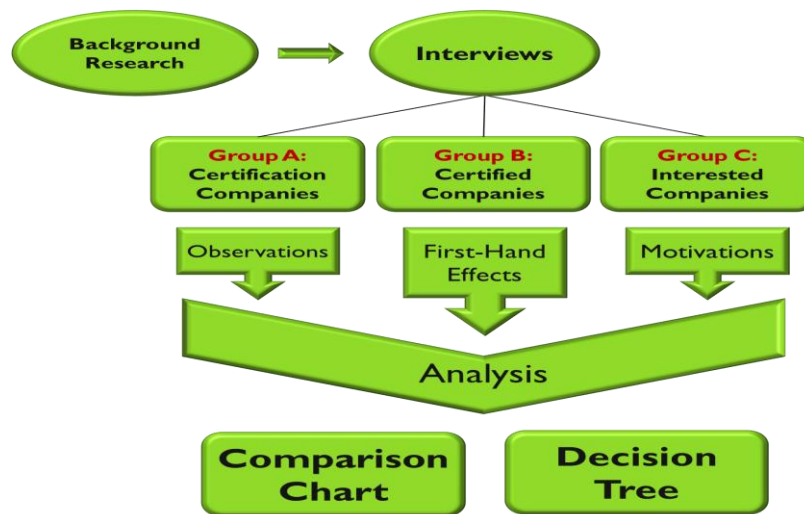
Figure 5: Methodology Flowchart

4   Results and Analysis

The following results include summaries of the interviews we conducted with the representatives listed in Table 2 below. As previously stated in Chapter 3, Group A consists of certification companies, Group B includes companies that have already achieved certifications, and Group C comprises the companies interested in obtaining certification. The interviews with Group A companies addressed the goals outlined in Objective 1, while the interviews with Groups B and C companies targeted the concerns included in Objective 2. In accordance with the third objective, our team organized the information into a comparison chart to evaluate the various certifications. Finally, we produced a decision tree to guide SME's in their choice of standards.

Table 2: Summary of Interviews

Company	Group	Representative	Date of Interview	Location
INTECO	A	Manuel Gonzalez	25 October 2012	INTECO, San Jose
ECA	A	Andrea San Gil	6 November 2012	ECA, Rohrmoser
La Flor AgroIndustrias	B	Álvaro Chain, CEO	7 November 2012	Central Offices, San Jose
Atemisa Precision, S.A.	C	Kelly Duarte, Gerente General	12 November 2012	Atemisa Precision, Santa Rosa
Biorganic, S.A.	C	Jorge Dada, Sub Gerente; Meybel Santos; Carolina Dada, Sub Gerente	13 November 2012	Biorganic, San Ramón
Beneficio Ecológico Cerro Alto	C	Sylvia Vindas	14 November 2012	Heredia and Concepción
SCS Global Services	A	Juan Solera, Regional Director	14 November 2012	Heredia and Concepción
Florex	B	Sylvia Chaves, Vice President	16 November 2012	Florex, Alajuela
Former director of CNP+L	N/A	Sergio Musmanni*	19 November 2012	CICR, San Jose

*Sr. Musmanni spoke mainly about the history behind INTE and comparing standards

4.1   Attractiveness of Environmental Certifications

Our team interviewed representatives from the three Group A companies. The full transcripts of the interviews are included in Appendices A through H; Table 3 below provides a

summary of these companies and their role in the verification and certification process. For these interviews, our goal was to obtain their external perspective on their experiences as a company working with many different businesses and certifications. In each interview, our team obtained their insights on the certification process in three general areas: motivation for companies pursuing certification, reputation of certifications in various markets, and average costs of verification and certification.

Group A- Certification Organizations	
Organization Name	**Organization Summary**
Instituto de Normas Técnicas (INTECO)	Costa Rican certification company which performs verification of GHG inventories and certification for companies pursuing various standards.
Ente Costarricense de Acreditación (ECA)	Costa Rican body which accredits groups within Costa Rica as acceptable third party organizations for verifying and certifying businesses' compliance with standards.
SCS Global Services	International certification company which performs verification and certification for companies pursuing international standards; based in San Francisco, CA with offices in Central and South America

4.1.1 Motivations

For the first area, we found that the two primary motivations of companies seeking certifications were the requirements of markets or clients as well as the desire to gain a competitive advantage within a market. Each representative conveyed that they see the global market progressing toward carbon consciousness, or a business mindset that focuses on the environmental impact of operations, particularly with respect to carbon production. Sr. Gonzalez of INTECO specifically drew the analogy between carbon and lead. During the 1970's, scientific discoveries about the adverse effects of lead on the human body and the environment triggered an international movement to remove lead from gasoline and other products. Similarly, changes in public perceptions regarding carbon emissions in the modern world mirror this shift in public opinion. Accordingly, some international markets, such as those in Europe and

Australia, have begun demanding inventory verifications and certifications, such as ISO 14001, in order for companies to conduct business within their markets. The second main motivation involved companies wanting to increase their competitiveness within a market. In an analogy drawn by Sr. Solera of SCS Global, businesses need to "hunt" for clients within their markets, and certifications can serve as a specialized "weapon" to gain an advantage on their competitors. However, he continued that the clients must indicate that they want such certifications, otherwise the investment will not benefit the company. Sra. San Gil of ECA acknowledged that Costa Rican companies cannot achieve a market advantage through price because Costa Rican labor forces are more educated and require higher pay than labor forces in other competing markets. Consequently, Costa Rica must differentiate itself by offering superior quality.

In addition to the two primary reasons, a couple secondary motivations were named: the feeling of social responsibility and the increase of efficiency in production practices. Often both of these stimuli work alongside the primary motivations and provide additional layers of drive for companies. Sr. Solera of SCS Global emphasized that through the process of implementing changes, companies can end up with a new, more efficient structure that would save the companies money in the future. Especially with SMEs, Sr. Solera pointed out that this implementation process can also spawn auxiliary programs within the company to foster the continuation of environmental programs.

4.1.2 Reputation of Certification

Another unifying commentary from representatives encompassed the certifications' differing reputations across markets depending on the variables of market location, client base, and industry type. In regards to the ISO standards (14001, 14064, and 14044), the representatives agreed that the ISO name was widely respected on the international level. They also expressed that ISO 14001 is currently one of the most popular and commonly applied certifications. As a standard for developing an environmental management system, this certification is useful for various-sized companies across different industries who wish to demonstrate a strong environmental initiative. From the representatives' assessment of the current popularity of carbon neutrality certifications, our team learned PAS 2060 is the most globally respected certification on carbon neutrality. Given its recent release and the increasing promotion of the standard, Sr. Solera conveyed that PAS 2060 is associated with a newer,

exciting image. Therefore, the interviewees suggested this certification choice for small companies who wish to gain a competitive edge in the global market. When we inquired about the Costa Rican National Plan for Carbon Neutrality, the representatives mainly agreed that the certification did not have a strong international identity yet. They explained that the weak international reputation most likely stems from the uncertainty about the Costa Rican authorship and the validity of the carbon credits available for compensation. On the other hand, the representatives from INTECO and ECA both pointed out the standard's more favorable reputation within Costa Rica and the Central American region.

4.1.3   Cost and Time Commitment

The third category comprised the financial investments involved in obtaining the different certifications. The costs a company accrues during the process include the cost of creating an inventory of their carbon emissions, fees to pay the certification companies, and the cost of implementing any necessary changes or potential compensation measures to meet certification requirements. Regarding the fees for paying the certification companies to audit inventories or approve implementations, the representatives acknowledged that the fees are the same. Sr. Gonzalez of INTECO quoted about $3,000 for a small company, defined as having emissions below 1,000 tons per year, to verify their inventory. Sr. Solera of SCS Global quoted the cost of creating and verifying an inventory at $2,000 to $10,000.   Both representatives stated that they could only provide rough estimates or ranges since each inventory verification depends on the company's size, emissions levels and structural complexity.

As for time commitment, Sr. Gonzalez and Sr. Solera reported that gathering the inventory can take the company four to six months, while the actual audit and verification of the inventory typically takes less than one week. All representatives agreed that the greatest variation in cost and time commitment comes from the implementation phase. In order to comply with standards, companies often have to replace technology, reorganize production methods, and restructure company configuration, which can accumulate a range of costs. Furthermore, if a company is pursuing carbon neutrality, paying for carbon credits as a part of compensation costs around $2 to $10 per ton emitted. Consequently, the representatives could not provide a monetary estimate because of these variables that play a part in the implementation steps. Both Sr. Solera of SCS Global and Sra. San Gil of ECA mentioned, however, that ISO

14001 as a whole tends to be more expensive than other standards, since the certification involves the creation and implementation of a methodology to manage environmental impact.

4.1.4 National Promotions

In addition to the overall topics discussed in each interview, we learned about the early developments of various national programs accompanying the National Plan for Carbon Neutrality. Sr. Gonzalez informed our team of the beginnings of a local carbon market, which would entail the trading of carbon stocks. Specifically, the market was written into the National Plan as a method for companies pursuing carbon neutrality to purchase compensation credits from local companies. Furthermore, our team learned of the developments of a "National Brand" from our interview with ECA. The national promoter of foreign commerce, PROCOMER, is working to create a Costa Rican brand identity to further market the country as environmentally friendly. They are using other nearby countries as examples, such as Brazil and Peru, which currently have their own programs for national brands. Costa Rican companies could participate in this program and would earn various "points" based on their performance in areas such as quality of management systems, sustainability of practices, and overall carbon footprint. While Sra. San Gil outlined the program using these descriptions, she followed by stating that the details of the program were still being determined, and PROCOMER is aiming to begin campaigning in 2013. She mentioned that the campaign would stretch internationally in an attempt to promote the overall image of Costa Rica as environmentally friendly.

4.2 Objectives and Concerns of Companies Pursuing Certification

Our team interviewed representatives from companies in Group B and Group C to target their first-hand viewpoint of the certification process.

4.2.1 Group B Company Interviews

Table 4 includes a brief summary of the companies that have already obtained certification. The company interviews with Group B are organized into individual case studies to best show each company's unique history and experiences of pursuing certification.

Group B- Companies Progressing Towards Certification			
Company Name	**Company Summary**	**Primary Market**	**Certifications Obtained or Pursued**
La Flor AgroIndustrias	A small carbon neutral pineapple production company	US, Canada, Puerto Rico, Europe	The Carbon Neutral Company, Global G.A.P., TESCO NURTURE, Primus Lab, Rain Forest Alliance
Florex	A company specializing in the manufacture and distribution of environmentally friendly and biodegradable cleaning products	Costa Rica, Guatemala, Honduras, Panama	ISO 9001, ISO 14001, Bandera Azul Ecológica INTE Carbono Neutral

4.2.1.1 Case Study: La Flor AgroIndustrias

La Flor AgroIndustrias is a small pineapple production company based out of Alajuela, Costa Rica, where they operate on 1,000 hectares of land. Originally a livestock producer known as GANAFLOR, the company shifted its focus to pineapples after CEO Álvaro Chain took over the business in 2010. The pineapple exportation industry in Central America began around the 1990's, with Costa Rica as the primary exporter. However, other countries such as Panama have recently joined the ranks of production, increasing market competition and thereby reducing the profitability of companies such as GANAFLOR.

In addition, due to the comparatively high cost of Costa Rican labor forces, the company needed to sell their pineapple at a higher price than other market competitors. Therefore, when the company transitioned to La Flor AgroIndustrias in 2010, they addressed this challenge by creating a unique identity in order to differentiate themselves from other pineapple suppliers. They decided that "service" and "quality" would stand as two tenets in which they could excel and thereby sell for a higher price. To achieve these higher standards, La Flor AgroIndustrias pursued certifications that would identify their superiority in these fields. With their target exportation markets at the time lying in the United States and UK, the company first pursued the certifications that each area viewed as mandatory: certification through Global G.A.P. for

Europe, certification through the supermarket chain Tesco for the UK, and certification through Primus Labs for the United States (Álvaro Chain, personal communication, 7 November 2012).

While these certifications allowed the company to achieve a modest level of competitiveness in their respective areas, La Flor AgroIndustrias still needed an additional edge to compensate for their higher selling price. The company conducted market research within the areas of the United States, Europe, Canada and the Caribbean to determine which certifications their clients viewed as desirable and for which they would be willing to pay more. Consequently, the research identified the Rainforest Alliance Certification as a valued recognition in the field of social responsibility. La Flor AgroIndustrias addressed this social responsibility through actions such as regulating the use of protected land in order to achieve the Rainforest Alliance Certification and satisfy the company's "service" target. Regarding the second category of "quality", the research pinpointed the Carbon Neutral Company of England as a respected organization in the field of environmental initiatives. As the Carbon Neutral Company is held in high esteem throughout Europe, achieving carbon neutrality through them established La Flor AgroIndustrias' pineapples as a superior "quality". Since neither the Rainforest Alliance's nor Carbon Neutral Company's certification was currently being pursued by other pineapple producers, La Flor AgroIndustrias chose to invest in this package of certifications with hopes of gaining a market advantage (Álvaro Chain, personal communication, 7 November 2012).

Initially in a state of deficit, La Flor AgroIndustrias was able to invest a little under $50,000 to incorporate all the necessary changes and to pay all required fees to obtain the certifications. One major change involved splitting their land, with one half acting as a preserve where the water was not touched by the company. This change helped achieve the sustainability and social responsibility requirements involved in the Rainforest Alliance Certification. As a result of obtaining the two certifications, La Flor AgroIndustrias was able to successfully sell their pineapples in the markets at a price 5 to 10% higher than competitors. As of today, the company's sales have increased 20% since the beginning of their initiative in late 2010 and these increased sales have already compensated for the company's initial investments in the certification process. In the coming years, Sr. Chain hopes to continue the forward momentum of La Flor AgroIndustrias in the pineapple exportation field, especially with the growing market

value of "carbon neutral" products in the European market (Álvaro Chain, personal communication, 7 November 2012).

From this case study, we noted that the underlying factor leading to the company's success stemmed from their business strategy and market research. Given that the company is small and was initially struggling in its market, the strategy of focusing on their strengths of "service" and "quality" created unique advantages for the business. With this approach, the company did not have to completely reorganize their business and could still increase their profit with a higher selling price. Secondly, the market research provided an educated basis upon which they could solidly guide their investment efforts. Therefore, they pursued the certifications that they knew would be positively received in their target markets. However, when prompted about the National Plan for Carbon Neutrality and the pending Local Carbon Market, Sr. Chain did not express great interest since physical evidence of progress had yet to surface (Álvaro Chain, personal communication, 7 November 2012). The company's reluctance results from their research based approach toward investments, relying on evidence first to guide business decisions.

4.2.1.2 Case Study: Florex

Florex was founded in 1995 as a company specializing in cleaning, courier, and security services. Later, the company narrowed its focus to production of cleaning products using imported chemicals and raw materials. Over the years leading up to 2007, the company began to see a clear increase in the number of personnel with respiratory illnesses and allergic reactions. The company's management realized the health issues were due to the harmful nature of the materials the company was using for production. These health concerns triggered company owners to begin improving sustainability practices. The company decided to make their own materials, which would be less harmful to personal health and more environmentally friendly. To further their new emphasis on environmentally conscious practices, Florex proceeded to construct a new factory in San Ramón, Alajuela, and began their production with their lower impact operations in 2007. Company Vice President Silvia Chaves commented that the toughest part of the process was generating an environmentally friendly culture within Florex (Silvia Chaves, personal communication, 16 November 2012). By implementing the renovated production practices, the company began to see benefits in exporting their cleaning products as

environmentally friendly to markets throughout Central America (PROCOMER, 2012). In order to access these markets, Florex used various environmental seals and certifications to distinguish their products from their competitors' and gain access to the foreign markets. Florex researched the requirements and seals prospective clients viewed as necessary. This research turned up very few seals that would be likely to benefit the company, leading Florex to begin their pursuit of ISO 14001 and ISO 9001 in 2009. Currently, Florex is pursuing carbon neutral certification under the National Plan for Carbon Neutrality through INTECO (Silvia Chaves, personal communication, 16 November 2012).

Thus far, Florex has had success in their pursuit of certification. They received funding through PROPYME, resulting in their total expenses of approximately $18,000 for ISO verification and certification. In addition, their annual cost for auditing and recertification is around $1,800. Besides funding from PROPYME, Florex had the advantage of being a young company at the start of the certification process. Therefore, the company was able to develop their production practices using the ISO standards as guides, making the processes of reducing emissions and certification easier (Silvia Chaves, personal communication, 16 November 2012).

Looking ahead, Sra. Chaves estimated that it will take about six more months for Florex to complete certification as a carbon neutral company under the National Plan. Florex has already made significant progress towards mitigating and compensating for their carbon emissions. A tour through their facilities exhibited the effects of their new business attitude. The building uses low amounts of electricity and fuel through energy efficient construction, gravity-fed and manual mixing processes, as well as zero or low energy lighting solutions. The facility also treats and reuses its own wastewater, and a rainwater catchment system on site stores roof runoff for use in restroom facilities.

From this case study, our team discovered that Florex has adopted an environmentally conscious culture. Their business model is geared toward markets in which clients seek to do business with companies that have taken significant steps to reduce their environmental impacts. Consequently, Florex chose their certifications and market strategy to gain access and recognition in those particular markets. Currently, Florex sells products to clients in Costa Rica and other Central American nations. In these markets, recognition of quality and differentiation allow them to sell their products at higher prices.

We inquired about Florex's interest in participating in the National Brand program, since a significant portion of their markets are within Costa Rica. However, Sra. Chaves was not familiar with the program. When asked if they had considered the PAS 2060 standard while choosing a carbon neutral certification, Sra. Chavez responded that she had not heard of this standard nor researched it before deciding on the Costa Rican National Plan. Instead, Florex decided that their ISO certifications and the National Plan for Carbon Neutrality will help promote their products in Central America and potentially abroad. Although Sra. Chaves admitted that relying on the National Plan for promotion abroad represents a big risk, she believed that the National Plan along with the ISO standards will be viewed favorably and will open doors to markets in the US and Europe (Silvia Chaves, personal communication, 16 November 2012). These certifications have already given Florex credibility in their markets and have enabled the company to reorganize their production practices and to establish a strict organizational culture to be conducive to high level market competition.

4.2.2 Group C Company Interviews

Table 5 includes a brief summary of the companies in the Group C category. For the company interviews with Group C, our questions fell under five main topics relevant to the information we intended the decision tree to provide. These were company motivations, desired outcomes, obstacles, costs and time commitment, and interest in other programs.

Table 5: Summary of Group C Companies

Group C- Companies Interested in or Beginning Certification			
Company Name	**Company Summary**	**Primary Market**	**Certifications Pursued**
Atemisa Precision, S.A.	A small metal working supplier, specializing in medical equipment	Costa Rica	ISO 9001 ISO 14001 INTE Carbono Neutral
Biorganic, S.A.	A small company manufacturing organic agricultural products	Central America	ISO 9001 ISO 14001 INTE Carbono Neutral
Beneficio Ecológico Cerro Alto	A small gourmet coffee producer serving specialty markets	Japan, Australia, Canada, Europe	PAS 2060

4.2.2.1 Motivations

From each company, we sought to gather information about their reasons for pursuing certifications in order to gain insight for the decision tree. All three companies felt that the emphasis on social responsibility and environmental consciousness is growing in both national and international markets. Due to the pressure of competition, these companies needed an advantage to differentiate themselves within their markets. Given the global trend of carbon reduction, each company informed our team that they believe obtaining an environmental certification will help them gain an edge on other competitors and stand out. In particular, Atemisa Precision stated that obtaining ISO 9001, ISO 14001, and the Costa Rican National Plan would raise them up to a higher "class" in their Central American market, since no other metal production company in Costa Rica currently holds environmental certifications. Beneficio Ecológico Cerro Alto attributed their motivation for pursuing carbon neutrality to their current and potential customer bases in Australia, Japan, and Canada, who favor businesses focused on environmental issues. Furthermore, both Biorganic and Atemisa told our team that they sought to be "pioneers" in their fields. In other words, they are the first SMEs of their kind in the region to pursue environmental certification. Consequently, they hope that this innovative step will make them more recognizable in their regional markets.

As SMEs, the companies we interviewed endeavored to expand their client base. All three companies pointed out the importance of obtaining certification while their businesses are young so that the company can develop environmental practices during their growth. In addition, Atemisa and Biorganic see obtaining the National Plan for Carbon Neutrality as an opportunity to take part in Costa Rica's goal for carbon neutrality by 2021. They believe that the country's success will depend greatly upon the private sector to lead the endeavor, and they hope that pursuing a carbon neutrality certification will encourage other companies to follow suit. Finally, the companies pursuing ISO standards, Atemisa and Biorganic, explained that in the current global market for their products, ISO 9001 and 14001 are almost essential in order for a company to compete. Therefore, these companies must obtain these ISO certifications as a baseline for effectively entering international markets.

4.2.2.2 Desired Outcomes

In addition to their motivations for pursuing standards, we asked the Group C companies about the results they sought through becoming certified. Overlapping with their motivations, the companies expressed their hope that with certification, recognition and respect for their business and products will increase. Specifically, Atemisa and Biorganic conveyed their expectations that obtaining ISO 9001 and 14001 will create new opportunities for them on a global scale. On the other hand, Beneficio has primarily international clients. Their intent in obtaining a carbon neutrality certification is to enable them to surmount the competition within the narrow market of gourmet coffee consumers with refined tastes for higher quality, artisan coffee. Biorganic expects that certification will improve their popularity in Costa Rican markets, as well. Furthermore, companies such as Atemisa and Biorganic expressed an alternative goal that completing all the steps for the certification process will help standardize company processes and improve overall productivity, especially since ISO 9001 involves implementing a quality management system.

4.2.2.3 Obstacles

Our team questioned the Group C companies about any obstacles that they have already encountered or that they foresee with the certification process. Each company could only give a limited response since they had only begun the process. Currently, Biorganic and Beneficio are just beginning to quantify their emissions inventory, while Atemisa indicated that they hope to verify their inventory within a month. Biorganic and Atemisa said that the certification process could be more difficult for them because they are the first businesses in their markets pursuing the certification. Therefore, there are fewer companies' inventories that they can use as examples to help define the scope of their inventory or define the appropriate emissions variables. Beneficio, just beginning to establish its inventory, reported difficulties in determining the boundaries of the inventory in order to properly account for its emissions. Particularly, they are challenged because they are only aiming to certify their processing mill, but with only 35 employees, the equipment and personnel for the plantation and the mill are often shared. Therefore, the company must attempt to separate the emissions coming from the mill operations from those of the plantation. Beneficio also added that the inventory process is tedious, especially since they have two facilities to consider. In addition, Atemisa suggested that an

obstacle after the certification process could be that consumers, especially in Costa Rica, are not particularly active in the environmental movement. Therefore, a company marketing to the general public may not receive as much recognition for their environmental efforts.

4.2.2.4 Cost and Time Commitment

In our interviews, the team inquired about the approximate costs and time commitment of certification. Since Biorganic and Atemisa were pursuing the same three certifications, their estimated costs were about the same. Accounting for all the changes within the company in order to improve efficiency and mitigate carbon emissions, Biorganic quoted $100,000 and Atemisa quoted around $90,000. The variance in price arises from the differences between each company's implementation process. After the initial cost of obtaining the certification, Atemisa mentioned around $6,000 for yearly maintenance of the new systems and re-certification fees. Both companies are receiving guidance from the CNP+L in completing the requirements for certification as well as financial assistance from a fund for SMEs through the Ministerio Ciencia y Technología (MICIT). Biorganic pays 20% of the costs, and the Ministry covers the remaining 80%.

The overall time commitment for each company pursuing certification was similar, though they were at different points in the process. Since Atemisa has almost completed their emissions inventory, Sr. Duarte estimated that the remaining process to achieve carbon neutrality, including implementation, would take the company another four to six months. On the other hand, Biorganic and Beneficio are both at the beginning of creating their inventories, so each approximated that certification would take two years. Both companies sited the intricacies of calculating their emissions inventory and implementing the necessary changes in their company as main factors contributing to the completion time.

4.2.2.5 Interest in Other Programs

Our team was also interested in any familiarity the Group C companies had with the projected plans of the government and PROCOMER that involve a local carbon trading market and a program for a Costa Rican national brand. Each company responded that they knew little about the potential carbon trading market. Atemisa and Beneficio were not aware that the

government had proposed the idea; however, Atemisa did mention that they might be interested since they may need to compensate for carbon emissions later on in the certification process. Beneficio did not have interest in participating in the market, due to their primarily international focus and since the compensation involved in the PAS 2060 standard required internationally accredited carbon credits. Biorganic expressed some familiarity with the proposed market, but also conveyed some doubt regarding its success and usefulness. They responded they would only take advantage of the program if it proved reliable.

Similarly, the companies were not very knowledgeable about the proposal to establish a Costa Rican national brand. Atemisa was not aware of it, but again showed interest in learning more about the program. Biorganic and Beneficio expressed vague awareness of the plan, but admitted they did not know many specifics. Beneficio also articulated that in order for the program to become successful, PROCOMER would have to lead an intense international campaign.

4.3   Comparison Chart

After gathering the information from all three groups of companies, our team found many overlaps in motivations, cost, and reputation of the standards. We consolidated the findings into the following comparison chart, Table 6, by establishing various comparison factors to categorize the representatives' viewpoints: purpose, relative cost, funding, recognition, certification type, advertising and recertification.

The first comparison point, **purpose**, established the differences amongst the certifications and standards pertaining to their target intention. **Relative cost** compared the financial requirements of each standard in relation to each other. **Funding** is the amount of monetary aid available to an SME through national programs. **Recognition** identifies the locations where the standard or certification is well-known and respected. **Certification type** explains the final outcome of obtaining the certification or standard. For example, "declaration of accuracy" means that the standard assures the accuracy of an inventory, while company or product certification indicates whether the final certification pertains to the entire company or an individual product. **Advertising** includes the options available to companies regarding the type of labeling the certification or standard allows for certified products or companies.

Recertification specifies if and under what time period each certification or standard must be re-certified or re-verified.

This chart helped our team organize the various viewpoints obtained through the interviews. With each interview group speaking from a slightly different perspective, we found that the representatives' views regarding the comparison factors were similar. Using their inputs and our knowledge obtained through our background research, we analyzed the information to form our assessment of the certifications and standards with respect to each comparison point. While certain comparison points such as recognition, relative cost, and funding available had a wider range of responses, our team was still able to formulate a general consensus for the chart since the interviews provided no conflicting information. We included noteworthy perspectives through the supplemental list discussed below in section 4.4.

In order to further compare the standards and certifications with consideration to some of the variations between interviewees' opinions, the discussions below break the chart up into two categories: certifications pertaining to carbon neutrality and those that do not. The international standards and certifications that do not involve carbon neutrality, ISO 14064, ISO 14044, ISO 14001, PAS 2050, are evaluated in section 4.3.1, while the certifications for carbon neutrality, PAS 2060 and INTE 12-01-06, are discussed in section 4.3.2.

Standard or Certification	ISO 14064	ISO 14044	ISO 14001	PAS 2050	PAS 2060	INTE 12-01-06
Purpose	Guidelines for calculating emissions inventory	Guidelines for LCA	Implementation of EMS	Carbon footprint product labeling	Carbon neutrality	Carbon neutrality
Relative Cost	High	High	Moderate	Moderate to High	High	Low
Funding	Available through PROPPYME, very competitive	N/A	Some funding through MICIT when combined with INTE	Available through PROPPYME, very competitive	Available through PROPPYME, very competitive	Significant funding available through MICIT
Recognition	International	International	International	International	Most widely-known international standard	Within Central America
Certification Type	Declaration of Accuracy	Declaration of Accuracy	Company Certification	Product Certification	Company Certification	Company Certification
Advertising	Unofficial logo, not on individual products	Unofficial logo, not on individual products	Unofficial logo, not on individual products	Product Label	Unofficial logo, not on individual products	MINAET trademark
Recertification	Annually	Annually	Annually	Annually	Annually	Annually

4.3.1 Discussion of International Standards and Certifications

The various international standards and certifications included in Table 6 focus on different factors that companies expressed as important targets. While the standards and certifications may differ in purpose, the comparison chart highlights their different aspects in regards to the potential viewpoints of SMEs. The following discussion evaluates these situational advantages and disadvantages of each standard or certification.

4.3.1.1 ISO 14064

Verification with ISO 14064 indicates that a company completes an accurate emissions inventory. While international customers recognize and respect the standard, it only provides a statement on a company's levels of emissions. The standard does not address the company's environmental impact based on those emissions. Furthermore, the standard applies to the business as a whole, rather than delving into the company's individual products. Due to the company-wide focus, a compliant company cannot display a label of the standard on individual products. Therefore, businesses complying with IS0 14064 have more difficulty communicating their verification to the public. In addition, obtaining the ISO 14064 standard can be expensive and time-consuming, which often makes it conducive for larger companies but less practical for SMEs. However, if an SME does choose to pursue ISO 14064, they can request some funding through the PROPYME fund from MICIT.

4.3.1.2 ISO 14044

ISO 14044 evaluates the emissions resulting from a product's life cycle. Unlike ISO 14064, 14044 provides information about individual products rather than the business as a whole. However, as with ISO 14064, ISO 14044 also provides no product labeling, again proving difficult for companies to convey information to consumers. While ISO 14044 is an internationally recognized and respected standard, it makes no judgment on the environmental impact of the emissions it measures. ISO 14044 is most often pursued by larger companies, as well, due to expense and time.

4.3.1.3 ISO 14001

ISO 14001 differs from the previous standards in that the certification does not establish an emissions inventory. Instead, a company becomes certified once they implement an Environmental Management System the process of reducing its emissions through improvement of management and production practices related to environmental impact. The guidelines for complying with ISO 14044 do not require an analysis of the effectiveness of the management changes. Due to its purpose of EMS implementation, this certification does not qualify as verification of an inventory, as demanded in certain international markets. Implementing environmental changes can be expensive, but they should improve energy efficiency and decrease costs in the long run. The company has to be cautious to spread awareness among and ensure acceptance from all of its employees since the necessary changes often require adjustments in all departments of the business. This certification is widely recognized internationally and has become unofficially necessary for a business to be competitive in most international markets.

4.3.1.4 PAS 2050

Similar to ISO 14044, PAS 2050 is an internationally recognized certification that deals with the analysis of individual products. Due to this specificity, evaluating several products can prove costly. While PAS 2050 does not include an official label, part of the certification's methodology involves guidelines for creating package labeling. Through the process of obtaining PAS 2050, a company creates a product label to effectively relate the carbon footprint of their product's life cycle. Consequently, customers can clearly view the product's impact values. However, PAS 2050 does not necessarily correlate to a low environmental impact of the product. Additionally, since each product must be separately certified, PAS 2050 can become costly for a company wishing to certify several products.

4.3.2 Discussion of Carbon Neutrality Certifications

As the two current certifications available to Costa Rican companies for carbon neutrality, the comparison between PAS 2060 and the National Plan for Carbon Neutrality is

especially important to interested SMEs. Both standards were recently published and overlap in several structural characteristics. As a benefit, both certifications include inventory verification within the overall carbon neutrality certification. This streamlines the process for companies so they do not have to obtain an additional standard in order to verify their inventory before pursuing certification. However, both certifications require yearly recertification. While the maintenance of certification is much less cumbersome than the initial certification process, the requirement still imposes an additional yearly cost. The remaining advantages and disadvantages of each certification can be discussed within two categories: recognition and cost.

4.3.2.1 Recognition

Despite whatever reputation the certification carries itself, the company that the SME chooses to conduct the certification plays an important role as well. The interviewees from the certification companies and ECA all emphasized that if the chosen certification company is not recognized in the business' target markets, the certification will not be perceived as valuable. Therefore, a business needs to pay attention to both the choice of certification and the choice of third party organization handling the certification process in order to benefit from the certification within their product markets.

Regarding the reputation of the certifications themselves, the PAS 2060 certification inherited more international prestige from its author, the British Standards Institute (BSI). As stated by Sr. Solera of SCS Global, PAS 2060 currently stands as the most widely recognized certification internationally. Consequently, a company that obtains the certification through an internationally reputable certification company receives greater respect in their international markets. On the other hand, INTE was developed by the Costa Rican government and MINAET. While the National Plan includes many concepts paralleling international standards, its publication did not innately carry the same international recognition since MINAET is not as well-known worldwide. Furthermore, the main certification company in Costa Rica, INTECO, is relatively unknown internationally. However, both the certification and INTECO are held in high regard locally and within the Central American region, yielding respect for a certified company whose target markets exist in those regions. Starting next year, PROCOMER and MINAET will be working to promote the National Plan abroad and raise awareness of the certification's

strength, emphasizing that its core principles mirror those of internationally recognized standards.

As identified in section 2.3, the definitions for carbon neutrality also differ between PAS 2060 and the National Plan. PAS 2060 defines carbon neutrality in reference to an established base year, whereas INTE defines carbon neutrality on a year-to-year basis. Consequently, achieving carbon neutrality under INTE proves more demanding. Furthermore, INTE includes the requirement that only organizations accredited by ECA or internationally under ISO 14065 can perform the third party verifications and certifications. Conversely, PAS 2060 does not place constraints on acceptable third party certification companies. Despite the more stringent requirements involved in the National Plan, PAS 2060 is still viewed in higher esteem internationally. In an interview with Sr. Musmanni, the previous director of the CNP+L and one of the original developers of the National Plan, he emphasized that Costa Rican businesses can still use the National Plan abroad; but, the company must supplement the certification with additional explanation of its credibility. With the proper marketing, Sr. Musmanni expressed that the INTE certification could still carry respect internationally even though it is not automatically valued internationally at the same level as PAS 2060 certification.

4.3.2.2 Cost

Directly comparing the costs of PAS 2060 and the National Plan overall, the National Plan is the less expensive of the two. One of the primary cost differentials comes from the carbon credits used for the compensation portion of mitigation. In PAS 2060, the company must purchase internationally accredited carbon credits from the United Nations called Certified Emissions Reductions (CERs). These credits involve a more uniform approval process in order to minimize the error in calculating the carbon offset provided by a carbon neutrality project. Consequently, these CERs are more expensive and yield a poor cost-benefit ratio for smaller projects, such as with SMEs. While the National Plan allows the use of CERs for compensation, the certification includes additional options of Voluntary Emissions Reductions (VERs) and Unidades Costarricenses de Compensación (UCCs). In comparison to the CERs, VERs are more loosely regulated and therefore introduce a greater level of uncertainty; however, this difference allows them to be cheaper than the CERs. Constructed for the National Plan, the concept behind the UCCs involves creating a hybrid between the credibility of CERs and the lower cost of VERs

to allow for carbon credits that can be affordable for SMEs yet still carry the international validity. As outlined by Sr. Musmanni, the Costa Rican government aims to have the UCCs on the same level of integrity as the CERs in order to enable international interchangeability (Sergio Musmanni, personal communication, 19 November 2012).

In addition to the lower cost of the National Plan, the government can provide significant funding to SMEs pursuing the certification through a program under the MICIT. The program serves to further enable SMEs pursuing carbon neutrality as well as to promote certification under INTE, stimulating the national initiatives such as Costa Rica's goal of carbon neutrality by 2021 and the National Brand discussed in section 4.1.4. Therefore, this funding is not available to Costa Rican SMEs interested in pursuing the PAS 2060 standard.

4.4   Decision Tree

The following decision tree (see Figure 6 on the next page) was developed to assist Costa Rican SMEs in deciding which environmental certifications and standards will benefit them the most. The tree's main decision points were developed using the information gathered through background research and the interviews. Along with the decision tree, we created a supplemental list of factors for companies to consider while navigating the tree. The numbers on the list correspond to the numbers throughout the decision tree to direct companies to the most pertinent factors when considering the specific certification or decision point. All certifications that the company arrives at through their decisions are suggestions; the ultimate decision to pursue a certain certification or not falls on the company.
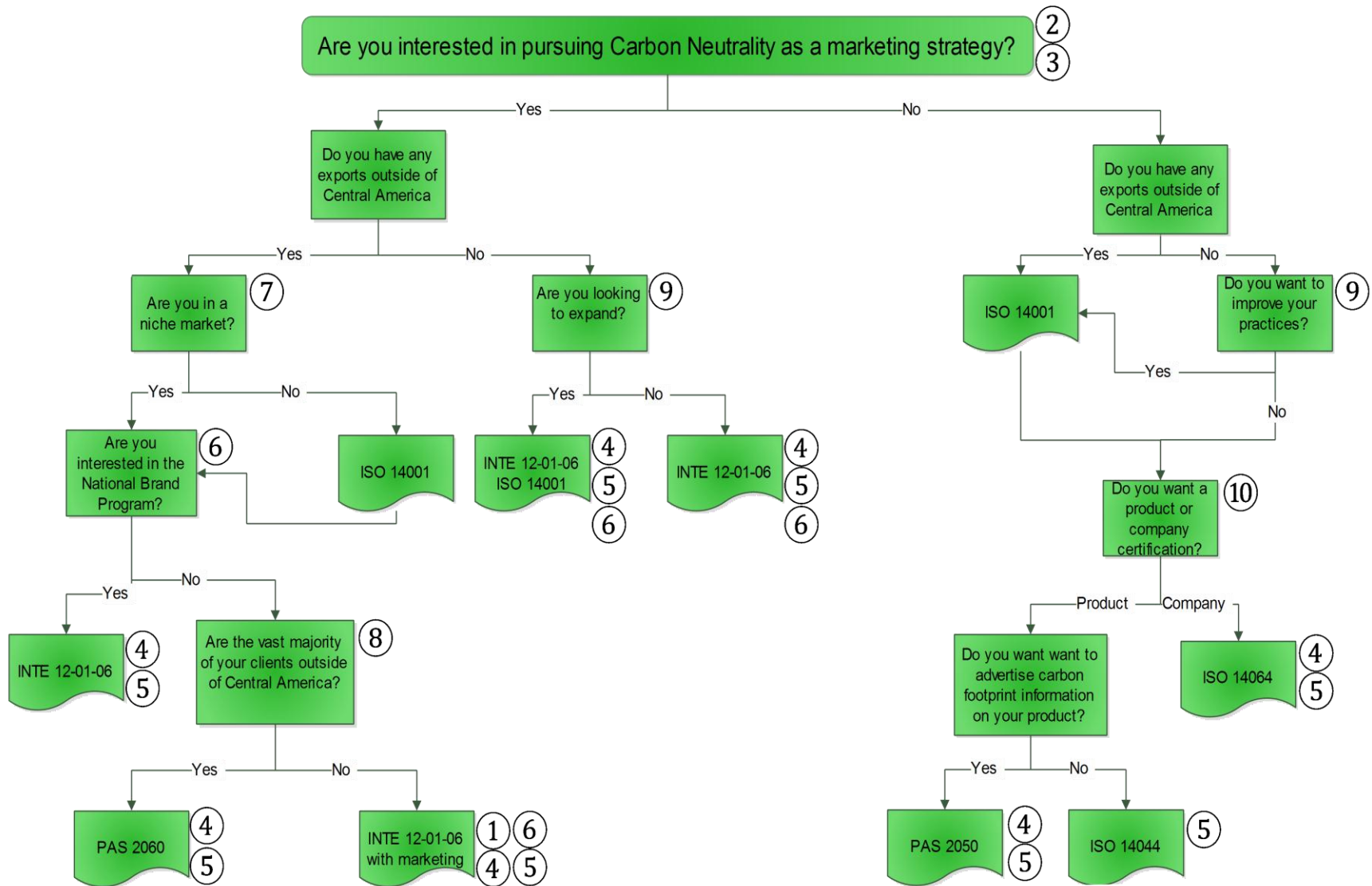
Figure 6: Decision Tree

1. Obtaining certifications in carbon neutrality has increased sales and market opportunities for some companies when properly marketed and maintained.

2. Prior market research is recommended to determine which certifications and certification companies are perceived as valuable.

3. The entire process of achieving carbon neutrality can take approximately 1 year due to the two steps of verification and certification.

4. Funding is available through the PROPYME Fund from MICIT for SMEs pursuing environmental certification, up to 80% of the costs. Other potential options for funding include "Banco de Desarrollo". Refer to comparison chart for standard-specific funding information.

5. Companies will need to be able to afford the maintenance of changes and yearly recertification costs independent of any funding.

6. In 2013, PROCOMER will be promoting the National Plan abroad. They will also be developing a National Brand Program, like that of Brazil or Peru, in which Costa Rican companies can participate and receive a seal to use for advertising.

7. Niche markets involve the sales of specialized products to a small, selective customer base. Therefore, ISO 14001 is not as necessary for competition.

8. This serves to direct companies primarily exporting outside of Central America toward PAS 2060, which is currently the most widely recognized international certification.

9. Ambitions to enter foreign markets often require ISO 14001 as an unofficial requirement to compete within the market. ISO 14001 guides companies toward implementing changes and improving energy efficiency in business practices as well as beginning mitigation and reduction of their environmental impact.

10. Product certifications must be separately conducted for each individual product. Company certifications apply to the business' overall practices and emissions.

4.4.1 Implementation of Tree

The tree is designed to be a tool that the CNP+L can use alongside the comparison chart to guide SMEs interested in pursuing certification. After gaining a general overview of the certifications from the comparison chart, companies will be able to navigate the tree with a greater knowledge base. The companies will then step through the tree by evaluating their

business situation against the various decision points. To support the companies as they choose their paths, certain decision and end points in the tree have numbers to direct companies' attention to specific facts on the supplemental list. The corresponding information serves to clarify a potential question or to provide an important consideration for the company to keep in mind when making their decision.   While the tree and supplemental list empower companies to drive their own decisions, the CNP+L will still work with the company as they choose their path. The additional consultation from the CNP+L during the decision process will provide support for specialized questions the company might have regarding their unique situation. By being available for aid but empowering the SME to direct the decisions, the CNP+L will also be able to clearly see the company's primary objectives and concerns. Consequently, the CNP+L will be able to more effectively guide the company through the actual certification process.

4.4.2   Limitations

While the tree provides aid to companies with support from the comparison chart and the supplemental list, companies may still have uncertainties outside the scope of the tools our team created. In particular, cost estimates for certification and verification processes were difficult to specify within the tree. All representatives from the certification companies as well as Sr. Perera commented that the factors associated with the costs are too variable from company to company for a numeric estimate to be accurately determined for use in the tree. Consequently, our tree and supplemental list could only incorporate points about funding information or cost factors to consider, rather than cost specifics. However, as mentioned in the previous section 4.4.1, the tools are intended to be used alongside guidance from the CNP+L which can provide more accurate cost estimates in order to accommodate for this limitation of the tree.

In addition, the tree only outlines six specific certifications and standards; however, as our interview with La Flor AgroIndustrias revealed, other options for certification exist. Several private companies around the world offer their own seals for carbon neutrality or environmentally friendly. Unlike the independently offered certifications, the standards and certifications included in the tree consist of those published by international bodies as well as those most pertinent to Costa Rican SMEs. Consequently, the tree is intended to simplify the decision process for SMEs by limiting the focus to those standards that are most likely to meet

their needs. A different independent or unaccredited certification could be an alternative option, if the company discovers through market research that it is desirable.

Another limitation of the tree comes from the inability to foresee the future developments of environmental certifications. Especially with the National Plan for Carbon Neutrality, PROCOMER's efforts in 2013 to debut their National Brand Program is expected to bring about changes in the international perception of Costa Rica. These changes may alter the perspective of the National Plan and would likely increase the benefits associated with it, especially with the development of a National Brand Program. Furthermore, the funding available for SMEs in the future serves as another variable likely to change. Much of the current funding comes from the PROPYME program through the MICIT which was established to help SMEs; but, the future capacity of the program is uncertain. According to Sr. Perera, the PROPYME program's budget next year is predicted to be a quarter of this year's budget.

4.4.3   Future Modifications

Given the limitations and likelihood of future changes, the tree has the flexibility to grow to accommodate these future changes. Since the decision points are designed to focus on individual companies' goals and unique situations, the tree stands relatively independent of the certifications the tree involves. As certification options change, the decision tree can accommodate those changes with the addition or alteration of branches based upon the effect the change poses to businesses. Consequently, the tree can incorporate the advents of new certifications or the shifting perspectives of existing ones. This adaptability will enable the CNP+L to maintain the tree through the upcoming changes with the National Plan and funding available for Costa Rican SMEs. Furthermore, with the increasing popularity of environmental certifications and the numerous variables involved in the Costa Rican environmental campaigns, the flexibility of the tree is an important factor in ensuring that the CNP+L will be able to continue to use the tree to guide SMEs.

5   Conclusion

Costa Rica has set a goal of becoming carbon neutral by the year 2021, a daunting task that would be unachievable without the participation of the private sector, specifically small- and medium-sized enterprises. Many standards and certifications exist which Costa Rican SMEs may pursue to show environmental awareness or to achieve carbon neutrality themselves; however, there is a lack of awareness among businesses about available certifications and their associated benefits. SMEs do not have information about these certifications and standards in an easily accessible or consolidated format. To provide a solution, our team developed a comparison chart and decision tree that companies will be able to use to further educate themselves and choose the most beneficial certifications for their company. To further support effective function of the tree, we used numbers to link a list of fundamental information about the certifications and standards to call attention to important points to consider while making decisions throughout the tree. Additionally, the CNP+L will work with the company as they walk through the tree to answer any unique, situational questions that may arise outside the coverage of the comparison chart and supplemental list.

Given the current global attitude of carbon consciousness and Costa Rica's promotion of the National Plan, both international and national markets will inevitably face change in the coming years. Especially with Costa Rica's 2013 campaign for the National Brand Program, the current perceptions of various certifications and standards upon which the decision tree is based, are likely to change. However, both the comparison chart and decision tree were created with consideration for future adaptions of new or changing views on certification. This flexibility enables the CNP+L to maintain the applicability of the tree and thereby continue to use these tools to guide SMEs toward beneficial choices of certifications or standards. With these tools in hand, the process of choosing the appropriate certification will be clarified for SMEs. By simplifying the process of selecting certifications, SMEs will be more apt to pursue environmental certifications. The resulting movement toward environmental impact awareness and reduction will consequently move Costa Rica one step closer to its goal of carbon neutrality by 2021.

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Credits for Figures

Figure 1: Flowchart illustrating processes of verification and certification.

Produced by this IQP team

Figure 2: Flow chart illustrating reorganization of ISO standards

http://www.springerlink.com.ezproxy.wpi.edu/content/r855123226ql2126/fulltext.pdf

Figure 3: A product label which shows carbon footprint data.

http://sciencemadefun.net/blog/?p=1834

Figure 4: Company logo for Coopedota, R.L. in Costa Rica

http://www.coopedota.com/

Figure 5: Methodology Flowchart

Produced by this IQP team

Figure 6: Decision Tree

Produced by this IQP team

Credits for Tables

Table 1: Global Warming Potentials (GWPs) for GHG Protocol Gases

http://www.fern.org/book/trading-carbon/box-2-difficulty-measuring-greenhouse-gases

Table 2: Summary of Interviews

Produced by this IQP team

Table 3: Summary of Group A Companies

Produced by this IQP team

Table 4: Summary of Group B Companies

Produced by this IQP team

Table 5: Summary of Group C Companies

Produced by this IQP team

Table 6: Comparison of Environmental Certifications and Standards

Produced by this IQP team

Appendices

Appendix A: Transcript of Interview with Manuel Gonzalez

(Interview conducted in English)

Do you mind if we record this?

No problem

I guess just to give you kind of a brief where we're coming from what we're looking for, not sure how much you did talk to Carlos but we're pretty much looking to find out more information about the different national and international certifications that companies have to achieve or go through and he forwarded us to you as a knowledgeable contact in those regards so, I mean first off if you have I guess a list of some of these certifications that you typically work with

Ok internationally when we were writing the standard for Costa Rica we did a search about what international standards there are regarding to GHG emissions, probably the most well-known standard in the world is the WRI GHG protocol.

Yes were familiar with GHG, ISO 14064

Parts 1, 2 and 3?

Yes

Also the Australian government has what they call the NCOS, which is the national carbon offset standard which you can access on the web. Another one, several countries, I'm going to talk about programs maybe later on, have programs, GHG programs and there are 2 PAS standards, one is the 2050 and the other one is the 2060. One is for carbon footprint for products and the other one is for organizations.

Ok, that's the 2060

That's the 2060 exactly. 2050 is pretty much available on the internet, 2060 is a bit more difficult to get, you have to pay for it.

Yeah that's what we had trouble finding it

Yeah

Because it's new

Yeah probably that, it hasn't been cracked yet. We did a review of all these standard because when we, when Costa Rica published the first national standard for a system to demonstrate carbon neutrality was in 2009, and then it was reviewed by the current government and then was republished again in 2011, so the first standard we published did not have the background did not have the background of this international standards yet so in the review of this standard in 2010 we already had those standards so we were able to look in to them and pretty much use their criteria to have a more international standard with more international criteria within ours and the standard itself it has basically the same structure and the same steps I would say that any other standard has which are you know determine your scope, determine your sources, your limits, your boundaries, and after that start collecting your data, making your calculations, using international references to any methodology that you have used or if you're using emissions factors, what is the reference of those emissions factors in case you're calculating your footprint that way. Then have a system to ensure your calculation and make your report that's basically what I mean standard regarding GHG.

And that's for sort of the first part of certification which is getting your inventory certified right?

Exactly getting your inventory certified or getting your inventory, your inventory could be 0 so you could be carbon neutral, so you could declare carbon neutrality. Costa Rican standard is particular in a way that has an equation that says that the sum of all your emissions minus your reductions minus your compensations should be equal to 0 in the report year. So if we're in 2011 or 2012, we'll be reporting 2012, and in 2011 if that equation is equal to 0 it will vary that then we can declare carbon neutrality for that organization. Within the limits of scope only. So this standard is not made for products, is not made for events is not made for persons that would like to declare themselves carbon neutral. Basically why organizations do this internationally I think is more for transparency is what they're looking for. When GHG protocol came along a lot of companies, corporate companies basically were making reports more in line with I would say GRI, are you familiar with global reporting initiative?

Yes

And a lot of them were reporting differently, so they would only report emissions of scope 1, are you familiar with that? Scope 1, 2 and 3? Scope 1 are direct emissions, scope 2 indirect and scope 3 other indirect emissions.

And that's in regard to the different operational and organizational boundaries

Yes direct are more like the emissions from combustion, either mobile or not mobile like if you have a boiler or if you have a fleet, those emissions should be on your inventory. Scope 2 is mainly emissions that are done elsewhere like electricity, power mainly that you require for your operation but you do not emit them directly.

So sort of upstream things like the production of cardboard boxes if you use cardboard for packaging?

No, that would be third scope, that would be other type of emissions which is taking the value change of your products like if you take into account for example the commuting of your employees then you would include that or not. Mainly companies that are related to services will have more scope 3 than others. If you're in a factory mainly scope 1 and 2 are going to be your main emissions, and those are required to be reported on the standard. So basically we follow the same criteria of those international protocols on Costa Rican national standard for declaring carbon neutrality and I was saying that most of companies are doing this for transparency, and I just read on twitter that the British stock market for next year is going to require all reporting companies on the stock market that they have to report their emissions as well as a requirement to trade stocks.

That's impressive, wow

So you see how this is becoming more a legal. I see carbon as lead many years ago, it is becoming like hazardous, even though we breathe it. It is becoming hazardous.

People are really taking care to look at it more carefully

Exactly and in French second amendment of their environmental law, it is going to also require companies to report their emissions. Basically for us for Latin-American countries there's going to be a trade barrier if we don't quickly have the tools to do the correct measurements of emissions on products that we export because they're going to ask us, they would like to know how many grams we emit per banana or per pineapple or per pound of coffee that we export.

And so for these international markets, which Carlos has expressed to us he's interested in looking at one thing he's unsure about and wanted us to investigate is how the Costa Rican National standard is viewed on an international level, so by the British stock market or by the French market, whether they see it as valuable as a different international standard like ISO or something.

It will be seen differently and they probably will not have, what's the word, they might not, it might not seem reliable to them perhaps, because they don't know it, and perhaps they don't know the efforts that we're doing.

Right that's what Carlos mentioned to us, that was his concern. They're monitored every year and people can check that, but they might not know how to check the Costa Rican standard and see if they're actually doing anything.

The thing is this, I remember three years ago we went to the office of the our foreign trade minister and told them about the project, that we wanted a Costa Rican standard for carbon neutrality, and the whole idea of this standard is that Costa Rica will be more competitive in international market and our progress will be more recognized so we asked them if it would be possible that Costa Rica goes to international fairs for international trading and products so one of the ideas is that in one of the tents of these international fairs instead of having pineapple, bananas, tourism, such and such products, we'll have a product of the national standard for carbon neutrality will be a product. So international clients or possible buyers of our products would recognize that lets say seal or that effort. Usually for developing countries like us the standards come from developed countries and they tell us what we should meet what we should comply with. Is never the other way around, like we're saying: "hey we're complying with this standard that we have developed and is part of country's strategy for a low carbon economy and we're demonstrating that this and this company have achieved carbon neutrality or they're a low emission organization due to their processes or due to the effort that they're doing", but is very difficult to sell; that is very complicated concept.

To have this seal or this specification as a product

Exactly but the whole thing is complex to explain to a customer. How you explain that in one line, but if you see an ad of an iPhone you know what it is and you know if you want it or not but no this concept this concept is very complex.

So part of our project overall is helping these companies that might be interested in exporting to foreign markets choose between either pursuing an international certification or pursuing the national standard. So what in your mind what are sort of the pros and cons between the Costa Rican national standard and various international certifications in regards to a company that is looking to expand to foreign markets?

Ok, let's say this will very much depend on the market the company is aiming to sell their products. Costa Rica's example of Coopedota. Coopedota did an international certification with PAS 2050 and 2060, and I guess their decision because they're exporting their coffee to Europe and this is a British standard that will be reliable to them. So that was their decision. Right now this year has been a turmoil of companies wanting to be certified or verified and the phone rings every 5 minutes and "we are interested can you offer us this service, we want this we want that" and it's been a lot of work. That has been basically for national, I would say basically because of image, reputation at a local level. However, we're dealing right now with a big issue, a lot of companies in the Caribbean are dedicated to banana production and we have big companies asking us exactly the same questions, we want, we're not sure, what about this standard, will it be recognized in Europe? And those are questions we cannot answer; I don't have an answer for that I think it very much depends on what their clients will think about these standards. It would be interesting, very difficult, I don't know if there would be a way to do that, but it will be very interesting to know if we could ask directly, or if we could take a sample of possible buyers of bananas, pineapples or whatever, exports that we have internationally, and ask them directly, "look Costa Rica has this national standard that requires such and such practices and companies that comply with, are demonstrating that they are low carbon enterprise would you recognize that or not. And I think that the answer for that especially for export products will be the development of or the verification of, not of carbon neutrality or not the usage of GHG protocol, but the usage of a standard for products or for labeling, and there's one, ISO 14067, or PAS 2050, so in that way you incorporate life cycle analysis, and if you incorporate life cycle analysis, you have the whole value chain and you can claim that that product, that box of bananas or that pound of pineapple emitted x amount of CO_2 during the whole value chain.

You think those would be more popular?

More suitable for export products, because they… Think as a customer:

What would make more sense to them?

If you go to the supermarket, you probably understand a green seal when you see it, but with this standard, first of all, you cannot put anything on the product, because it regards the company not the product.

Would you be able to put something that says that the company that made this is carbon neutral?

You can do that but not on packaging, you can do that only on promotional material on your webpage or an ad in a magazine and stuff like that. But not on the product.

So in that regard, I think some of the companies Carlos is looking for us to work with, are pursuing, one company is a small coffee company and the other is a metal supplier. So a company that might be pursuing an organizational certification because they're more of a bulk supplier rather than selling you know, individual like bananas or coffee. They're more of a supplier so they're not boiling down to the individual consumer, would the national standard be more applicable to them?

I think so, I think for both because Costa Rica is considering the development of a local market, for emission trading. So if that market evolves and next year we have sort of a cap and trade system in Costa Rica, then we'll have let's say companies that have a very large carbon footprint and they would like to compensate that, they could go to that local market and buy let's say compensation. So in that cap and trade local market, we could have then a cash flow of emission trading but also a cash flow of money for companies and then that could be an incentive. The idea is that that will be an incentive.

Is that something that's being developed now? Is there, a target date that they'd like to implement that?

I think that will be for the first quarter of 2013. You can write down Marionella Feoli, she is the lead consultant of the project for the climate change department.

How do you spell that last name?

Feoli? F-E-O-L-I. She Works for Fundecooperacion, I'm pretty sure Carlos knows. He can help with the contact. Maybe you can interview her about a possible market…

Carbon Emissions Market

Exactly

You believe that companies, would then export companies be able, even though they are exporting elsewhere, if they were to pursue the national certification would they be able to participate in this local emissions market?

Yeah, why not?

So that would be a further incentive, even though they're exporters

Exactly

Would this be something that is mandated to every company, like every company has a limit on how much they can emit?

No, we're not annex 1 Kyoto Protocol, that's only for Annex 1 countries of the protocol. That right now is voluntary however, Costa Rica set a target of becoming carbon neutral in 2021, so it will depend very much on policymakers and decisions that they might take in the future, if they really believe in this and want to pursue it, there could be a political decision of making this regulatory instead of voluntary. If they do so, then the whole system will become regulatory and then there will be a requirement of companies to report, to reduce or to become carbon neutral within x amount of year.

So this standard could kind of go that way in a few years?

Could.

Depends on how much is produced at that time?

Right now, is voluntary. My opinion is that the main drive for companies is reputation at the local level. And especially export companies have been asking for that standard. But they have been asking for that international recognition, because, and it's completely understandable, if they're selling their products in international markets they would like to be more competitive because they comply with this standard. "Why should I comply with something that's not going to benefit me?"

Right, so you see that in an international market with both products and suppliers, that this national standard doesn't exactly hold value. Or I mean you did mention before that with products it's tough because you can't mention it, but for supply companies that you know, if they're selling to another group before it goes to the user, do you think that that would be something?

Maybe, it happens a lot with ISO standards here, like a lot of companies that have certain value added to some material, let's say raw material that goes to export and then the next company does the final and sells it to international markets, might work because these companies for example, a lot of components are made here, these companies are asked to comply with ISO 9001, you have to comply with ISO 14001. Even though they're not the final sellers, they have to comply with.

So because the national standard can involve those ISO standards it might be recognized because ISO standards are what the markets are looking for anyways right? So because the Costa Rican national standard includes something like the ISO standards, that part of will be recognized by foreign markets?

Let's see, the parts of the ISO standards that are within the Costa Rican standard are the ones that have to do with methodologies and calculations. No ISO standard requires, or has a requirements or specifications to achieve carbon neutrality.

It's just the inventory part and not mitigation

Exactly so that makes it unique. That's a difference

And that's in the ISO ones you said

Exactly, now talking about the recognition and all that, I think that the market and final users or the general population needs a component of education in this. For a couple years I've done this with working students from business master's program. We were doing a canopy tour, and the bus says that "complete carbon offset" and it has a seal and you know. So we're on a services business and I asked thirty of them, how many of you saw that this bus that we're in has a seal that says it's 100% carbon offset? 2. How many of you would take the decision of purchasing this canopy tour because this one is 100% carbon offset, or this canopy tour that has three more lines and is more thrilling, which one would you choose, if the price is the same? Very easy decision, don't lie. So that part, to make the standard more competitive it needs to have one more drive, one more benefit for companies, because I don't see the consumers taking decisions that will rely on the environmental performance of a product. The only place that I've seen that is in the Scandinavian countries with the green swan seal. Are you familiar with ecolate?

I don't think so

It is environmental product declarations

I don't think our research covered that

The Scandinavian countries are on the top of the line on taking decisions. I went to several supermarkets in Sweden and consumers are like turning around the product to see if they have the seal or not. If they have the seal they buy it, if not they don't buy it. In certain markets is extremely important, is a very important drive for consumers' decisions. But I think that has a legacy of education of many many years on the population so they would know how to choose things. So I think that would be another component to make this whole network of things working.

Do you think, when you mentioned earlier that the British stock market announced that they're going to have to report emissions, will companies that have achieved the national standard, even exporting to Europe, will they have an easier time? Or they probably will have an easier time adjusting to that new requirement right? So that would give them some bit of an advantage.

I would say readiness could be a drive, if you think about it they will be more prepared, so the concept of readiness that will be one important companies. And one thing that we will use to sell the idea of doing this: you'll be ready for if it happens.

And do you think that a company certification like that especially if the company is a supplier to the European markets, supplier in the way of not direct products, with this change whether the Costa Rican national standard will become more valuable because these companies already have their inventory and everything and with this change.

I think it will fit right away, because they will have it. So it definitely should fit right away

So do you see any potential for the international view of the Costa Rican standard improving as a result of that, let's say in 2013, 14, 15?

That will be of a great impact, let's say in the news: "Coca-Cola company adopts Costa Rican standard for carbon neutrality", then I will have to hire a whole crew of engineers to start doing verifications. Definitely. I think that's a very strategic question for a small company like us, if we strategically foresee how we can do that, it will be definitely a benefit for ourselves. A minute ago I was reviewing, let me show you this. This is the webpage of MINAET which is ministry of environment, and this scheme is pretty much how a company can get certification, so it basically says that this is the organization, they need to verify their inventory or declare carbon neutrality, there has to be an OVV which is a verification validation organization, or a registry like us, that as a 3rd party, verifies all this and then they can get with the requisites of the MINAET, their carbon neutrality. Now regarding your question, let's say you are a company that is competing in the local market, when you see that these companies with those names have achieved that, wouldn't you like to be there. On our behalf as INTECO, we're the ones that did all that; we did the verifications of all those companies, so you have international companies like Intel components, like Holcim.

That have pursued the national certification?

All of this, we did their inventory; we did the verification of their inventories. In the case of small companies like Florex and Travel Excellence, they probably very soon will have their certificates of carbon neutrality.

Through the national standard?

National standard, so they will be carbon neutral so they could get the seal of the country.

Now companies that are more internationally recognized like Intel and Bridgestone, you just verified their inventory but they haven't pursued any other certification beyond that?

Their emissions are probably really high, so it would be very expensive to cap and trade for them right? So they have a more long term strategy like, doing the reductions and mitigation within four or five years.

So a lot of them are making plans to do mitigation, they haven't completed it yet

Exactly, yeah. Are you familiar with carbon trust?

Yes

You can just put carbon trust and Google it. Carbon trust is probably one of the most well-known companies that has been working with certifications of carbon footprints and stuff like that. They just approved an international methodology for cement companies, specifically for Holcim, to go worldwide, but they are going to do probably is that next time you a buy a bag of cement, you would know how many grams of CO_2 have been emitted per bag. So they're working on that. In terms of big companies like cement industry, they're working on that.

Were they one of the main backers of ISO 14064?

Yes

Ok, that's where I've heard the name before then. Are there any other companies, to backtrack here a little bit, are there any larger companies like Holcim that have gone through the inventory process and certification process and that have the national seal that could provide that publicity.

There are many which are right now in process, which we cannot reveal, but there are many more. And actually our strategy for next year has a lot to do with this, because this is a very growing market right now.

So I guess what would be interesting to hear from you at this point, is to let you know what we're looking to wrap all this up in. We're looking to present either a road map or decision-tree type tool that these SMEs can use to choose either whether they want to pursue a national certification or an international certification, so we're really looking to gauge the pros and cons and be able to help them sort of pick and choose. Because Carlos has expressed to us you know, CNP+L will work with companies, help them, but the hardest thing is a lot of companies don't know which path to go, or like you mentioned, are interested in the national standard but are unsure if it's going to amount to any benefits in the long run, specifically in their markets.

Perhaps if you could, at the end of your project, could establish a set of criteria for that decision in which you could do like a matrix regarding the market that they are into, regarding the cost of the international versus national certifications, regarding the let's say the publicity or recognition that they could have, and you could set up certain criteria from something basic, from 1-3, and you put the criteria. Then you can have at least a small tool for them to take decisions. I cannot think right now of others, but you probably in these weeks will have more idea as to what other criteria you could add to that decision making. Because I think that for local companies, carbon neutrality probably would be more important, and more companies that are dealing with big corporate companies internationally, perhaps inventory verification complying with 14064 part 1, will be enough, basically because many of these companies at some point their markets are going to ask for that. They're going to ask, "Hey, how much are you emitting?" and then they will start making their data. "I have a company in Costa Rica that's producing for me, but I don't know how much they emit" or "I have this in Uruguay and I don't know how much they emit" "I need those data, I need a 3rd party" perhaps we'll be one.

You mentioned cost; can you give us any specifics about cost?

For SMEs, I have 2 examples of SMEs, the cost of the year is I think is less than $3000 per year, which if you take an employee that you pay $300 a month, which is a very low salary.

So is that cost for offset?

That cost is for verification

Verification of any?

I would say for a footprint or inventory of companies that usually have emissions that are less than one thousand tons a year. From 1,000 to 10,000 tons, it takes more time, or the 10,000 tons to 100,000 tons, more. And over the 100,000 tons, more.

So it's different depending on emissions?

Yes, but SMEs are usually in that first category

And for footprint inventory anything that's just less than that

Yeah, usually and SMEs are within that range

And is there any differing cost between if they're pursuing the national standard

Pretty much the same, so cost should not be a problem. The difference is this, let's say I would choose and international certifier, I'd like BSI, British Standards, I want them to come here and verify my inventory. Their cost could be probably, I don't know, over $15,000, $20,000 a year.

Much more expensive than having INTECO do it

Exactly

When would an international certifier be necessary?

It's like when you graduate, it's the same if you graduated from Harvard or if you graduated the Universidad de whatever, it could be part of a strategy of image.

The British Standards is much more well-known internationally

Exactly

But INTECO, you're still qualified to certify all the same

Yeah

Do you know approximately, what the income of an SME would be, in relation to, it's like $3000 for a, whether or not they can afford that fee year after year.

I understand that for some of them. If I had my own SME, would I pay $3000 a year for that? Only if I received something, like if you tell me that my sales are going to double because customers will, then I will do that. For example, the seal that I told you, the green swan, does not have a fixed cost for their services. The only charge are royalty on their increase in sales. That's how they charge. You show me

your accounting, you're selling right now let's say $100,000 a year, if you get the seal, and your sales increase by 50%, then I'll charge 20% of that, of the increase. That's how recognized those seals are.

A better way of ensuring that you'll get money

That you'll get benefit

Do you have any suggestions for where we might find some of those statistics or data based on what companies have been certified, what benefits they might have seen from their certifications?

Perhaps you can, on this page. You can ask them what the benefits, and why they are doing this and that. For example, Travel Excellence, the small travel agent, his owner told me that he needs that because, you know that travel agencies assist to international trade markets all over the world to attract more clients, over what they call wholesalers. They have a wholesaler, which is international that told him I'll give you this accounts if you become carbon neutral, with the Costa Rican standard. So that certification is going to provide a large increase in their sales.

So I think part of our you know final thing which the road map decisions tree that I mentioned will be presenting to the company the relative benefits of if they were to choose the national standard from speaking it seems like it's one of those thing like it could be really valuable if the stars align.

Yeah, now regarding international be careful because none of the ISO standards are designed to be certified

Could you explain that a little more?

The ISO standards which are made for certification are for systems for conformity assessment like ISO 9001, ISO 14001 Security Information 17011 and such and such so they're made for system. So if you have the certification organization has to meet requirements and demonstrate competence to develop audits upon those standards. ISO 14000 parts 1 2 and 3 were not designed to be certified, they are standards part 1 is the standard for quantification, emissions and guidance. Standard 2 is for projects and guidance. And 3 is for third party verification. They were basically made as a big guide for Kyoto Protocol, and companies could use them especially if they're going to submit projects on the CDMs, mechanisms are you familiar with that? Clean development mechanisms?

Yes

For Kyoto Protocol so they will use 14064 part 2 to demonstrate that, and then a third party will have to develop a verification which is based on 14064 part 3 and be accredited by 14065 and then be registered at United Nations. It's a whole scheme, made for that, for the cap and trade system of the certified emissions reductions of United Nations.

So it's a very long process?

It's a very long and expensive process

A company that is looking to become, I guess certified or whatever, compliant with ISO. It would in the end take more money, more time, than if they were to pursue the national standard.

Of course, much more. Lots more. And at the end, you cannot say I declare conformity with 64 part 1… so what does it mean?

It just means that you inventory stuff right, it doesn't have an account on it right?

In terms of verification, we don't certify, what we do is that at the end you don't get a certificate, you get a declaration

That says this is true?

Yeah, like an accounting declaration, let me show you one

Just as a brief question to connect dots you mentioned before a sort of declaration like that might be advantageous to bigger companies with the European market changes requiring that because although they don't have a certification, they will have a declaration that says this inventory is accurate.

Exactly, that's what we say about it. That's what a declaration is. I cannot connect to the server right now

No problem, we understand internet problems. In our background research we came across an environmental manage certificate that INTECO provides, does that play into any of this, is that part of a national standard, is it just separate?

Well for management, for environmental management systems, we use 14001. However for the carbon neutrality there's certain requirements that have requisites of having a system, so we do check on certain

requirements for that. Basically on the support of the data that the company is using to declare their emissions.

Um so to put everything in kind of one basket which is essentially what Carlos is asking us to do in comparing these. A company's decision on what they'll pursue is very dependent on whether they're selling a product or whether they're a supplier right? Or that's one factor.

That's one factor, the other factor that I think is important is, I don't know how to explain this but I don't think because you have to keep clear that the inventory will not be certified, you will only get declaration.

Right

So it's like when PwC, Pricewater House Corporation audits your accounting right? And it's a requirement because a third party is saying what you're declaring to the government in terms of your revenues is correct, that's also very important to take that decisions. That's what you're getting.

And if a company, that's all they need, that would be their best decision

Its transparency

Whereas a smaller company that's looking to get the advantage of maybe we are carbon neutral or is maybe looking to pursue the national standard in a way of making the investment in it that down the road it could be more valuable. That would be a better choice for a smaller company where the costs of that are going to be low. There's no sense in them pursuing and ISO declaration because their costs are better spent in pursuing a full certification.

Exactly one more thing when we do the certification we also do that verification of their inventory. So you get like a combo, you get both at the same time, and the cost is pretty much the same.

So smaller SMEs can go right for certification and don't have to do the two steps

They will have to, but we do it within the same process

So it's cheaper and faster for SMEs to do it versus larger companies

Exactly, larger companies are asking us to do their third party verification inventory

And that's it?

Exactly, small companies are asking us or middle companies are asking us "hey I think I can be carbon neutral, can you certify that?" This is the first level of the decision right? The next level of decision is the recognition internationally. One decision could be I want that certification to be done by INTECO, or I want that to be done by BSI, and why and how much it costs and what are my benefits?

Would there be any benefit to pursuing the national standard, but then having somebody making the investment in BSI.

Yeah some companies might say that, like hey I want a declaration of carbon neutrality, but I want it not by INTECO, I want it by…

Ok, but that would be much much more costly and more costly for a few years

Exactly, yeah

And just to compare sorts of things, companies that are looking saying hey we can be carbon neutral, their options are PAS 2060 and the national standard right? Those are 2 of the comparisons?

Exactly

What do you see the pros and cons between those two since they're the most directly related

The 2060 is, I don't want to talk bad about the British but is very tricky and has like many levels of different claims; our standard only has one way of claiming that. 2060 is assigned for anything even for individuals; you can declare yourself as carbon neutral. But it has very different claims regarding the scope and the claim and you can say this or that. Their definition of carbon neutrality is that there are no net changes on their emissions from the base year. So that's extremely tricky you know why. So that means if in my base year I'm emitting 10,000 tons and in my reporting year, let's say that was in 2009, but my reporting year for carbon neutrality, reporting 11,000 I only have to reduce and compensate 1,000.

So all that one does is say that they remain at the same level and they're not actually reducing beyond that

Exactly, check that one, check the 2060

Well isn't that still carbon neutral

Yeah

Its carbon neutral but it's still producing a lot of carbon

From a base year, that's your base

It's not referring to zero its referencing to that

That means that your base year you can use it as, you don't have to compensate and reduce on that, you only have to compensate and reduce on, and I guess the concept comes from the Kyoto protocol, because…

There's a base year

As a base year that was set in 1997 when the protocol was started they would say ok you are developed country you are emitting such and such this is your limit. You cannot emit more than that during the next twenty years.

So they're not compensating for anything they've done, they're just not doing more, they're just not getting worse

Exactly

So it's like that formula Carlos showed us where your emissions minus your reductions minus your compensation would equal your base year

Yeah, in the case of us it's from your reporting year

So at the end of that equation it would be minus base year equals zero

Exactly so every year you would have to show it equals zero on all your emissions

Alright thank you so much for your time this has been absolutely fabulous

Yes well you have my mail, when you have the final paper I want to see it

Thank you.

You're welcome

Appendix B: Transcript of Interview with Andrea San Gil

(Interview conducted in English)
Is it okay if we record this?

It's okay.

Okay.

So if you can maybe tell me, well Akira, the people in the Clean Production department sort of told me what the project you have, but maybe it's better if you explain it.

Yes. So overall we're looking, the CNPL would like us to, sort of gather a bunch of information about various international or national certifications regarding environmental initiatives, emissions reduction, and create a tool that business can use to decide which certification might be most beneficial to them depending on their target market areas, their products types. So, some of our background research is just finding out more about the different reputations of the certifications and how they play on a larger scale.

We're talking about certifications in Costa Rica? Or…

Both. So specifically we're looking into the national carbon neutrality plan, as well as ISO 14064, 14001, 14044…

Which one is 1444?

Oh, 14044, it's the Life Cycle one, and the PAS 2050 and 2060.

Here, we've worked mostly with the 14064 and 14001, because 14001 is the oldest one, practically, and it's the most widely applied right now. A lot of, especially big companies have it, just to manage their environmental impacts and all this. Not a lot of small companies have it since the certification's kind of expensive, so they don't use that. There's other environmental certifications, well it's not a certification, it's like a prize or something, have you seen the Bandera Ecológica, the ecologic flag?

No.

It's a sort of a certification, it's given by the Ministry of Environment, MINAET, with Productos…. The water department, they created this certification program that's sort of like 14001 but lighter. It involves more action-oriented, it involves percentages even. You have to reduce your water consumption by 5% each year. It's actually under revision because some things like that, first couple of years it's easy to comply with…

But as you get further…

As you improve your efficiency you can't reduce much more, so it's being looked into. That certification has been very widely accepted. It started as a beach certification, so if the beach was clean and there's a committee to avoid having a lot of garbage and the water quality, they did like tests to the water, all these things, and they gave you a blue flag. They made it for communities, then they did it for schools, now they're doing it even for houses. It has different specifications for community, then there's one for climate change. That's an interesting one and it's more popular because it's more accessible, it's practically you get it if you're entering with things, you don't have to pay, so it's nice.

When you say it's widely recognized and popular, is that just within Costa Rica?

Basically yes, I'm not sure about recognition outside, I haven't looked into that much, but here you can ask anyone and most people know about Bandera Azul. You see it on the beaches. But because of the beaches it's gotten a little like, people don't trust it as much because a lot of beaches are really dirty and full of garbage, and they have a flag. So, it's hard to maintain. There's also a tourism certification, have you run into that one?

No, we're mainly dealing with the ones, the certifications pertaining to low carbon products, carbon neutrality because the companies we're looking to work with are currently very small to medium sized companies marketing products that are low carbon. Some of them are exporting to Europe and the US.

So actually this blue flag, they have the climate change category, there's an association, a group of companies. There's a program in which the companies start with blue flag because it's lighter and it gets you started reporting and keeping track of everything, and then they migrate into the GHG Protocol, and they start applying for GHG Protocol and doing their GHG inventories, and reducing and everything. It's a very good methodology for doing it like that. Then the ones who are more advanced can help the smaller companies. I think it's a very good methodology, I don't know if maybe you could talk to the guy who's in charge of the program.   Manfred Kopper

Could you maybe spell that..?

Man, as in man, fred, and then it's like copper but with a K.

Okay

Maybe I can give you his number. So, well, then, if they have the GHG Protocol then they can get verified, that's where we come in.

Right.

ECA is like, I don't know if you guys are familiar with ANSI in the US?

Yes.

We're the ANSI here, so we accredit the bodies that are going to go verify and certify the companies, so we have certification bodies for 14001, we have verification bodies for 14064 part 1 and part 2. There's a national program that says in order to get the MINAET brand for carbon neutral you have to get verified, and then there's a national standard that says how to demonstrate your carbon neutrality, instead of using PAS or, it's very based on 14064 part 1 and PAS, it's like a sort of hybrid. So if you get verified, if your inventory gets verified and you can certify your carbon neutrality, you can get the brand. They're working on making the brand globally recognized.

Yeah, that was a concern, we met with Manuel Gonzalez of INTECO, so he spoke about that.

Yes, he's actually been very much involved in all of this, and he's one of the people who knows more about the verification part. And it's a thing, companies have to go through a lot of work and then pay a verification body and a certification body, and if the brand doesn't mean anything outside the country then it's not worth it.

Is there a certain group or organization that's working on getting that Costa Rican standard well known outside of Costa Rica?

Actually the Ministry of Environment, it's working a lot with that, actually the brand does not exist yet, they're gonna make it public, like market it starting from next year. And we, ECA, we're gonna help with the Ministry of Environment to market it inside the country too, to create brand awareness and make the consumers recognize it. The thing is the brand can't be placed on products, because it's…

Right.

So it's gonna be really hard for consumers to remember which companies have the brand. So if they're in the supermarket and they say, "I want to support the companies that have the brand" they have to remember which ones they were.

It's only allowed in advertisements.

Mhm

Why is it that you can't make a logo that says, it follows…

There is going to be the logo, however it's very different to calculate your emissions as a company than to analyze emissions for a product, because the product involves all the whole life cycle assessment.

So it kind of falls to put it on the product?

Exactly, because the product isn't carbon neutral, but the company can be. It started with companies because it's easier. So if you start with your company and you get the hang of reporting emissions and quantifying emissions, then maybe it will be easier to get into a product LCA and certification.

Can they do anything that says like whatever company, like is a carbon neutral company.

I wish they could, but ISO doesn't allow it.

OK.

It could make the consumer confused if they don't know what it means, so they don't allow it even in the boxes. They used to allow it in the boxes and packaging, but now they don't allow it at all. So it's kind of hard, we have to create the brand awareness on the radio and TV, or maybe like, I don't know, like some signs or something in the supermarket like "Remember what companies that are certified are these" or something. But to help them, because we want, the more companies involved in this the better, that's one thing. There's also an institution called PROCOMER, they promote commerce.

And they promote exports.

Exactly, and they have work, they're developing the national brand, it's gonna be the actually, like Peru has it, Ecuador has it, Colombia has it, I think Philippines has it. There's a lot of countries who've created a national brand to promote themselves internationally. And Costa Rican brand has four axes and one of them is sustainability, so they ask for companies to have certain brands, certain certifications or recognitions, and if you have Bandera Ecologica you get some points, if you have 14001 certification you get some points, if you have carbon neutral you get more points. It's gonna be, it's gonna set a bar so companies will start to acquire these certifications hopefully, so they can have the country brand, and these guys are gonna be the ones who are gonna promote it everywhere. That's a good thing to know.

Yeah. And as far as timeline wise, when they see some of these things starting to come into formation?

Practically next year. We're gonna start with brand awareness campaign next year, actually working with publicity firms and with the Ministry of Environment to get together with them and see how we can create brand awareness without putting the brand on the products, the logo. And we're supposed to start next year, and PROCOMER I think they're gonna do the national brand launching or whatever next year and they're gonna do events outside of Costa Rica and inside of Costa Rica. They prefer to start inside because the national brand involves a lot more than just sustainability and quality and respect, and people inside of Costa Rica have to own it and to believe in it and if it's like "Oh yeah, we're so good and we have all of this" and actually right now the mood in Costa Rica everyone's kind of frustrated with the government and all these things, so we have to own it and the brand really has to reflect what the country is, so we have to start doing some campaign and improving a lot of things. In PROCOMER, the deal is if you get the national brand, you get to use it if you pay a license. But that payment comes back to you in benefits, for example you can participate in trainings or you can get someone, consulters to help you in the things you're not very strong with yet, so if you're very good in quality, if your product is really high quality but it's not that sustainable you can get help to improve your sustainability ratings.

Is that if you pay for the national brand?

Yeah. It's all getting connected that way. I'm not sure, the Ministry of Environment is the one who's pushing that carbon neutral brand, but they have, it's like three people in the Climate Change Department they have to manage all this, and there's the product certification that's online there, to get implemented so, I think the most promotion part is gonna be PROCOMER.

And what, I know you mentioned like it's sort of a point based system, so what are some the factors that will play into this sort of, if companies want to get this brand name, what sorts of hoops would they have to jump through basically?

It's basically certification, or recognitions, for example there's Premio de Excelencia, it's from the Chamber of Industries, it's like a prize for companies that are excellent, and it's quality sustainability. It integrates different subjects and that could be one of the points for you to be able to get into the national brand. But also they're gonna start maybe not that, it's not gonna be that difficult to get into, but it's gonna be sort of difficult, and they're gonna be raising the bar each year.

Okay. And will it incorporate some of the ISO protocols?

Yeah, actually I have a list, I'm gonna see if I can find it…. I couldn't find it, it's a list of for example, for sustainability, all the certifications or recognitions or whatever that they have found, and that they could say if you have this, okay; you could ask for it from them, it's Carolina Leñero, it's the girl in PROCOMER.

Could you spell that last name?

It's L-e-ñ-e-r-o.

Even if you find the list later too, you have our contact information, you can send it to us later.

The list was written by her, it's only one of the four pillars, or things that they have, so better for her to send you what the requirements are for each one.

Do you mind if and when we do contact her, just letting her know that we were given her contact through you, so she's not like "Who is this?"

Of course, I can even write to her if you want.

That would be awesome if you could do that.

Yeah, it's basically that, I think the next step is product certification. I'm actually leaving next Friday for scholarship in Israel, and I'm gonna take eco-labeling project to see if we can develop it there and get some grants or something, because right now, the confusion, if you go to the supermarket you find a ton of products that say GREEN, Environmentally Friendly, so there's a lot of green-washing, and there's lot of auto declarations. A lot of consumers want to be greener, but they don't know which ones are green and which ones are green washed, and which ones are just plain scams. So, we're gonna try to establish

an eco-labeling scheme where if the product is certified according to certain requirements you can get the eco label and it's gonna be like the official label you can trust and not be confused by the other ones. But that's, I don't know in how many years we'll be able to have the logo and label and everything. That's a project that we developed with PROCOMER because they want that, so if companies pay for the national brand license, that they can get the eco label, and all of the national brand products have eco-labeling so they can get to markets outside of Costa Rica, she says the most of the products, the problem that they have is first the packaging is really ugly. It's not attractive outside of the country, and also labeling is really bad. We have terrible problems labeling, and we don't have eco-labeling at all. So if Europe asks for low carbon products, we have to be able to demonstrate it in a reliable way, for it to be recognized, so that's why it's really important for products to have this labeling.

So right now there's no eco-labeling at all for export products?

No, there's a lot of products that do declarations that say "our product is totally organic".

But there's no registered sort of…

No, it was the same with carbon before but now there's game rules. We don't have any game rules for labeling and environmental declarations, it's all green right now and everyone says whatever they like, so we're trying to get that in order.

As far as some of the questions we're looking to help companies with, some of the companies that we are working with, one is pursuing carbon neutrality, but is a little hesitant on whether the national standard will get them international recognition. Others are just beginning their inventory process. So, from your standpoint, what would sort of be good options for either companies just starting up, and by just starting up I mean just starting the inventory process, and others who are kind of more along the way, maybe looking towards that carbon neutrality is achievable for their company?

If they are just starting up, our national program is set by international standards, so they're safe there. They can use either the ISO standard, or the GHG Protocol, either of those is internationally recognized and widely used, so there won't be any conflict there. But if they're pursuing carbon neutrality, and they're not sure if the national brand is gonna be recognized, I'd go and ask my clients if it's gonna be recognized. For example, there's a coffee brand here, Coopedota.

Yes, we did a lot of research on them.

They got the certification, and actually they got certified by Carbon Clear, which is not even accredited. It's a very well-known certification body and everything, but it's not accredited. But their clients will recognize it, so it's great for them.

Is it an international organization that's not accredited in Costa Rica? Carbon Clear, what country are they based out of?

I think, I'm not sure if they're from England or Germany, but I had looked to see if they were accredited by someone, they're usually accredited in Germany, there are a lot of bodies accredited in Germany because all these things started over there, but I couldn't find an accreditation. So for example, that wouldn't be valid in our program right now, because they're asking for an accredited body, and the accreditation is completely international and it's internationally recognized and it's ISO and everything, so we've tried for the certification or whatever that's done here to be compatible with outside standards. And our national, this is what they would have to explain to their clients, they would have to say it's a national standard, but it's based on ISO and it's based on PAS, so it's not like we just invented something completely pointless. It was a conflict, a lot of people said "Why would you have to invent another standard if there's these other ones?" But the standard was invented before the PAS ones, and then it went into revision and the PAS came before and then we had our standard, and it's the second standard. But we have it and we can start. It will all depend on how good a job the Ministry of Environment does to promote this brand and promote the standard and make the countries trust the standard because it's hard to do, but I think it's doable. Costa Rica has a lot of credibility outside, people say yeah, they're trustworthy. So I think companies would be okay using the national brand, and if they're not sure they can ask their clients "Will you recognize the brand?" And if not, we'll get certified with another international standard. It's the route now.

On a note of the accreditation bodies, we spoke with INTECO, as well as we haven't spoken with yet, but also know of Earth University. To our knowledge they are currently undergoing the accreditation process?

Mhm

How does that work in the sense that INTECO can still verify?

That's a question a lot of people have, for example, certification bodies, there's a lot of certification bodies that certify a lot of things and most of them are not accredited. People don't question them and don't doubt that, but for carbon and climate change, people are very picky. When Earth started to certify people, the public was very, I don't know, they were kind of mad, they said like "Who are you to be giving this certification to everyone, who allows you to do that?" And they don't do that for other programs or other certifications, but this one's kind of a touchy subject because it can turn into green-washing.

Right

If you want to be a certification body right now and you say "I'm gonna certify you for this, this, and this," you can do that. It's a voluntary market, that's the thing, it's not regulatory, it's a voluntary market. If the client decides to trust a non-accredited body that's okay, but for us as an accreditation body we always need the body to at least have experience in what they're doing, because the accreditation's like a recognition of your company to do something. So if you're just starting and say "I want to get accredited" but you haven't even done this one time, you'd probably end up losing the accreditation or not even getting it, because you don't know exactly what you're doing, you haven't improved your system, you haven't used your documents. We ask them to have at least done one, or have one client for each sector

that they apply for, so that we have something to look at. First, we do our document review, and then we go with them to a client's site. We ask for them to have at least a couple of clients so we can see how they apply their system. If they have company people for the service they are offering, and then we go with them to a client. So yeah, they can start offering service, and it's okay. If they're not accredited it doesn't mean that they can't do it or that they're, they don't have the competence, but the accreditation gives people trust that these bodies are trustworthy, that they're reliable and that they know what they are doing and they're not gonna give you a certification that's not worth anything.

For the national brand, does that require you to be certified by an accredited company?

It's been done completely through the quality system. Because of that, because we wanted to be acceptable outside of the country. If it was just something that the country invented and said "okay we're going to use these guys and we're going to work with this", then it's going to be really hard to get it accepted outside of Costa Rica. We tried to do it according to how it's been done outside, so that there's no doubts and the transparency of the process, the methodologies are the same as the ones outside in the international standards. We tried to stay in the lines of the international process. To make it also accessible to the country, another country's maybe will be more expensive, so we tried to make it tropical.

Do you know what the motivation for small companies is for getting carbon neutrality or other certifications? Is it to increase their profit or their customer base? I think that would be more efficient?

Yeah, I think what, in Costa Rica, even us, we're really small, and we need to be competitive in ways that are different from other countries. We can't compete by price, we can't compete by volume, because we have a very good, specific capacity and people. We're not cheap, I don't know how to explain it. Our labor force isn't cheap, it's very well-educated, there's good quality. So we have to be competitive by quality and by sustainability, and that's what companies, big or small, have seen, and I think it's like their window to being competitive. They can differentiate themselves from other brands, and it's kind of sad, but it's good to say that it's a fashion. Everyone wants to be green or greener, but it's a good fashion, because it improves efficiency. I don't care about the moderation, the thing is they're doing it, so maybe because it's the fashion, but what this fashion means everyone wants to go that way. Maybe they want to go that way because they see everyone is going that way and they're gonna be excluded, they'll be out of the market. Actually, the Minister of Environment shows a graph where it's like a funnel, it says companies have to get into these requirements or else there'll be a market, so it's sort of market demand, but it's also market demand that we're creating, we're gonna try to make the consumer more aware. Consumers try to pay for this, want to choose. In this specific subject, it's been a lot from the private sector. Sometimes it's the ministries saying we're going to try to do this, and you have to comply. But in this, it's been the private sector saying "yes, we want to do this, ministries help us get a standard, we have to do this", because they see that internationally, not so much nationally because the Costa Rican consumer isn't that, ironically we're not that environmentally aware. We're not willing to pay more for a product that has a brand. But internationally it's almost a must to have something to make you different and more environmentally friendly.

That's interesting that you think that the sort of statement or mark of a company pursuing environmental efforts actually has a stronger influence outside the country than inside the country?

Yeah, and that's why we're trying to get awareness inside the country. We're like "Oh yeah, we're so green", but nobody does anything worth saying that they're green. It's very weird. People are very proud that their country's really green, but our conception, or our image of green is worse. And companies, most people don't associate green with being green and consuming green and all these, and that's what we do work on.

So you guys see most of the certifications that INTECO does, they have to come through here. Is there a particular industry that pursues these certifications more than others, or is it equal across the board?

It depends, because it's mostly the ones who export, it's not a specific sector. There's been recent demand for organic certifications and with all these carbon neutral 2021, and Europe asking for the products coming in to be low carbon, and all these carbon things and there's a demand for carbon, but there's no specific sectors. It's mostly industrial sector, and also agriculture because agriculture is one of the sectors with the most impact, so they have to sort of make up for their impact by becoming more efficient, with less of an impact.

Do you know of anything that, any certifications that would make a company more popular in Costa Rica, probably not very many sustainable certifications since people aren't responding to that correct? I know we have a few companies that are trying to be more sustainable that also have a market in Costa Rica.

Which one?

Company Atemisa Precision, it's small.

What do they do?

A lot of metal and biomedical instrumentation production, and they're looking to work within the country, in more local areas, more localized than others.

Well, ISO 14001 and 9001, those groups are widely known, but they're usually in big industries, it's like an international requirement for all the companies in all the world to have them. They're widely known because it's widely applied and people see it on packages or things like that. But since there are no certifications yet, like official, consumers aren't very…

Their products aren't directly to the consumers, they're more of a supplier.

Okay

So they'll supply to big medical companies.

Well, we're trying to get, that's another big big big problem, because in the government, for them to buy stuff they have to do a thing called "ricitcion". So they say "I want to buy a lightbulb, and the lightbulb has to comply with this and this and this", and they don't know a thing about certification standards or quality standards or whatever, so they just put 14001 and 9001 and they don't even know what they mean. Or they don't put them in the specifications at all, so we were trying actually to get the people who were doing the shopping for the government entities to learn about that. Because if not they can buy to China or to whoever, and the products that are really crappy and really non-sustainable and really non-environmental impact or whatever. So we're trying to get at least the government shoppers that are the biggest shoppers in the country to ask for these things, but they're not asking for them. As suppliers, they have to be very sharp on if the shopping list says that it has to be done like this, that it's not given to another offering firm because there's a lot of problems with that. They say, "okay, we need the product to comply with this, this, this, and this, and you comply with everything, but your price is a little bit higher than the other guy." So then they change the requirements so they can go to the other guy. And there's lawsuits involved and everything, in Costa Rica lawsuits, it's like 20 years before it gets resolved or whatever. So it's very complicated, especially if you're a supplier, and it's very competitive. You have to be able to sell it very well. Right now it's more about how you sell it and how you market it than how popular your brand is, because you have to explain to consumers what it means and why you're better than the other guys because, since there's no certifications and no one knows about that, then there's no way to be more popular if you have it because no one knows what it means. But it's evolving. It'll be a lot of work.

Do you by any chance know on average how long the verification process takes or the certification process for a company?

It's usually not that long. The actual assessment or auditing, it's usually not more than a week, but then they get time to fix or correct or implement their corrections for nonconformities. I'm not sure how many months that is, but you could ask Manuel. But it's not that long. It's not about the time of the auditing, it's more about how much it takes for you to develop your documents and your procedures and to train the people to apply them and to fill them out because it's hard to create that conscience and for them to get used to being inside that management system. That's the hardest part.

You mentioned earlier about that some of the ISO protocols like 14001 were more expensive. Do you know anything towards the financial cost of those things?

It's a wide range, I've seen certifications that are like $30,000. For carbon, they're charging around $3,000. But then, certification like 9001, 14001 are really expensive. It's not as expensive because the auditing is expensive, it's because they like to earn money. I don't know why it's so expensive because accreditation is actually around $7000 in Costa Rica. In the United States it's much more expensive. For them to spend $7000, but they charge $30000 for certification, so it's a very good profit, and it shouldn't be that expensive. We were, yesterday we had a forum for creating a sustainable construction brand, or sort of like LEED, you've heard of LEED in the states? It's for sustainable buildings and green buildings.

Yes.

But we want it to be like massive or to be accessible to most of the people, if you want to do your house to have the logo, then you can get it and it's not that expensive. It's usually a cost thing, if people don't get a certification it's usually because it's too costly.

Right.

There's a certification that's called Costa Rica Neutral, and I got to talk with the guy and say, "Do you want to get accredited so you can offer your services and make it part of the national brand?" And he says "Not interested in that, that's a yacht club. Only the big producers and the big companies are going to be able to afford that, I'm going to stick with the small ones that will only have to pay $10 for each ton they emit to compensate their emissions and get my logo." It's not official at all and what he does is he asks for the company's numbers- "send me all of your consumption bills and all this, and I'll put it into a calculator and I'll tell you how much you have to compensate." He doesn't even ask for reduction or anything. And then he asks for $10 for each ton, so you'll probably have to pay $70 dollars to get certified, that's it. And he's getting all the small ones who don't know better and don't have any money to do better, and that's the thing. So we need to find a way to make this certification accessible for them.

Right.

It's a big job.

Sounds like there's lots of loopholes.

Yes, and since it's not mandatory, people can choose not to go into the national brand and use another one. But the Ministry of Environment has registered the carbon neutral brand to try to avoid having others having other logos or brands that say you're carbon neutral.

Oh, do you, are you familiar at all with, as part of the national plan I guess there's emerging carbon markets where companies can trade their carbon offsets.

Yes, that's another step for next year. It's supposed to be, it was supposed to launch around July this year, but I don't know what happened to that. But there's going to be a carbon market for projects inside of the country because our program says that you can buy verified emissions and certified emissions from international markets, but there's going to be a national market so you can sort of like stock exchange. You can say, "okay I need to compensate like 20 tons", you go into the market and say "ok I want to do it with projects that are around my company", so there's also social responsibility or whatever. You can look for them and then buy online, I'm not sure if it's going to be online, but it's hopefully going to be like that. You can buy directly, and it's gonna have the whole process to validate the projects and then verify that they actually reduce emissions and it's not just "Yay I planted 50 trees and that's my project", and then they all die after the flooding. So you don't get those problems, it goes through the whole process. And you can only buy, you can only compensate through carbon that's already been fixed, because a lot of companies right now say "we're making this, but we planted a whole, I don't know how many hectares of trees, and that's how they're zero." But you don't know if those trees are going to

survive, you don't know if then you cut them to build another production plant there. So you're only going to be allowed to compensate and buy credits that have already been fixed. And let's hope it's going to be next year. Next year is going to be a very good year.

Yeah.

If they truly do the things they're supposed to do.

Companies obviously know about this carbon market idea, right?

Who?

Just companies in general, do they know about it?

Nobody knows anything. I get calls, "Can you certify that I'm carbon neutral?" "No, there's certification bodies for that." I have to answer calls and explain to everyone. They have very little knowledge about this, so the ministry has to do a very big job letting people know how the process is going to be and what they can do, and part of that's what company can do, so we want to tell people "Here's a brand. The brand means that the company has done all of this." Because there's also, the carbon neutral concept has been very "satanized", because everyone hates it, well not everyone but a lot of people hate it because it's usually been emissions compensation, and people don't do anything to improve their sustainability, so it's, people don't like it that much. And people don't know that the standard requires you to reduce, it requires you to have a plan, a yearly plan to reduce and improve your sustainability. So you have to tell them what it means, and we have to tell them why it's good to support this. And then we have to tell companies, why would you want to have the brand, and how can you get it. So it's those two parts because a lot of companies want to get the brand and they want to get started, but they don't even know how to start. And there's a lot of workshops going on to let them know how and train them on the methodologies and everything, but it's a slow process.

That's kind of what our project is. So you don't know how these companies feel about this carbon market because…?

Well, the carbon market doesn't exist yet, so most of them know. How they feel? I think most of them are interested in getting into it. Different motivations apply, but most of them want to get into it because they want to be more sustainable or they want to I don't know save money or they want to sell. There's this guy that sells water-efficient toilets, and he wanted to go to the guys who are doing the program with the Bandera Azul and the GHG Protocol, because they do seminaries on how to reduce consumption or whatever, and he said "I don't give a crap about the environment, but I want to sell my toilets. So invite me to one of your seminars." And Manfred was like, "No you're not gonna go. I'm not gonna help you sell if you just don't care about it." It's a market, so there's gonna be people there who just want to sell, and there's people who really want to improve and they really care.

Mhm

But there, companies are really interested. They just need to know how to start, and we're working towards that. There's a lot of programs, German corporations helping a lot with that and doing workshops and seminaries and all these things for people to find out how to get started, so it's progressing.

We hit everything we're looking to hit.

If you're still missing anything you can call me or email me.

A lot of that information was great, it filled a lot of the gaps that we've had. Yeah we learned a lot. That national brand, it's a big thing.

This girl Carolina, she has a lot of vision, she just wants to push everything forwards and make people in Costa Rica really relate to the brand because it's gonna be, it's gonna relate to essence, even if we're small, we're very, we have a lot of essence and refined. A lot of people aren't going to relate to that because they're gonna say, "We're not refined, ehh Costa Rica, ehh." That's very fickle, people complain about everything, so there's a lot of work to be done on people believing that we're refined, and really for the country to be refined and to reflect that brand. There was a brand that was no artificial ingredients. Have you heard of that one? It was Costa Rica: no artificial ingredients, like a slogan. But then people come into the Costa Rica and first thing they see is Casino Fiesta and Denny's and then you see MacDonald's and Wendy's and all these things and you're like "Where's the "no artificial ingredients"?" Unless you go to Manuel Antonio and see the monkeys and everything, then it's kind of contradictory. So you have to find something that involves all of this, and that is actually credible.

Yes, so I mean if you could just email, shoot her an email and ask about the list you spoke of, that would be interesting information to see.

Sure, and if you want to meet up with her.

Yeah, possibly.

It's really close to here, it's in San Jose, near La Sabana. Where are you guys staying?

We're in San Pedro.

Okay, well it's easy to get there.

We're right outside the University. Well thank you so much for your time, it's been an incredible help.

You're welcome….

Appendix C: Transcript of Interview with Jorge Dada and Maybel Santos

(Interview conducted in English and Spanish, original language not translated in transcript)
¿Podemos grabar esto? ¿Para usar después?

Está bien. ¿Para hablar luego con Carlos verdad?

Gracias. Perfecto. Do we want to start in English or Spanish?

Podemos hacerlo en cualquiera.

Si, pero ellas no hablan español bien.

Oh, we can do it in English if you'd like.

Yo comprendo, pero no hablo bien.

Es más cómodo en su lengua.

We can just introduce a little bit about, I'm not sure how much Carlos told you from the CNP+L?

Not much.

That's usually the assumption we go under. So he's asked us to, sort of research a lot of these environmental, various environmental certifications, both international and national. And work with companies such as Biorganic to help develop a tool that companies can use to best decide which certifications would benefit their company and their needs most.

Ok

I think first off, Carlos has expressed to us that your company is interested in pursuing certification, so we first wanted to ask what your motivations for that, where they come from?

Basically, we're a very small company. When Biorganic was born, we decided to go, our products are, some of them are certified organic, and we decided that in order to compete in the global market, to be able to export to countries or the States or Europe, you need certain certifications for your product. So that's more recent, and that's also to set you apart from other companies. We are, we're leaders in Costa Rica with this kind of product, and we want to be recognized as the best product in the market, not only in Costa Rica but also around the world. Something very important is Costa Rica set a goal to be CO_2 free in 2021, and that's gonna be difficult if the private, the private companies do not help with it. So we're trying to make a mark to do so. And that's the main reason why.

So you do see, sort of, value and faith in that Costa Rican goal and want to be part of that national initiative?

Yes.

Alright.

And to be honest with you, I don't think the government is going to do it if the private sector doesn't get involved. Even so much so that, actually, the private sector is the one who's right now getting certifications. You don't see any government. There's a lot of help from the government, like, you know, from Carlos, and there's a lot of help for small companies, PROPYME, they call it. But the government itself, I don't know what they're doing to go CO_2 in 2021, so we want to do our part in the movement.

So to just sort of, speaking to the government since you bring it up, part of the research that we've done has brought about, I'm not sure you might be aware of the Carlos and stuff, the National Program for Carbon Neutrality that they're developing and that standard?

Yes. Exactly.

Is that particularly a certification that you are looking at?

We are. Right now we are working with Carlos, with a project with the government that is involving the Commerce Ministry, the MICIT, el Ministerio de Ciencia y Technologia, the Ministry of Science and Technology; and also the CONICIT, which is a government institution that finances our project. So right now we are financing three certifications: ISO 9001, for quality, ISO 14001, for environmental, and also the CO_2 certification.

The Costa Rican National…

Costa Rica, INTECO. Well, yes, national. I actually just came from a seminary, and there's a big debate about how you are gonna calculate the emissions of CO_2 from the ground, it depends on the country and the area and a lot of different things. So it's hard to have a CO_2 emission standard for Costa Rica than from Europe.

Right. Have you spoken with your clients or done any market research regarding how your current clients or any potential clients would view the National Standard? Do they support you pursuing this? Are they asking for these certifications?

They do, they actually support it, they think it's great; our clients, because our market is so small...(side conversation, off mic)… Our clients are committed to us, they believe in the products, the organic products that we make, so when you tell them we carry an organic certification which is valued more; also, our products are organic certified by Primus Labs, which is known in Europe and the United States and Japan.

(That was like Ganaflor.)

So, we really, they believe in everything that we do because it's resplandado, como se dice resplandado? When you have a company behind you, a serious company, a certificated company behind you, so we have to market our products, they have to come here to see the client…

They're backed.

Exactly, we're backed, and even though we're small we're doing things right so our products can make it, and more so if you just say we're carbono neutral or carbon neutral.

You did mention clients in the US,

No, clients there, we don't have any.

Sorry?

No, the certificator is in the US.

Oh, is your client base mainly in Costa Rica?

In Costa Rica, in the region. Right now we export to Central America which is you know, the closest countries here. We export to Panama, Nicaragua, Salvador, Honduras, and Guatemala, and we export to British Guyana, and to Surinam. Our goal is to enter in Mexico, and then the United States. Why not the United States right now? Because it's a big market and it's big competition. We have …several branch… What happened is that they don't have as much organic products as we have.

No, we found through at least our market research that the US goes by price.

Yeah, and they have one, and it's made of grind bones I think, and animal bones, and that's hard to certify, it's different. And the market is so big that we need to be ready to enter into the United States… (low mic)

So the certification company that you're going through is in the US though?

For which one? For the organic products?

Yes.

That is from the US, it is Primus Labs. Actually it's in Germany, I think the main quarters, the labs are in England, I'm sorry. The ISOs, you know the ISOs right? Everybody knows those. And the CO_2 is from INTECO. INTECO is within Costa Rica.

Are you also looking to use INTECO for the ISOs?

Yes.

Ok. So INTECO is doing your verification and then certification for all three of these?

Yes.

Ok. Do you mind us asking, is that part of the sort of, package that Carlos that Carlos has given you?

Exactly.

So what's the cost of that?

Well the cost is high, the whole idea is this: I was looking for getting 14001 ISO, for environment, which is, goes well with our line, and also the CO_2 and I get a meeting with the Ministry of Science and Technology was financing small companies like ours, and then Carlos. So I explain the situation to Carlos and I say "Let's do it all together because the government's financing", each ISO here is expensive, well it depends on the ISO right? So right now we are talking about like 50 million colones, which is $100,000 for three certifications: 9001, 14001, and CO_2.

And that, does that include all of the changes you're going to have to make?

All of it.

The whole shebang, okay.

It's a two year project, it's actually an 18 month project but we are running one month late already. So we were supposed to start on the end of November and I'm thinking that we might be starting in December or early January, because we have the holidays, so.

And that's starting to itemize your inventory and do all that?

Exactly.

Okay.

And we're gonna hire an industrial engineer also as part of the project, Carlos is gonna be supervising that. We'll do all the forms, reduce emissions, we need to work on a lot of things. Mitigación, cómo se dice mitigación?

Mitigation.

Mitigation right? Mitigation of the gas and everything. (…off mic… que es el carbon neutral?) We're more focused on CO_2.

Carbon neutral, so ISO 14000 or INTE, and the Costa Rican national standard are the ones you're particularly interested in. Do you know why the CICR, Carlos offered these three certifications in a package?

Because I asked him. It's not because he has a package, it's he supplies me, I told him. We were very ambitious, I mean nobody here in Costa Rica, even as small as us goes like Carbon Neutral, three certifications. So we try to, but it's not like he has a package, it's more like "What do you need?" "I need a carbon neutral certification or an ISO or I need to go green, which is a lot of private…

So, you're, obviously seeing obtaining these certifications as an investment for your company.

Yes, it is.

And, on the other side of this investment, do you believe that the carbon neutral certification will be viewed; hopefully, you say it's a two year project so two years in the future, are you hoping that this certification has a more recognized and respected name within the area? Especially since you're mainly in the Central America region, you do see that the National standard would be more applicable? Whereas, we have heard some concerns, whether as far as the national standard's reputation in Europe, and across seas.

I understand the question. It is yes of course, to answer your question. We believe so. (Están preguntando… que va a ser mas reconocidos en la región o comparado con los estandorios en Europa)

O como se ve en Europa también.

(Spanish, low mic…) El carbono neutralidad relates como la normal in Costa Rica, like we have the same debate. I was in a conference from Monday to Thursday all day. It's difficult, yeah of course. We believe Europe is going to accept us, even though the standard is Costa Rican. But you've gotta understand also that Cost Rica is well-known country for its environmental practices, and we are, como se dice, pioneros, pioneers. So everybody sees Costa Rica as a green country, we have a lot of issues you don't see when you see Costa Rica. And I believe it's gonna help, I believe it's gonna help. Now, like I said, it's different to have the same norms for carbon neutrality?

Carbon neutrality.

For the whole world, it's difficult. We need to measure altitude, longitude, weather, you know, how many cars you have for the company, so it's very hard to… I understand that there's some organizations that they wanna do one whole thing to measure the emissions of CO_2, and I think in my personal opinion, this is my personal opinion, I think it's not gonna work. Maybe for areas, but not for the whole world.

There are too many variables.

It's too many variables. I don't, Costa Rica doesn't make the same emissions as others do, but we are a decent country. Maybe a country knows how to do it, South America… But I believe it's not gonna work. And Europe is asking nowadays more for carbon neutrality certifications than ISOs.

Oh.

That's the new way I guess. That's what I've heard. But we are in that process, we want to be a start.

Did you consider at all, because you mentioned that you told Carlos the package you wanted, did you consider any of the PAS certifications?

Which ones?

Publically Available Specifications 2050, 2060, they're developed by the British Standards Institute.

No, actually, I'm sorry but I don't know them.

That's okay, it's just interesting, one of our points is comparing a lot of, since it is like a British standard, there's more you know Europe, sort of that hemisphere, whereas on this half. So it's just an interesting comparison that we didn't think of sort of asking.

No, I didn't even know about it.

It's completely fine. They have one certification that does more for companies that want to assess their carbon footprint, and another for companies that want to go carbon neutral.

Ok.

But the carbon neutrality standard does differ from the Costa Rican one, which is, I only brought it up because it was interesting how you mentioned how there's no global one set carbon neutral standard.

It's gonna be hard, I believe that we can agree, you know, but the whole thing is gonna be hard to do, to standardize everything.

Hopefully we can just get close.

Close, yeah, exactly. The thing is doing the job, working. I don't believe our standards just because they're our country are less, they're not as good as another's. But it depends on the environment.

In fact, the national standard is actually more stringent.

It is very severe here, it's very strict.

It's much more difficult to comply with than the other British standards, so I mean, I know we kind of look at it and are like "Wait a minute, why doesn't anyone realize that it's tougher?" So, hats off to you guys. I know you mentioned that you were at a seminar. At this seminar did they mention any sort of work that MINAET was doing towards promoting this national standard as well as the local carbon trading markets mentioned within the standard?

No,

Were you aware of it? PROCOMER's doing…

No, not from the MINAET. The seminar was involving soils, the science of soils, environment, CO_2, and also the weather for the next 50-70 years in Costa Rica, how's the weather going to change. But it did not approach what the MINAET is doing to..

Are you aware of that at all?

I've heard something, but what I've heard is from newspapers, so it's not like I could tell you about it. (Se habla por el MINAET, están pensando como el huello carbono…) We try to give, what I know they we're trying to do is how to get an accurate measure of the emissions from underground, not only the ones that we have made, because the CO_2 is trapped, and what we're doing is letting it free. So that's what they're working on right now, to measure those levels of CO_2 that you're getting out of the ground, cutting trees and all of that.

This is from your company's operations for making like fertilizers and your products?

Yes, well, really for the whole agriculture industrial sector. 40% of the CO_2 that is in Costa Rica comes from the agriculture sector, 39%. 23% comes from the industrial sector. And then it's divided by the you know, … What they're trying to do is how to mitigate those amounts, those percentage in each sector, but I was not going to your question. I don't know how MINAET is helping to, …

We more ask mainly because within the national standard there is a section written out for MINAET is looking to develop a local carbon trading market where companies can buy and trade sort of carbon stocks like originally developed in the Kyoto Protocol, that same concept. Where other companies sort of, part of the neutrality is compensation correct? And that's where this carbon market comes in. So in order for various companies who will later be pursuing the national standard, they will need to compensate, and one of these ways is purchasing carbon stocks from this local carbon market.

Yes, ok, I understand, no I don't know anything about the market but I do understand. Part of it is to compensate, right? There's a lot of ways to do it right now. Carbon neutrality is a whole new thing here, so it's a lot of people taking advantage of it. So when you say I want to go carbon neutral, okay fine. You gotta pay this and you gotta buy trees in somewhere, and then you do it, you spend the same thing you're gonna spend, and then the trees will need transporting gas and everything. Just give some money to buy some bulbs or whatever, and you compensate.

And it doesn't change much in your operation.

It doesn't change, exactly. I really think you gotta change first and then compensate because it's impossible to go zero. I don't know what, the market, if there's market probably we're gonna have to use it because we go over.

Would you be interested in that market?

It depends. Can you trust it? It's hard to trust it.

They are in the process of creating it right now, it hasn't even been publicized yet, so it is something that's very new. They're hoping to formalize it next year, but…

But what is in the market? What are you gonna sell me that's…?

It's a cap and trade based system, so you would be allowed a set amount of carbon emissions you can emit to be carbon neutral.

Oh.

I'm not sure, this is part of the final formalization, it hasn't, there's sort of a, they've written out a clause as like a placeholder for it, they're still finalizing the development of it. Basically you would reduce your emissions, you would be overcompensating almost, so you would be carbon negative I guess. And then you could use that difference in between your what you're actually emitting and how much you're allowed to while still being carbon neutral and you can sell that on the carbon market to other companies that are above their limit and need to compensate. So it's another form of compensation.

Ok, we'll have to study it a bit more. If I want to compensate I'd rather do it in something tangible. Maybe it's because I'm thinking more, I'm Costa Rica and I want to go, my money is going to, you know…

This is an idea that a lot of larger companies have gotten into because for them it's much more difficult to fully mitigate their CO_2 emissions. And so for them it's easier to buy trees over here, or buy this extra compensation from another company that doesn't need it and use that to say that they're carbon neutral.

It sounds like a good idea but who's gonna control it?

Exactly, it seems to be that MINAET is trying to include this as a way to make the national standard more available to a larger array of companies.

That's business, I'm sorry. But that's business.

Yes it is, it's a very businessy thing. It very much is.

I didn't want to say it before, but it's just business. Everything revolves around business.

Besides that, are you aware of the program for a national Costa Rican brand? Promoted by PROCOMER?

National Costa Rican brand, yes. Yes, with PROCOMER. Costa Rica's como pais, it's as a green country.

In order to take part in it your products would have to have the Costa Rican national certification, and then you, they'd be promoting that abroad throughout Europe and America. Your products could have the national brand seal, or whatever it is exactly. And they're part of that national brand so that they're promoting for you and you can just take part.

Well, I heard something about it, but I haven't heard anything about this certification seal or anything like that. Like I said, I mean everything is costly, from the ISO to the certification, everything is business; which is good, I mean, it makes your company better, and you can sell some more, and you can compensate. (…) I do, I'm not sure about it yet, maybe in a month.

I only know a little bit about it. You mentioned earlier that the Ministry of Science and Technology is helping small businesses like yourselves finances these? What kind of aid are they providing, if you have that information?

Well, yes, I do, actually we are, first of all, they finance, so they're largely, they're the ones who are financing our project. Normally with money, but also if you need machinery, if you're an industrial company for example, or textile or whatever. Machinery, technology, if you want to develop any business, if you want to, I don't know, make this from scratch, the bottle, they can. Basically they help you to do that.

Is it kind of like a loan, or is it more of a grant, something that you won't have to pay them back later?

It's, it depends on the project, it depends how big it is, how serious is the company, it's basically a 70/30 or 80/20. So they help you a lot. Sometimes, like the micro, micro, they do 100%.

Okay.

A lady wants to do some…the micro empresas. We are PYME, we are like here, between Evergreen and the factory, we are like 30 employees, 35 or so. It's small. We are PYME, but there's like, an old lady is by herself, 100% covered.

Is there a something you have to apply to, or?

It's the whole project, you have to bring the project to the Ministry, that's where Carlos helped us.

Okay.

Because we are involved in every event that either CONICIT or MICIT or PROCOMER, or CADEXCO also, Cámara de Exportadores does.

So is that, they will finance 80% of your project, would that be 80% of that 100,000 dollar that you mention?

Yes, because otherwise we cannot do it by ourselves.

Wow, that's pretty helpful.

So basically the government is helping with that part a lot to the PYMEs, and to any other company, that brings an innovation or a better project, can come. Everything is backed by the government.

So, after you become certified, what are you hoping to see as benefits?

Certified from the three certifications?

Yes, the ISO, the national INTE standard…

Okay, first of all, recognition from the sector, not only in Costa Rica but abroad. When you have a certification like ISO or ISO, y carbono neutralidad, you can be recognized all over the world even though our products are in Costa Rica. You can export to Europe, you can export to United States, and second of all you can be better than the competition, standing apart from them. I think the most important thing after thinking about doing business is to improve the company itself, from the inside. Better productivity, better personnel, better planification, strategies. The norm, cómo se dice the norm?

The normal?

A norm, what it does, it's just a guide. You follow the guide, and you save in money, you produce products, you save in a lot of things.

In materials…

Yes, in materials and all that. So it makes your, more product, productivity.

It's like standardized productivity.

That's why we took 9001, because we could have only the 14001, but we don't have the goodest structure. With good company structure we can follow through, we decided to go for this.

So you said before you like meant the national standard, the Costa Rican standard as an investment?

Sorry?

You think the Costa Rican national standard is an investment?

I think it is, yes.

Because it will get recognized over time?

Yes.

So is pursuing that standard or pursuing this package, would you encourage other companies to do that?

Of course. Only if the country also will help us, right? Because the country needs to sell as a brand.

So all of Costa Rica needs to get united behind this national standard, this idea of a green, carbon neutral country?

I think we are the perfect country to do so. Maybe some people can follow us if it works. And it can help us as a country, it really doesn't matter if other people think it's wrong.

Costa Rica really has that green reputation. It's a good country to do it in. And since you haven't started the verification process, right?

Yes.

So you're not sure if there's any obstacles you'll encounter yet right? You haven't come across any?

No, we're sure we're gonna have a lot of obstacles, it's gonna be a long process a two year process. But we don't know. We have the help of the Ministry and also Carlos and they will help us, we'll see what happens. I'm pretty sure we can work around them.

Could you tell us maybe, in deciding on these standards from Carlos, what were some of the main decisions that you had to make? Did you have to say "oh, we're an exporter, so we need to focus on this ISO standard" or "we want to export so we need this ISO standard that's recognized internationally"? Were the decisions along that line?

I don't know, actually, that decision, we took it work for we met with Carlos, so I met with Carlos, it wasn't like chance, there wasn't a conference of that type. But the idea we were playing with this idea for the last two years, what happened is that we didn't have the research, and we didn't have the money. And

we weren't sure which ISO like you said, we should get first. 9001, but we are green environmental oriented, so I was thinking 14001. And my brother said 9001 because he's an industrial engineer. So there was a big debate, so we said "well let's do it together". And the CO_2 came to me afterwards. To answer your question I think the one that's gonna help us best is carbon neutrality, by far.

Our project is, kind of looking at all of the decisions that companies such as yourselves have to make in order to get to the certification. So one of the things we're interested in saying is we're gonna make a decision tree, we need to know what points, you know what a decision tree is?

Yeah,

It's like a chart that breaks off.

Like a, yeah.

We can kind of make that, and we want to know what the crucial decisions that companies have to make along the way are. What factors were most important in choosing what standards to pursue?

Let's talk about the three standards or the three certifications that we are pursuing. It was difficult, like I said, at the beginning because I wanted 14001 environmental directed, and then my brother wanted 9001 for quality and we need to have good basis, but at the end the one, one is on top and you're asking about the area, is because our company is changing. We know that we do fertilizers, we know that we need to compensate more than other companies. So how do we do that if we have the chance to get carbon neutrality, well there's carbon neutrality and that's our goal. And we decide that from the products that we made and the line that we made, before we, even though ISO 14001 is environmental, it's not getting us close because that's just a norm, right? A process to follow to do better in the environment, but you're really not helping you're country or your company to compensate what you're making, so that's why we decided carbon neutrality first. And that's our priority.

So the 14001 and 9001 were kind of, they're kind of like standards that everybody gets within your…?

Well now we need it, you've got to remember that we're third world countries, and ISO have been around for a while, and they're good norms. But you need those seals to be able to be recognized in a globalized world. If you want to export anywhere you need those. And if you want to export in ten years you're gonna need carbon neutrality. If you don't have it, you're not gonna be able to export. Right now, I cannot export to Europe because I don't have ISO, and if I, well I probably could, but it's harder. And then, oh you have organic.

Europe would be more interested.

Yeah, so you could tell me in Holland or Switzerland "oh you have organic fertilizer from Costa Rica, where's your seal?" I have an organic seal, right but, the sealing thing it's like a business, but it's a good

business because it helps you to be a better company. So carbon neutrality, I have heard in several seminaries it's even more recognized now in Europe and that kinds of ISOs, you say "EESO" or "ISO"?

We say ISO.

Ok.

You could say ISO, no importa.
So pretty soon carbon neutrality may not be something that sets companies apart, it may be another thing that's…

Requirement. It's just a requirement. And in 15 years if you don't have it you can't export, but it's gonna become a business. And in ten years there's gonna be another organization that's gonna come out with another seal, and you're gonna get, if not you're not gonna be able to export. It's a whole, it's a normalized world.

An interesting analogy, one of the people we met with Manuel Gonzalez of INTECO, and he drew the analogy that carbon nowadays is similar to lead several years ago when there was the big, you know, rush of getting lead out of everything.

Exactly.

It's just another sort of, I don't want to say fad, but…

I understand, that's the way it is, but you gotta do it, you get behind. You can't afford to get behind.

Right, especially with small companies, it's a very smart move to pursue it while you're smaller and growing so that you grow with it. You have it there instead of having to go all the way back.

We've been playing with this for two to three years, and fortunately we met Carlos, and I said "this is the right decision, it's with the government". We knew that the MICIT was helping, or was trying to finance and I had several meetings with people that could help me with that, and I think it was the best choice. We couldn't have done it better.

I don't know about everyone else but my paper is…

If you guys have any more questions…?

Do you have any questions for us?

(Questions were asked pertaining to our school and where we were from)

Can I ask you, how many other companies have you visited? Or planning to visit? What other companies have you visited?

We've already met with Atemisa Precision, a small metal works company, very small.

I know them.

Oh really?

Because they have some certification in seminary.

They're pursuing the same three certifications.

We all go to the same meetings. I don't know them like hello, but I know them.

We've also met with Ganaflor, La Flor AgroIndustrias, it's a pineapple company, the first carbon neutral pineapple company.

And you guys went to the pineapple plant?

No, next week, we've been busy this week. We'd like to go, he said if we have time we could go. We need to find time to visit them, maybe after the break. After all of our meetings we can just go.

You're in Costa Rica, you need to get a weekend and go to the beach.

(discussion switched to previous weekend trips, plans for the next few trips, etc.)

….We can go through the plant and I'm gonna ask *[about travel to Montezuma]* for you. Any other questions?

Regarding the project, I think we're good!

Appendix D: Summary of Interviews with Juan Solera and Silvia Vindas

(Interview conducted in English, transcription unavailable due to technical issues)

SCS Global Services

Our team spoke with Juan Solera of SCS Global Services first. We asked him which certifications SCS Global Services works with most often and what types of Costa Rican companies it serves. Sr. Solera replied that the certifications that SCS works with depend upon the market of the company seeking certification and the business's goals with achieving certification. He included that it is important for companies to conduct feasibility studies before starting the certification process. He also gave four main reasons a company would choose to pursue certification: 1) its clients ask it to 2) there is an opportunity to differentiate itself among similar businesses 3) it feels a social responsibility, and 4) the changes implemented during the certification process can improve overall efficiency, saving the company money in the future. In terms of the types of companies SCS helps, Sr. Solera responded with mostly large companies, but some smaller ones. He elaborated that smaller companies often do not see benefits in pursuing certification.

We also inquired about the approximate costs to a company for completing the certification process and the time required for certification. Sr. Solera cautioned that the costs depend on the size and complexity of the company. However, he noted that the verification step for a small company would cost in the range of two to ten thousand dollars. Inventory evaluation takes six to eight months, while the actual verification approval from SCS takes only about one week. For companies pursuing carbon neutrality, the price for the steps to reduce carbon emissions varies much more. Compensating for emissions a company cannot eliminate costs two to ten dollars per ton of carbon dioxide under the United Nations carbon credit system. Despite these costs, Sr. Solera said that SCS charged about the same amount for auditing a company as any other third-party certification body. In addition, he mentioned that there is financial assistance available for Costa Rican companies from CONICIT.

Beneficio Ecológico Cerro Alto

Our team asked Sra. Vindas what Beneficio's motivations were for pursuing PAS 2060 certification. She responded that achieving carbon neutrality would open up more opportunities for the company in their product markets. Beneficio caters to niche markets in Europe, Australia, and Japan that favor gourmet coffee with very specific labeling. Sra. Vindas believed carbon neutrality would complement their efforts in these markets. When asked why they chose PAS 2060 over the National Plan for Carbon Neutrality, she answered that the company chose the certification that would be more popular in their international markets. However, the company had not conducted market research specifically to

discover this information. Afterwards, the team inquired about the steps necessary to complete PAS 2060. Sra. Vindas replied that the certification includes three steps—inventory verification, reduction implementation, and compensation—similar to the National Plan.

Finally, we directed questions toward the types of obstacles Beneficio has encountered in the certification process. Sra. Vindas said that there had not been many problems so far because the company had just begun. However, she mentioned that emissions inventory calculation was relatively complicated for Beneficio. They owned a plantation and a processing mill that often shared equipment and employees, but the mill was the only facility being certified. Therefore, distinguishing the factors that only applied to the mill was difficult. In addition, Sra. Vindas included that the verification process was itself innately tedious.

Appendix E: Transcript of Interview with Silvia Chaves from Florex

(Interview conducted primarily in Spanish first, and later on with a translator)

¿Tiene que como de entrevista, o cómo quieren que haremos la reunión?

Como una entrevista abierta. ¿Podemos grabarlo?

Está bien.

Primero, estamos trabajando con Carlos Perera y el Centro Nacional para la Producción más Limpia. ¿Él ha mencionado que su empresa está interesada en una certificación y ya la tiene? ¿O casi?

En realidad tenemos certificaciones de proceso, de producción. Tenemos entonces ISO 14001, para el proceso, ISO 9001 para calidad, integrados.

Ah, sí.

Eso de proceso, pronto vamos a lograr la certificación carbono neutro, de acuerdo con la norma nacional, pero estamos listos con todo pero esperando que, hoy INTECO nos entregaría el certificado para poder ir al Ministerio del Ambiente para que nos dé el uso de la marca o el sello. Esa sería la tercera. Al nivel de productos, nosotros estamos en el mercado de Costa Rica, de Guatemala, Honduras, y Panamá. En ese momento, no hay sellos que podamos poner a los productos, para estas, para Centroamérica. Estamos explorando el mercado de Estados Unidos, y algunas cadenas del acepto de autoservicio y otros clientes, algunos en Europa. Entonces, hemos investigado todos los sellos que podríamos o que tendríamos que ponerle a los productos en esos mercados. Pero estaríamos en el momento en que hacemos para entrar. En ese momento entonces sellos como el "Green Ser" o sellos como la gerencia protección ambiental, el NF… algo. Buscaríamos este tipo de sellos o el sello que tiene la cadena porfutz para sus propios productos internos, propiescal, eso nosotros estaríamos haciendo en el momento en el que en esos mercados vayamos a entrar con un tema de consumidor. Probablemente buscando también el sello de comercio justo, que es otro posibilidad. En tanto lo que estamos analizándolos, buscando y analizándolos para poder estar en condiciones de reñir los requisitos para aplicar cuando los tengamos. Pero esto es lo que estamos haciendo en Costa Rica. Aquí no hay un sello oficial, único, formal, nosotros por ejemplo entonces optamos por aplicar en el programa de la Bandera Azul Ecológica.

Sí.

No es un sello pero es, funciona a veces casi como si lo fuera. Eso nosotros apuntamos y luego publicamos que tenemos que somos apoyados por el programa. Es, mientras no existe sello tenemos que estar en este, haciendo este tipo de cosas.

Sí. ¿Ahora sus mercados son mayormente en Centroamérica?

Centroamérica, todavía sí.

¿Qué ustedes quieren explorar en los Estados Unidos, Europa para lograr otros mercados?

Sí, con mercados más exigentes con consumidores más conscientes que buscan este tipo de producto. En esto momento en Centroamérica nosotros estamos ofreciendo producto pero el cambio a su vez. ¿Por qué el producto es amigable, cómo usarlo, por qué manejar productos concentrados, por qué materiales naturales? Es mucha educación. El mercado es de otro tipo, nosotros llegamos a competir con una exigencia. Podría ser muy distinto.

Mhm. Entonces, ¿sus motivaciones para buscar estas certificaciones, eran?

Acceso a mercados, acceso a mercados. En el caso de estos otros países que ya tienen sellos. En el caso de Centroamérica, Costa Rica, y Centroamérica es una necesidad enorme para nosotros que existen sellos, o varios sellos, no importa. Pero que existen sellos que califiquen quién, qué producto se dice que es amigable al ambiente, ecológico, "Green", todos los términos que se usan para poder distinguir el producto porque al no existir sellos, no hay norma, en este momento cualquiera puede poner en sus etiquetas que es un producto amigable al ambiente sin ninguna calificación y estos traen mucha confusión en los consumidores.

Sí, exacto.

Esa confusión es dañina. Lo que, en Estados Unidos, ¿ustedes son norteamericanos?

Sí, somos estadounidenses.

Lo que se es llamaron, o llaman "greenwashing".

Sí, es verdad.

El pleno proceso de "greenwashing" está en estos mercados. Por eso el sello es absolutamente necesario.

Sin sello no vale nada…

Nada. Nosotros, la empresa nuestra ha empezado construir hace tres años una, un concepto, y una imagen, y hemos ido posicionarlo, de un producto amigable al ambiente basado en su ciclo de vida, y hemos estado luchando muchísimo por eso. No vamos a claudicar para que llegue el momento en el que Florex tiene la marca nuestra tiene una credibilidad en la mente del consumidor. Pero es muy difícil luchar en el mercado con imitadores o con competencia que dice es amigable cuando están usando materias primas.

Y en realidad no es...

Terrible proceso muy contaminante, eso no cumple con ciclo de vida. El sello es importantísimo para competir bien, para mejorar incluso el estándar que nosotros. Es superimportante.

Gracias.

Ustedes han tenido, pregunta. ¿Ustedes han tenido contacto con INTECO?

Sí, hemos hablado con Manuel Gonzalez, sí.

Con Manuel, bien. También deberían hablar con Alfonso Montero.

¿Es la principal persona que trabaja con ustedes?

No, Manuel trabaja mucho con nosotros, pero Alfonso Montero está trabajando para un sello de producto amigable al ambiente.

Ah.

Estado durante algún tiempo como funcionario INTECO, pero también en su tesis de maestría, trabajando con el concepto de sello de producto amigable al ambiente. Entonces, él dice que para 2013 estarían sacándolo, o tratando de tener un sello de INTECO para producto amigable al ambiente. Su correo electrónico es alfonso.montero@gmail.com (deletreado) ¿lo tiene?

Ah sí.

Es un tema de traducción.

Este sello, ¿es relacionado al programa de Costa Rica para un National Brand, marca nacional?

No en este momento, no los he visto relacionar la marca país con este sello. Ellos han trabajado más como aislados. Y solo está dirigido a productos amigables al ambiente.

¿No está interesado en la marca de país?

Yo creo que habría de quedarle de información y probablemente hacer de una vez el link, que sea un sola asunto. No conoce hasta donde yo sé, no conoce marca país, porque el tema de marca país se ha manejado todavía entre un grupo pequeño.

Sí.

Entonces, creo que no lo conoce. Pero podría, podría ser muy interesante para ellos.

Y como ustedes lograron las certificaciones de ISO, ¿cómo fue el proceso? ¿Había dificultades o impedimentos?

Cuando nosotros empezamos en el 2009, éramos una empresa muy joven, muy nueva, entonces el proceso no fue complicado porque estábamos definiendo la empresa, definiendo la fábrica, el proceso de

fabricación. Como empezamos con normas ISO, con un sistema de gestión ambiental y de calidad a través de la norma fue más sencilla lograrlo todo. Nuestro ingeniero de planta, era un hombre joven que venía recién saliendo de la universidad; nuestro químico, los otros muchachos, empezamos con la norma, definiendo los procesos de la fábrica. Entonces fue como más natural. Pero sí es difícil para llevar la documentación, los registros, cumplir con las auditorías, es un proceso muy demandante, muy. Allí, estuvo la dificultad, de generar una cultura en la organización que respondiera a las normas. En ese momento, en 2009, nosotros éramos una empresa pequeña. Más pequeña que ahora, entonces los costos de sostener, asesorías, consultorías, para montar el sistema, eran altos para nosotros. Una inversión al futuro. Tuvimos apoyo de fondos PROPYME, y con fondos PROPYME contratamos el Centro de Producción más Limpia para que nos ayude asesorar el nuevo sistema. Si no hubiera sido así, hubiera costado mucho más, porque con nuestros propios recursos siendo que estamos creando toda la empresa, comprando maquinarias, construyendo las instalaciones, hubiera sido más difícil.

¿Sabe cuanto cuesta en total?

¿Cuanto cuesto en total? El proceso de asesoría, más los tiempos de nuestros propios colaboradores, estuvo alrededor de 11000 dólares en un año, asesoría y tiempo de nuestro equipo de trabajo. Las certificaciones, la primera auditoría, mas certificaciones estuvo alrededor de 6500 dólares. Y luego de esto, cada año pagar la auditoría y renovación está como ahora 3800 dólares cada año. Solo para pagar al ente certificador. Todas nuestras cosas internas son parte de nuestro propio proceso, no hay manera de cuantificar.

Es, sin el dinero de PROPYME, ¿sabe cuanto cuesta?

No, yo tuve cotizaciones depende de quien, una empresa consulta de otro país o, yo tuve cotizaciones hasta de dieciséis mil dólares por ejemplo. Sé que estuvo mucho más económico de esta forma, pero sé que 16000 dólares para el tamaño que nosotros teníamos en ese momento. Y para el alcance que queríamos dar.

¿Como eligieron estas certificaciones?

¿Cómo los elegimos?

Sí.

Es, es muy natural, ¿que hay, que hay de sellos, de certificaciones? No hay nada, entonces vamos a normas ISO. El que es como lo mas conocido de estándar, entonces aplicamos para norma ISO certificamos el proceso porque no podemos certificar producto, entonces certificamos el proceso y era muy natural al ambiente porque será nuestra empresa en producto amigable al ambiente, y la calidad que necesitamos controlar. En la información básica que tiene el mercado. Puedes hacer, si quieres, ¿puedo traer a una persona que te puede interpretar en inglés y traducirme? ¿Está bien? Porque es muy técnico lo que ustedes están preguntando.

Sí, está bien.

Con el español, de todas formas ¿ustedes van a escribir en inglés?

Sí.

(llámame…gracias)

De nuestro grupo, nosotros somos los mejores con el español. Es de suerte que nosotros podemos llegar hoy.

Sí porque hubiera sido completamente en inglés. Y, ¿como han hecho con las otras entrevistas? ¿Siempre en inglés?

Unas en inglés, unas completamente en español, con traducción para, de nosotros, las chicas, que ellas no hablan muy bien.

Mariana, vete, esta es Mariana, ¿tu nombre?

Charles, y Paul

Mariana, ellos son, ¿están haciendo una investigación para la universidad?

Si, y para el Centro de Producción más Limpia.

Que son amigos nuestros, con el tema de certificaciones para productos y más, entonces están haciendo preguntas y yo les respondo. Tiene preguntas pero no saben traducirlos bien al español. Debería hacerlos en ingles y traduce al español……okay? Adelante.

Do you know what percentage of the sales are exports versus things that are sold in Costa Rica?

Un 80 porciento en Costa Rica, y un 20 porciento de exportación, en este momento.

Could you walk us through the main decisions that you guys had to make along the way to choosing these certifications?

I didn't understand the first part of your question.

Could you tell us your main decisions that the company had to make when choosing the certifications?

You want to know the main decisions?

Yes.

Diferenciación, la principal decisión es diferenciarse en el mercado. Como empresa, como industria, y con productos. La diferenciación conllevaba certificarse de alguna forma. Y esta certificación pasaba por encontrar cuales será varios, entonces, la decisión llega a manejarse diferente a la competencia. Dos, hacer las cosas bien…

(Two different reasons: the first one is just to be different from the enterprise and products. And the second one is to make things right, in the right way.)

Cuando tienes una norma, y una certificación, es una guía muy importante para hacer las cosas bien, con un estándar internacional. No solo según nuestro propio quetel.

What advantages after having certification has the company Florex seen from getting certification?

Okay, un proceso productivo muy ordenado, muy organizado. ¿Entendía?

Sí.

Dos, una cultura organizacional mucho más exigente, mucho más estricta con nosotros mismos, cumplir con estándar, llevar registros, documentar las decisiones, es todo una cultura diferente que nos coloca en un nivel de competitividad más alta. ¿Okay? Eso es muy importante. Y tres, reconocimiento, o credibilidad (credibility) credibilidad en el mercado, con nuestros clientes es muy importante. Ya es difícil pensar en la empresa, en toda la empresa sin estas normas, sin estos sistemas que aplicamos para seguir obteniendo las certificaciones. Es como la forma de trabajar en la empresa, es una forma distinta.

Are you familiar with PAS certifications at all?

¿PAS? Your question is about certification names PAS?

Publically Available Specifications, 2050, 2060. Una norma de inglaterra.

¿Para productos?

Hay uno para productos y uno para la empresa en total. Se tratan del carbono neutral y la huella de carbono.

Ah, okay. No, nosotros decidimos con la norma nacional, no estudiamos otras. 2050 Verificación de la huella de carbón. Okay, sí sabíamos de como medir la huella de carbono, lo hicimos del inicio, cuando estábamos implementando ISO1 4001, ambiente. Empezamos a generar información para medir nuestra huella de empresa. Pero no aplicamos a la certificación. Nos guiamos por la norma, pero no lo aplicamos, no asesamos. Ahora, el año 2012, toda esa información nos sirvió para aplicar para la norma nacional, de carbono neutralidad. Fue muy interesante el proceso porque ahora sí aplicamos. Nosotros mediamos nuestra propia huella para nosotros conocerla y en el futuro usarlo; no sabíamos todavía muy bien cuándo o cómo, pero ahora no sirve para la otra certificación, solo de norma nacional.

¿Carlos se ayuda con las certificaciones?

Con la ISO 9001 y con la ISO 14001, sí.

¿Pero con la norma nacional?

No, esto es nuestro. Tuvimos asesoría, consultoría de otros consultores. No del Centro Producción más Limpia.

Are you guys familiar at all with local carbon emissions markets that MINAET is starting?

What?

MINAET, the Ministry of Environment, they're trying to create these carbon markets where companies that reduce their carbon emissions could sell…

Like carbon footprint…

Could sell their extra,

Like oxygen?

Yeah, well, they're negative, they have reduced beyond what they needed to they could sell the extra…

Ya nosotros medimos nuestras emisiones. Mitigamos o documentamos como mitigábamos esa parte y ya presentamos a INTECO. Nos auditoró, etcétera. La compensación de la, la hicimos con FONAFIFO, compramos como treinta toneladas, es pequeño, para proyectos de reforestación en la zona Guanacaste, pacífico norte. Esta es la forma en como hemos entrado al mercado. Decidimos hacerlo en Costa Rica con el sistema de FONAFIFO porque dan pocas, muy pocas toneladas. Pero en el futuro también quisiéramos explorar en otros países porque es un tema de mercado. Si tienes sus productos en Estados Unidos vas a querer comprar en el mercado en los Estados Unidos. Si tienes en Inglaterra, por el reconocimiento y legalmente, o el link que esto tiene con consumidores en esta zona. Pero decidimos en Costa Rica porque el tamaño de nuestra, de las toneladas que tenemos que compensar y porque estamos en este mercado. Pero el mercado en Costa Rica es muy incipiente, muy (just starting) Entonces igual estamos… (if you didn't understand a word or something you could tell…)

I think we're doing pretty well, coming up with the words is the hard part. El tiempo para verificar y certificar por los ISOs, ¿dijo que era un año?

¿Calidad y ambiente?

Sí.

Un año en total.

¿Y para la norma nacional?

¿Carbono neutral?

Sí.

Seis meses. Lo que pasa, dos razones, para que sea un tiempo corto. Nosotros veníamos registrando emisiones y control desde antes, desde empezamos con ISO 9001 e ISO 14001, teníamos todo de los registros de años pasados, tres años antes. Y dos, hemos tardado porque el programa país y no está listo. No es que nosotros no estamos listos sino porque hemos tenido que esperar al MINAET para que sea listo para poder aplicar. Pero nosotros habíamos integrado antes.

Las certificaciones, ¿hay cosas que sus clientes quieren o apoyan?

Sí. Por ejemplo, nuestros productos y varios otros productos en el mercado dicen ser "biodegradables". ¿Cómo pruebas que son biodegradables? ¿En cuantos días? ¿En que condiciones? Entonces, nuestros clientes primero quieren ser, ¿que es biodegradable, que significa? Y segundo cómo mostrarlo, ¿cómo me dices que es biodegradable? Entonces nosotros buscamos norma internacional, la más validada, la bajamos, la trajimos, y buscamos laboratorios de Costa Rica que pudieran aplicar la norma, a acreditarse para que hiciera el análisis de nuestros productos, de todos. Y nos dijeran, de acuerdo con esa norma, cuánto es biodegradable en qué tiempo. Y cuánto es el efecto residual, okay? Nos fue complicado, muy complicado, porque los laboratorios no conocían las normas internacionales. Lo logramos con Universidad de Costa Rica, con Universidad Nacional y con algunos privados, algunos laboratorios privados. Genera la información, y en este momento nosotros, en la etiqueta de producto, hicimos es 100 porciento biodegradable, o es fácilmente biodegradable, de acuerdo con la norma. Cuando ellos preguntan, nosotros le damos el certificado del laboratorio. Eso es un ejemplo de lo que un cliente final puede pedir. Cuando es un consumidor de hogar, ¿verdad? Cuando es una empresa por ejemplo, cuando es una empresa que viene y está invirtiendo en una zona franca, ellos piden las certificaciones de sus propios casas matriz, de sus lugares de origen, si es Estados Unidos, o si es un país en Europa. Porque ustedes tienen una certificación tal, y nosotros decimos sí o no o tenemos estos, y eso es un poco la negociación de ellos. Nos han pedido las certificaciones los que están usando los señores, una certificación que usan los judillos israelitas tienen su propia certificación de producto natural. Algunos piden a certificación de FDA por ejemplo, y nosotros dicen, no, no puedo ponerle en un producto de limpieza nuestra, una certificación FDA queda más con los Estados Unidos, entonces hacemos la investigación y les presentamos los documentos de porque no se puede o porque sí. Pero en casi todos los mercados se piden certificados ISO. Casi todos los casos, y allí estamos bien, los tenemos. Casi siempre. Muy de vez en cuando, surgen alguna certificación que ellos tienen allá en su país de origen y le piden en Costa Rica, pero, es menos.

En ese caso, ¿es necesario explicar porque no tiene o porque es el mismo?

Sí, siempre entonces tenemos que presentar documentos científicos, o información, tener reuniones con sus rugientes, químicos, o ambientales, o ese. Casi siempre. Hay que explicar. Es complicado.

Sí.

Muy complicado. Las certificación tal, y nosotros, "What?" "Que?" Entonces, sí tal, ni siquiera aplica a un producto como el nuestro, alimentar, para alimentos o para pesticidas o para, entonces a que se todo esfuerzo para explicar que no es, la información no es uniforme entre todos, cada que maneja como, algunos más, otros menos información.

Y, una pregunta más. ¿Ustedes están trabajando para el programa nacional, para el estándar nacional por qué piensen que es bueno para tener para Costa Rica o para la centroamericana?

Yes.

¿Cuáles mercados quieren usarlo?

Primero aquí en Costa Rica, luego en Centroamérica, en los otros países de Centroamérica, la imagen de Costa Rica y de producto de Costa Rica en el tema ambiental es muy buena. Entonces llegar con la certificación de carbono neutralidad país es bueno. Okay? En el futuro, el mercados como los Estados Unidos o como Irlanda, Inglaterra, bueno o Canadá por ejemplo, pensamos que el valor de nuestro producto allá es el origen, de dónde viene, cómo fue fabricado, qué tipo de materias primas tiene, de dónde son. Por ello, un certificado de este pequeñito país de carbono neutralidad le da identidad de origen al producto. Depende mucho de cuando el país completo promocione, esta marca país de C-neutral, ¿verdad? Cuando lo lleve a esos mercados, para que ayuden nosotros empresa con un producto a llevar ese sello país allá, y que sea valioso. Por eso estamos apostando, porque el valor de nuestro producto en un mercado tan lejano es de dónde viene, por qué es amigable al ambiente, usa materias primas que vienen de la biodiversidad de esta región, un país que ha invertido en conservación, que invierte en C-neutral, llevarnos esta origen a través de la norma o el sello es importante. Es una apuesta, es un riesgo, un riesgo grande porque no necesariamente Costa Rica va a ser conocido en ese país. Pero, queremos hacerlo de esa forma, nos parece que lograr buen nivel de oportunidad para competir.

Con las certificaciones, ¿puede vender sus productos por más dinero?

No, ya es aquí sí, pero el vender más caro el producto en este país es por su calidad, por su rendimiento, por la diferenciación. La certificación es un apoyo, no es que porque está certificado puede vender más caro. No es eso. En Europa o los Estados Unidos, tener una certificación para nosotros es tener acceso a mercado. No es que podamos vender más caro, es solo lograr acceso al mercado.
Creo que es todo.
Okay.
Muchísimas gracias.
Con mucho gusto.

Appendix F: Summary of Interview with Kelly Duarte of Atemisa Precision

(Interview conducted mainly in Spanish, transcription unavailable due to background noise)

We began the interview by asking what certifications Atemisa is pursuing and why, and any estimates they could give us about the cost of certification. Sr. Duarte told us that Atemisa is pursuing certification under ISO 9001, ISO 14001, and INTE 12-01-06. He estimated the total cost at about 90,000 USD, with an annual maintenance cost of about 6,000 USD, but encouraged us to check with Sr. Perera for the exact numbers. He expressed that some of their clients asked for these certifications while others did not, so they are covering all their bases by pursuing this set. Sr. Duarte also gave estimates on the completion time for certification under INTE, which was the first one they were working on. He estimated it would take another 4-6 months to complete the full process, with inventory verification done in about 2 months, as they were already in the process of calculating their inventory.

We next asked about their motivations and desired outcomes for certification. Sr. Duarte emphasized that the company wanted to become more competitive and standardize its products, and that certification would help them achieve this. The company's current markets are primarily within Costa Rica, with one client in the US. Sr. Duarte told us that the company vision is to be making parts for use in the human body within ten years, and their international partners have shown them that certification will bring Atemisa new market opportunities. In addition, many of their clients openly support the certification process, and Sr. Duarte said it will help to give their products a figurative "Class A" rating. Their final motivation is expansion to markets abroad, including the US, Puerto Rico, and Europe. Through certification, Atemisa hopes to assure the quality of their products and open new opportunities for business outside of Costa Rica. Sr. Duarte believes that the world is moving towards environmental consciousness and carbon neutrality, and he hopes these certifications will put them at the forefront of this movement, as well as make them a part of the national Costa Rican 2021 carbon neutrality effort.

We also asked Sr. Duarte about any obstacles that the company foresees in the certification process. He commented that this is new for their company, and he is not sure how difficult it may be. Atemisa is also the first company of its type in Costa Rica to pursue these certifications; however, they have the tools and the help they need, and they are confident they will achieve their goal. Sr. Duarte added that in one year they are anticipating the completion of construction of a new offices and facilities with better utilities and resources. Atemisa plans to achieve carbon neutrality before this time, but this will create many challenges for Atemisa in the coming years in the form of verifying inventories and remaining carbon neutral. Besides all of these considerations, Sr. Duarte noted that the biggest obstacle will be creating a cultural change in the minds of the Costa Rican public. He told us that carbon neutrality is still a new concept here, and getting the people on board will be important.

Finally, we asked Sr. Duarte about several of the new programs starting up in Costa Rica. With respect to the developing local carbon market, Sr. Duarte responded that they could be helpful; however, he saw no way for Atemisa to generate any direct income through this market. When asked about the new National Brand Program, he responded that he had not heard about it, but Atemisa may very well be interested in it. He made a point to write it down for future investigation. Lastly, we inquired as to whether Atemisa had considered any of the PAS standards for certification. Sr. Duarte commented that they had not considered these standards. Carlos and the CICR had proposed the combination of ISO 9001, ISO 14001, and INTE, and Atemisa took the advice.

Appendix G: Summary of Interview with Sergio Musmanni

(*Interview conducted in English*)

Do you mind if we record this so we can…

It depends.

It depends?

What's the purpose of the recording? It's not to send to YouTube or something like that?

No it's not for YouTube. For our records in case we want to go back.

I know, it's fine.

So, thank you for taking the time to meet with us. Carlos mentioned that you were one of the sort of founders or starting minds in the National Standard so we thought that you're perspective on that program and its beginnings and development would be very valuable for our project research.

Mhm. Yeah, well I can tell you a little about the history behind the National Standard. Back to 2007, when the Minister of Environment and Energy was discussing or we were developing the National Climate Change Strategy, one of the discussions was how to involve sectors, different sectors of the economy in the process of working in the climate changes issues, especially mitigation. And one of the alternatives that we saw at the time was to provide the tools and conditions for the enterprises and organizations to be part of the effort because most of the time climate change is like a huge umbrella, everything fits in there but at the same time is just for very high level entities or the government itself, and then your small enterprise, or your enterprise, and you really don't see where you fit in the whole process. So looking at that situation, we proposed to the ministry, I proposed to the ministry, to have an initiative on organizations and enterprises and I wrote like a protocol that if you were interested in working or measuring your carbon footprint, you could read a small document but the basics of how to measure the carbon footprint and work yourself on that activity and of course the question afterwards was ok we have some protocol and how do we make it official and the answer was the only way to make it official, although it's voluntary, is to work under the national quality system. And I see that you have some papers from ECA so…

We have already been in conversation with them.

So if you consider the national quality system, ECA, INTECO, PROCOMER, are three institutions, there are four institutions, but those three are very important in developing a standard ,INTECO in the accreditation of the entities and the procedures, ECA, and PROCOMER in terms of metrology. And so I mentioned that if we were going to work in that line, we needed to have the national quality system working for MINAET and not against MINAET. So, at that time, the ministry talked with INTECO and said well we need your help in order to develop the standard and they can form a group well they already

have this group but they told that group that they were going to work on this issue. This is the DC 207 group that works on environmental standards. That's a group of 16 or so enterprises, mostly the environmental managers of those enterprises so they know very well each standard, ISO standards, but they didn't know anything about carbon neutrality. So at that time, we started providing them with the basic information, the protocol that I wrote, and Jorge Monge, our person, another consultant of the strategy, and myself, we were sitting together with this group of people explaining what carbon neutrality is and how to achieve carbon neutrality and how to calculate the carbon footprint and how this will fit with the ISO 14064 part 1, part2, part3 and the ISO 14065 and 14066. Then we had like 17 meetings, 17 meetings later we had a draft version. Some say that that version was a little bit complex because we had different levels of carbon neutrality and different levels of carbon so for example if you join today the initiative for carbon neutrality, you could be labeled carbon neutral plus C. And what's the meaning of C? It's entry level you measure you're carbon footprint you don't have reductions programs or mitigation programs. You don't have of course the compensation initiatives, so let's see, entry level. When you develop your mitigation programs or reduction programs, then you go up to level B, and when you have both plus you compensate, you will be class A.

And that was the old, complex version, right?

Yeah

Ok yeah I was going to say, I don't remember reading that. So how did you simplify that down then because that's kind of the same, from what I've read of the National Standards now, it's kind of the same process.

It's the same. Nothing changed except you don't have the C, B, and A qualifiers.

Ok

So basically you have the same process. You have, if you look at the equation for c-neutrality, you have E minus R minus C equals zero.

Right

E is the same formula you measure carbon neutrality. E is B, meaning that you have some reduction efforts, and C compensation is when you reach level A. So basically it's nothing different, it's just terminology and the simplification of that you don't have any qualifier for each step and you go and you expect everybody to reach level A.

Yep

That's the first thing. The second thing was that we considered that the version that the carbon is not equal. This is a little bit confusing for most of the people. Carbon is carbon, but worldwide you know that some projects, some mitigations projects, or some compensation projects, are of higher quality than others because you have less leakage, because you have higher certainty of the process. And so on, so if you

have a high level, high quality, project for compensation, then that was grade A in carbon. If you have some level of uncertainty, then you label that B. And if you have a very low quality project that is very prone to have problems, then you label that C. Again, the vice minister of the new government said this is too much and we need to have a new version. Even though when you have a standard, the normal procedure when you reach the level of having a draft, you publish the standard, and you have 2 months for people to read and make comments on the standard.

That's true. The general public as well, right?

The general public, anybody can make comments on the structure, the methodology. I mean everything is subject for…

Criticism?

Comments, criticism, anything I mean. You don't agree with the methodology, I don't agree with this or that, I don't like the wording of that part. It could be several levels of observations. So, why am I doing this comment? Because the usual thing is that if this was too complex for the regular people or the organizations, it would be likely the same people during those 2 months would come up and say, "This is not good because of this or because of that," but nobody. They received like ten comments.

Really? Wow.

And then by the 20th of November of 2009, (I keep track of dates very easily), the first version of the standard was approved. And this is still in the previous administration.

Ok, so that would have been under...

Roberto Dobles of the Ministry of Environment.

President Arias?

Yeah under Arias.

And after that point, is that when the standard went through review and additions with other international carbon neutrality standards? Because, or, basically we met with Manuel Gonzalez of INTECO, and he said after the 2009 publish, there was a review and editing that went into the second publication.

No. This is, there were a few months of peace because 2009 is the previous year of our elections and so from this November 2009, and we had our elections in February 2010. And the new administration starts in May. The 8th of May of 2010. So first, December, January, February, no action at all. You have the standard, but no one was promoting the standard. And why is this? Because basically the minister of environment, they start changing the vice minsters, the minister, and so at the end, everybody was waiting for the next government, the next administration. And then the elections, and then nothing happened because again, everybody's expecting for the new authorities to take office. And so they waited until the 8th of May, and then of course people will be elected, will be appointed, to their , to the office, and it will

take some time for them to start digging into their drawers and desks to see what's pending. So, when the vice minister Andre Bourrouet started taking the vice Ministry of Environment, one of the first things he said is "I don't like it", and this was more or less in October, so basically we had one year with one standard without any action. But I don't know if Manuel Gonzalez told you that we were the first ones to have a carbon neutrality standard.

Yes he did.

Ok then of course I was contaminated because I was part of the first effort. So they call again the same people from the DC 207, but they said, "oh, we don't want Sergio", and I said, "I don't care, as long as you keep on working, and we will have some time on the new version, that's fine", and they were working there. They had again 17 or 18 or 20 meetings more, and at the end they get this version.

Now, with this new version in its current implementation, how do you see it coming over the next few years, having seen how the first draft was received, and now this draft. Do you see it becoming more internationally popular or…?

I mean, the purpose of the National Standard is for the implementation in Costa Rica. If somebody else wants to take it and use it somewhere else, I mean they're more than welcome to take it and use it, but the standard is, the original idea is, to work in Costa Rica with that.

Right, I think what...

And in Costa Rica so far, so far so good. Many enterprises have come by and come on and started using it. With INTECO guidance, with The Earth guidance, I mean there are many people using it in order to apply the standards and I believe that's exactly what we were expecting to happen. Of course people are still missing some parts of that like, ok, I run or I do all the things that the standards say, that I'm supposed to do, and when I reach this level, what?

Right. You just kind of stop there.

Yeah because I mean, the construction of the whole structure at the national level takes time. People believe it's like buying a hamburger: sure, here's the fries, and here's your hamburger, and here's your drink,

Good to go

15 minutes. Less. 5 minutes, but in order to have, to develop, the portion of it you're ready to apply, the standard takes time. The portion on the accreditation of verification and validation bodies takes time, and so it's like, oh, you want fries with that, ok, I have to buy the fryer and the oil and train people and get the potatoes, and…

Right

And all the stuff.

Some of the concern we had heard from the companies was just looking at various standards. More so the companies that are exporting, whether the fact that they are certified carbon neutral by this standard will be respected by international markets.

That's a big question, that's always a consideration. If I'm selling my products in Germany and I bring a certification from INTECO, I don't know how anything views INTECO, but it's just a scenario. And you go and you tell one of the largest (I don't know supermarket chains in Germany) here look, my product, my coffee, certified by INTECO, and who the hell is INTECO? And that's normal. The same thing will happen in the US. I mean so, for our country and our region, it could be good enough, to have INTECO certify in that. But of course if my market, my main market, is Germany or the US, I should look with more open eyes and a different point of view and say ok, in the US, who is a credible stakeholder in the certification area? A little bit what Coopedota, I don't know if you have seen…

Yes, we…

Coopedota did something on that line. They were interested in going into the US market, they sell a good quantity of their coffee in the US, and they identify Carbon Clear as one potential certification partner because they were looking at the US market. Perhaps if they start looking at the European or German market, they will choose a different certifying body.

Right

And regarding your question that is implied in there of if INTECO will be credible, or the standard, the local standard, will be credible outside, yeah I believe that it might be. It's a matter of how you put all these fast food things together, or yeah the certification is done by a credible body and at the same time is following all the best practices, of the ISO standards. And using the same conditions or principals as the ISO 14064, I don't see any limitation. But you will have to explain that. It's not automatic. It's not like these and these are the same. You have to explain that all the principals that are in the National Standards are coming from other similar standards developed by the International Standards Organization. For example, the 14064 part 1. That the project follows the structure of 14064 part 2, and that the verification and validation of those projects or inventories are done following 14064 part 3. If somebody tells you that or explains the similarities, then they shouldn't have any limitations to accept the standard.

We heard from ECA about a lot of, or several efforts that the Ministry of Environment, as well as PROCOMER are undertaking in order to promote this National Standard, as well as a National Brand or the local carbon market. Do you know anything about their current efforts on those?

Yes. The brand started about the same time as the standard, the first standard, and it comes because the ministry, the minister, Roberto Dobles, registers the brand in Costa Rica, and the registration is under the ministry, so the ministry's the one who owns that brand and the idea behind that is that when an enterprise runs the standard and runs the reductions and runs the compensation, at the end, they fulfill

their requirements to obtain that brand. We're still lacking the conditions to use the brand and the conditions to obtain the brand, but basically the brand will be awarded to the company that fulfills all those requirements. But as I mentioned, we still don't have the a written document where it says, do this and that and then you send those documents to this office, this office reviews the documentation, and blah blah blah. All those procedures are still…

But the idea would be to have, if a company follows through with the inventory, mitigation, and compensation, as the National Standard puts it, then they would be eligible to have the National Brand?

And that's the idea of using the national quality system because somebody will be doing let's say the consulting for a company to do whatever, some other company, or some other entity, will come and verify that and then when everything is verified and they've reached that level of hiring all the documentation, and they bring this information to the Minister of Environment, and then they will say "ok, you're verified and you can have the brand." It's not the same as if it's in the same office. For example, I run the show with this standard or I run this show with the verification, I run the show with the brand, and at the end, you've paid for the initiatives, and then it's very hardly that you'll say, "Oh I made a mistake on the second portion," or "this is not high quality." That's why it's called a third party verification or certification.

And so, are you familiar at all with the carbon emissions markets?

I know a little bit.

Can you tell us a little bit about that? How it's going to work?

They developed here, something that's called the country program. The country program is another way of saying that you can use methodologies from World Resources Institute or you could use methodology from ISO, or you could us any other methodology as long as it is recognized by the country as an official methodology. And the same happens not for measuring carbon footprint, but also for carbon markets. In international carbon markets, you have like the CERs: the Certified Emissions Reductions. They're under the United Nations, that is the most expensive and more complex systems. The cost of transactions are very high. So for small projects, it's very hard to run those things because the cost/benefit ratio is hard to achieve. Then you go down one step, that is the VERs: the Voluntary Emissions Reductions. And those are voluntary and in that sense, are a little bit easier, less complex, and of course, the transaction costs are less, because they're not as complicated. And so those reductions have their pros and cons since they are easier to obtain, sometimes they are not as picky on the specifics. And the third level is the UCCs: the Unidades Costaricenses de Compensacin. The Costa Rican Compensation Units. And what we discuss in the national strategy is that these simple methodologies, and credible methodologies, are hopefully fungible. I don't know if that word exists in English.

Tangible?

Fungible.

Able to be funded?

No. No it's not funded, fungible is ah, let's say…

 If you can, if it helps to explain it in Spanish. Is there a word in Spanish?

Fungible. That's even hard for people locally. What it means is that when you have market bonds from the market, that if I have this in the local market and I have some similar in the Japanese market, and some in the Chicago Climate Exchange, and everybody understands the same and everybody recognizes the other ones.

So consistent?

It's not consistent, it's that the procedures behind and the recognition behind…

Standard?

Are included in those, in the…

All-encompassing?

Yeah, like equivalent.

Ok

But it's a term in bonds that means completely exchangeable.

Ok

Anyway, what I'm explaining now is what we wanted to achieve. That is at the end, if I go through a project of forestry, let's say, and I developed 1000 UCCs and then I want to sell those here in Costa Rica, but perhaps somebody wants to buy it in Chicago, and then the person in Chicago buys through the Chicago Climate Exchange, CCE, and goes, and they go through like nothing, I mean yeah, we recognize those and…

So it's a very easy process.

Back and forth and nobody…

Interchangeable. **So you basically want the UCC to be just as recognizable to everyone as the CER. CER's a reduction.**

Yeah all three of them could be reductions, or could be compensations.

Probably depends on the project then.

Depends on the project, yeah, for example I could have a project on energy efficiency and at the end I have CERs or VERs or I could have a compensation project on forestry, and I could have either of them.

Right

And the same with UCCs, I could have energy efficient or renewable energy projects or fuel switching projects and all of them and I could have one version of those bonds. Ok what's the difference? That's

why I started with the higher complexity one, that is the CERs. The thing is how to get the best of the CERs without the cost but it's still recognizable. You understand?

Yes.

Ok it's getting the best of all the different worlds, but for Costa Rica. Since most of the projects here are very small projects, we cannot introduce higher transaction costs; otherwise nobody will participate in the local market.

So you're looking for the reliability, the quality of the CERs, but at a price that Costa Rica can afford?

At a low cost of transaction and at a lower cost also to buy.

And that's what you're aiming for with the UCCs? And the UCCs would be the units that would be traded in the local Costa Rican market then?

Yes

Alright

With one consideration that said this will be like a laboratory, this will be like a pilot project worldwide and then the idea since we started talking about this in 2007 we were dreaming that the model that we develop in Costa Rica will be exported to central America and hopefully run as a regional carbon market and that hopefully, eventually, these regional carbon markets from central American will go up, that it will be going down to south American, then it will go sideways to let's say the Caribbean, and we would end up with let's say a Latin American carbon market. With this scheme that is much friendlier than the CERs

That helps a lot of our clarification regarding that. So this program, they're still trying to figure out then how to get the best of both worlds for these UCCs? That's where the project is at the moment?

No. Actually it's a little bit advanced because the ministry hired Ecoresources, that is an international consulting company, and they are very well trained in this topic. And they reviewed the proposal the Costa Rican idea of doing these UCCs and all that stuff, and they're almost finished in the consultancy to say what will be the best model to apply this here locally.

Ok

And since they know how the world market in this topic works, then hopefully this will help in being exchangeable, fungible. I'll look it up to see if that word exists in English.

There might not even be a word for that in English.

In English, I'm sure it exists.

There might be a technical term in bond language. Probably some…

So we are, let's say on that topic we are 90% advanced in the model, not in the implementation, but the proposal is at that stage.

I was wondering has Carlos told you anything about our project.

No, I received an email from…

Him a long time ago?

Actually I think I received it twice. Most of the time I have a hard time…

Oh we completely understand. What Charles is getting at is Carlos has asked us to sort of develop a decision tree in the way that local companies would be able to, or local companies that are interested in pursuing different certifications, can use to best decide which ones would accommodate their company needs, outcomes, you know target markets, most effectively, and the National Standard is obviously one such certification we are comparing against others. Mainly PAS 2060 is the more direct comparison to it.

Well. I can tell you two stories. One is Coopedota, which you already know. The other one is the first company that obtained the carbon neutrality status was Platanera Rio Sixaola that's a banana company in the Atlantic. When we ran the pilot project on enterprises, because the minister, Roberto, was saying that we needed to put a carbon tax on emissions and that will take care of everything. And I said to Roberto, the minister, this is not very popular. So we should try the voluntary scheme, telling the enterprises what we want them to do and so we ran a pilot project and the companies were sending letters to the minister saying we want to join the enterprises looking for carbon neutrality. Why am I telling you this? This is a story this is not related to what you're doing. One of the first companies to join this pilot project was Platanera. They ran three years of carbon footprint: 2006, one year behind, 2007 the actual year we invited them, and 2008 the next year. And they reached that point where "I have 3 years of my inventory. I have reduction efforts documented, and I want to buy their compensation. I want to go to Germany with my bananas, carbon neutral bananas." They were at that stage, and I told the owner, well you can go to FONAFIFO, and buy CSAs, Certificados de Sostenabilidad Ambiental, and with those CSAs, you can become carbon neutral. This is 8:30 in the morning, he goes to FONAFIFO, straight because they were from the Atlantic and they were here and they go to FONAFIFO and they knock on the door, go in, and say sell me I-don't-know-how-many-thousand dollars in CSAs. And the people at the front desk at FONAFIFO go what do you want? CSAs. For what? To become carbon neutral. Um, we don't sell that. Anyway. He was so pissed off that he called me again and says you're telling me to buy something that is nonexistent and I had a brief conversation with the director of FONAFIFO, and he said, we can do it. Interesting because that's typical in Costa Rica. The boss knows, but the troops, they don't have the information. Anyway, this person was so pissed off, he was calling me very mad over the phone and I called the other guy and said look, you're putting me in trouble because your troops are not aware of this. Anyway, he grabs the phone, called the company in Germany that runs the certification process of organic produce, and says, I have this, this, and that and I need to become carbon neutral now. And the company

in Germany says send me the inventories, send me the programs of reduction, and tell me how many tons of CO_2 you want to buy. In order to make long story short, his company was the first carbon neutral company in the country and he ran the company for three years and he never got any bananas sold under carbon neutrality. So why? Too soon. Some people say it was too soon. He did all of it without doing everything. Others say he had all the information together, but I know that that's not true. Anyway, the company that certified this company was Climate Friendly in Germany, and is well known in the agriculture business so perhaps this will help you in the decision tree. It's not only to have a good view of the market, know who are the important stakeholders in certification, but also have a well devised marketing strategy otherwise something like this might happen again

Thank you, that is definitely good insight for our proposal. Someone else told us something similar about that. Some companies were going to become certified, and then expecting just because they were certified their sales would just shoot up, but they weren't doing anything to advertise. They were certified but not telling anyone.

It's the same as when somebody comes and shows you this mug and says this is the greatest mug in the world and you're like what? I can get it for one dollar in any store in the US, even nicer than that. But when you start explaining, but look, this is Inke, this is a great character in Costa Rica. You should pay at least 10 dollars to have Inke on your mug and they explain why Inke is so important. And at the end you decide to buy the mug for 10 bucks. But you already know why Inke's important. This is the only mug I drink coffee here at the Chamber of Industries. This is my mug. Anyway, this is important.

One thing, before we forget, just from a lot of what we've been sending sort of thank-yous to the companies we have been meeting with and inviting them to our final presentation, so we figure while we were meeting with you we might as well invite you. It's currently scheduled for December 10, here, at 10am, so we'd love for you to come if you can. We'll have, we will be presenting in English, but the slides will be in Spanish to accommodate a lot of the companies we've been working with.

Can I make questions in Spanish?

Yes

I'm just kidding. No, I would love to come so far for December 10th that's feasible.

Great. If you have a better answer the closer the date gets, just, I think you might have, do you have our contact information? Well, we will send out an email closer to the date as a reminder. Again, thank you so much for taking the time to meet with us, this definitely helps explain a lot of the questions we had around the National Standard because we were getting bits and pieces here and there, but no one really knew a lot so Carlos said that you would be one of the foremost experts on this, so he was right.

The problem here is that many people involved in the process, they left. For example Jorge Monge ended up fed up with the process and he is no longer, not even willing to talk about this. Because at the end, like with all the effort and all the work and at the end all this happens. On my side, it is different because when we finished the national climate change strategy, I started working on the industrial climate change strategy so I just switched from national to one sector, and when I finished this I started writing projects, where I work today, so I wrote the project that was in Germany and they approved that and now that is where I work. I kept somehow within the system.

Ok, well thank you very much.

You're welcome.

Appendix H: Summary of Interview with Álvaro Chain of La Flor AgroIndustrias

(interview conducted in English and Spanish, full transcription unavailable due to technical issues)

Do you mind if we record the interview?

Don't worry it's ok. I'm afraid my English is not good enough for a tape.

That's no problem

Ok, so tell me

I'm not sure how much Carlos has mentioned to you about the project that were working on for him

Just the detail that I read in the email

The bit that we're mainly concerned with is the CNP+L would like us to gather information based on the different national and international certifications, mainly pertaining to carbon emissions and other environmental issues

In the pineapple industry?

Across businesses. We're potentially looking to develop a tool that any company can use regardless of business, import or export market, to decide if a certification and if so, which one might be most beneficial to their company. SO in order to do those, Carlos mentioned that Ganaflor was verified by ISO 14064 and in August of this past year, you were certified carbon neutral. So we just wanted to find out first-hand what the processes was like for your company going through both those stages. We've spoken with representatives from INTECO and ECA, looking at a bird's-eye view of these certifications. But we'd really like to get a company's first-hand knowledge.

Ok, this magazine from the one of the main newspapers here, La Nacion, last September 16th, about the pineapple business. And there is an article about us, as a model to follow for the rest of the pineapple growers. You can find this on the web also. This is about us, a model of pineapple producer, outstanding. All of the pictures except this one are from Ganaflor. You can take this. And this is the last edition of the monthly magazine from CANAPEP, about the pineapple business in Costa Rica, including an article on Ganaflor.

Ok, so Ganaflor is a case of study in the offer of pineapple in Costa Rica and maybe in other countries. As you know Costa Rica is the biggest pineapple producer of fresh pineapple in the world. So basically our case starts at the end of 2010 when we received the company from the last administration in not the best agronomic situation. So it's important in order to give you a whole picture of the business in Costa Rica and in Ganaflor, the pineapple business starts early 90s in Costa Rica, and until today the business has twenty years. So in comparing with another business like banana or coffee, it is very young. So the industry, this business, is learning every day and learning from the mistakes also and the pineapple is not

the exception. This is talking about the macro-picture ok? In the micro-picture, Ganaflor is a company founded early twentieth century and as you could see in the web page we started from people who handle cows and bulls, livestock. Was a livestock company, family owned. Ok so early nineties the company moved from the livestock business to test with pineapple. The total area of Ganaflor is one thousand hectares. Half of this area is protected. We have water springs and this water is used by approximately twelve thousand people around the company.

As well as for pineapple production?

No

Is there pineapple production in that area?

Yes, but this is completely separate. So you can find rainforest biodiversity in these five hundred hectares. And we will keep this; we don't expect to grow our pineapple production. Two years ago, we have only the basic certifications that any pineapple company needs in order to export, Global Gap especially. It is the main one. We have a customer in the UK who sells to Tesco supermarkets, so we went to Tesco certifications. So we decided to go for it, and we get it. Every year we have to renew each certification with increasing difficulty or restrictions. For example, Global Gap, today we get one month ago, Global Gap 4.0. Global Gap the edition before I think was in 2010, it was 3.2 or something like that. So every year they change the standard, and it grows more strict I'm afraid.

Ok, in one hand we start to agronomically get stability with the best practices. We start with restructuring of the company, base it on management. So we leave the concept of the farm administrator who was in charge of the machinery, the people, the farm the plant, everything. He doesn't have the time for the farm agronomically. He spent the majority of his time in administration things, so we eliminated that, and we created management in different areas. One is the production area, other is the sales area, because the market changes. Ten years ago Costa Rica was alone, offering pineapples. Today is Panama, Guatemala, Mexico, increasing. So when the offer increased, you have to improve your sales skills. Ten years ago you don't have to sell, you receive the demand and you was like a call center. You receive the demand and you process internally. Today the pineapple companies wants to continue the business, needs to learn to sell. So we create a sales area. The two productive areas of any company are production and sales and the other areas give an internal surface to both of those two areas.

The information that I give you, you can see different flyers and one of them is 'Work Team'. We are a company based on a formal structure of functional management and leadership with experience, knowledge and professionalism. So, you have in Ganaflor: a production manager, a human resources manager, a sales manager, technical services, financial manager and an operational manager. So technical services is in charge of the quality and he's acting like an internal audit for the whole process. We get stability agronomically and we analyze. Pineapple is a commodity, everybody produce pineapple in

Costa Rica, one thousand producers in the official stats on CANAPEP. So how can we be different than the rest of the producers? We said the market goes through depreciation and you have strict local restrictions and international restrictions talking about environmental, talking about social guarantees or responsibility and technical responsibilities and local process that you need to be according to the law. And also political situations because less people mentally try to expose any company who doesn't play by the law and don't assume the environmental responsibilities. So it costs money, the costs are increasing and in the other hand because more competition more demand, so the profit goes like this in the last years. So you need to be competitive, efficient with the cost and you need to sell each day, better. For more price. So how can I sell the pineapple for more price if another company produce the same pineapple. We decided to go in for the service and for the quality and anyone who produce, if you ask him, he say I produce the best with the best quality. Internationally how can you prove that? We decided to go with the certifications. So we renew Primus Lab, Tesco and Global Gap and then we go to rainforest alliance and start, internally, a process to get that carbon free.

Your motivation for getting that carbon neutral certification is to stand out from the crowd, to be different, to have a pineapple that no one else has.

Yes, in one hand. In the other hand, because our vision of the near future is more markets want to choose his consumption, priority with a carbon neutral company.

Since obtaining this certification have you seen any results based on either sales, or how your international interest company?

Not yet, we are focused in some European markets in the North of Europe, Finland, Sweden, and Norway. But our customer portfolio until today, through our price, we get benefits from the certifications. Our price is higher than the rest. In approximately between five to ten percent. We are not cheap, we are expensive because of that, because our certification package in unique locally. Even the transnational pineapple producers do not have the package of certification that Ganaflor has.

So you're able to sell your pineapple for more money right now?

Yes.

And you're making more but you're still receiving the same interest?

Our company today, financially, we profit. Two years ago, we had losses, more expenses. So right now we are a company with profits. Our challenge is to keep in the next years, the sustainability of that.

Certification did get you profit?

The certification was one of the tools that we used to get profit. Unfortunately we had to take some not good decisions in order to reduce. So we passed from 350 people to 240 people. We reduced staff, and we invest in new machinery and some different software in order to execute the best agronomic practices in our farm, and internally in our company. It's a package of decisions and actions. We transformed

totally our customer portfolio. Today we have 12 customers around the world, basically in the States, Canada, Europe and Puerto Rico. Two years ago was quite different. Two day with 8 customers, we export 80% of our production and 2 years ago two customers did that. So it was a huge change.

Your carbon neutral certification is that on the company specifically or is that on the life cycle of the pineapple?

Very good question, it is about the company.

So the company is carbon neutral?

Yes, let me show you the certification. We do with it different things. In one hand we reduce our emissions. In the last two years to the order of 15%. In the other hand, we have 500 hectares with regional primary woods, with the potential to go to the market with carbon stocks. We started this new business portfolio by buying some carbon projects around the world. We buy some stocks form China from Chile from Tanzania. In the next month we expect to go public with some carbon stocks from us. We reduced our 1,000 CO_2 emissions in one hand with our internal reductions and in the other with buying stocks. In the next 12 months we expect to go to the market with our own stocks. We have the potential to go with four times more than our total emissions. So our emissions were 900 to 1000 CO_2 but we can produce stocks for 4000.

The Carbon Neutral Company is the organization that you went through for certification correct. You mentioned the rainforest alliance, what is the relationship between the company and rainforest alliance?

We are certified by rainforest alliance

What does their certification entail?

Basically only 12 pineapple growers in Costa Rica have Rainforest Alliance today. With Rainforest, you certify sustainability in all your activities. SO you produce, agronomically, in harmony with the environment, the people, internally with the company and the community. Basically in a few words, that it what Rainforest Alliance certifies.

Going back to the Carbon Neutral Company. What requirements did their certification have? Did they follow PAS 2050 or any of those type of international standards?

Ok, in order to give you the answer, I recommend both of you to go to the farm. I don't know if you thought about to take a day. It's two hours from here and the trip is beautiful between mountains and volcanos. It's the best way to understand all the information about all the requirements you need to achieve.

Are you familiar with the international standards such as ISO?

Yes, we decided to go with this package of certifications. For our strategic plan, we think that this is the package that we will keep year by year.

Why did you choose the Carbon Neutral Company?

Because nobody got it until we got it. Y porque pensamos que los mercados globales van a ir así allí

Tenia buena relaciones con los industrias en muchos mercados

Porque nosotros vender mas caros, tenemos que hacer diferentes. Ser diferentes significa un compromiso con los otros mismos de que vamos a tener una calidad sostenible y que vamos a encontrar los clientes que valoran esa calidad sostenible y con certificaciones que nadie tiene en ese momento. Van a ver empresas que en noviembre, que en diciembre, que en enero van a hacer carbono neutral. Muy bueno. Pero nosotros fuimos el primer.

Con la misma compañía, con Carbon Neutral Company?

No, por ejemplo, Carbon Clear.

¿Solo una certificación de carbono neutral?

Exactamente, carbono neutral es para nosotros es la mas prestigioso.

(At this point the interview recording became inaudible. Below is a summary of the remainder of the interview)

Sr. Chain told us that his certifications are well-known in specific markets, and the social responsibility and environmental initiatives that they certify enable Ganaflor to sell their product for a higher price. For this reason, the investment has greatly benefitted the country. We asked Ganaflor how they performed their market research, and were told that they looked at the most popular and expensive products in certain markets, and what certifications accompanied those products. This strategy was successful in Europe; however, they were unable to find a company that sells carbon neutral and organic products specifically.

When asked about the National Plan, he said he was unsure of whether or not it would be successful outside of Central America. 95% of their products are exported, and for this reason he was not interested in the National Certification. He was also not interested in the local carbon market or Costa Rican National Brand program at this time. When the market was finally launched he said he would analyze it, but at this time he felt the risk was not worth it.

As far as the cost of certification, Sr. Chain said that his unique package of five certifications cost less than $50,000, all inclusive, and two years to achieve. The maintenance of these certifications cost approximately $2,000 per year. While this investment was difficult at first due to their struggling situation, after two years, they have seen a 20% increase in profits. This increase in profits has come from an increased demand for Ganaflor's unique product, which translates to a significantly higher selling price than the competition.

In the past, Ganaflor has rebranded their products with a different name in order to disassociate themselves with any problems in the past, and become known as a high quality pineapple by their clients. In the future, the main obstacle he predicted was the maintenance of the certification. He told us that in order to maintain their current state, it was important to keep a company culture of environmental friendliness and social responsibility. The other challenge he mentioned was finding environmentally friendly distribution options. He said his ultimate goal was to sell his product to the consumers in as few steps as possible while ensuring that all companies involved in the transportation and distribution of the fruit have the same values as Ganaflor.

Appendix I: Comparison Chart in Spanish

Estándar o Certificación	ISO 14064	ISO 14044	ISO 14001	PAS 2050	PAS 2060	INTE 12-01-06
Propósito	Directrices para calcular inventarios de emisiones	Directrices para el ACV	Poner en práctica el SGA	La huella de carbono y etiquetado de productos	Carbono neutralidad	Carbono neutralidad
Costo Relativo	Alto	Alto	Moderado	Moderado - Alto	Alto	Bajo
Fondos	Disponible por PROPYME, muy competitivo	N/A	Algunos fondos por MICIT cuando combinado con INTE	Disponible por PROPYME, muy competitivo	Disponible por PROPYME, muy competitivo	Fondos significantes disponibles por MICIT
Reconocimiento	Internacional	Internacional	Internacional	Internacional	Estándar internacional más conocido	Dentro de Centroamérica
Tipo de Certificación	Declaración de Veracidad	Declaración de Veracidad	Certificación de Compañía	Certificación de Producto	Certificación de Compañía	Certificación de Compañía
Publicidad	Logo no oficial, no pone en productos individuales	Logo no oficial, no pone en productos individuales	Logo no oficial, no pone en productos individuales	Etiqueta de Producto	Logo no oficial, no pone en productos individuales	Marca de MINAET
Recertificación	Anualmente	Anualmente	Anualmente	Anualmente	Anualmente	Anualmente

Appendix J: Decision Tree and Supplemental List in Spanish
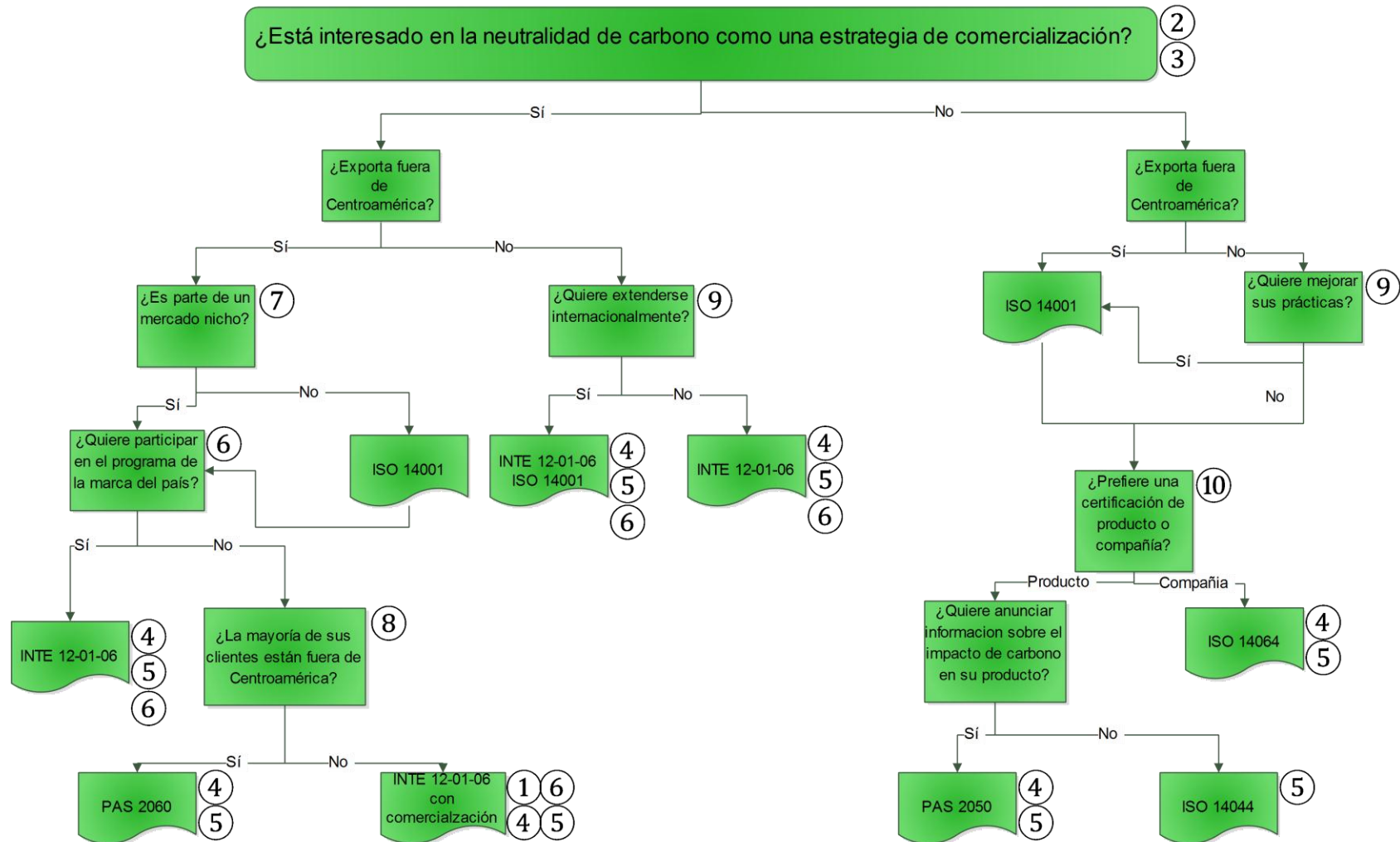
1. La obtención de certificaciones de carbono neutralidad ha aumentado ventas y oportunidades de mercado para algunas compañías cuando es publicado y mantenido apropiadamente.

2. La investigación previa de mercado es recomendada para determinar cuales certificaciones y compañías de certificación son vistas como valiosas.

3. El proceso entero de lograr el carbono neutralidad puede durar un año por razón de los dos procesos de verificación y certificación.

4. Fondos son disponibles por el Fondo PROPYME del MICIT para PYMEs persiguiendo la certificación ambiental, al máximo de 80 por ciento de los costos. Otras opciones potenciales para fondos incluyen el Banco de Desarrollo. Refiérase a la Tabla de Comparaciones para una información financiera específica de un estándar.

5. Las compañías tendrán que pagar el costo de mantener los cambios y los costos anuales de recertificación, sin fondos adicionales.

6. En 2013, PROCOMER estará promoviendo el Programa País de Carbono Neutralidad en el extranjero. También estará desarrollando el Programa de la Marca del País, como los de Brasil y Perú, en el cual las compañías costarricenses pueden participar y recibir un sello para usar en publicidad.

7. Mercados nichos involucran las ventas de productos especializados a una base de clientes que es pequeño y muy selectivo. Por eso, ISO 14001 no es necesario.

8. Eso es para dirigir compañías que exportan la mayoría de sus productos fuera de Centroamérica hacia PAS 2060, la certificación mas reconocida internacionalmente.

9. ISO 14001 es un requisito no oficial para competir en mercados internacionales. ISO 14001 guía compañías para hacer cambios y mejorar la eficiencia de la energía en las prácticas de negocios, y también inician la mitigación y reducción de su impacto ambiental.

10. Certificaciones de productos tienen hechos separados por cada producto. Certificaciones de compañías se aplica a las prácticas y emisiones de la compañía.