

Green Job Preparation in Costa Rica



Submitted by:

Elisabeth Boulanger

Jeffrey Ducki

Karen Paklin

Tatiana Vitorino Prata

December 12, 2012



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An Interactive Qualifying Project submitted to the faculty of
WORCESTER POLYTECHNIC INSTITUTE
in partial fulfillment of the requirements for the
Degree of Bachelor of Science

Sponsoring Agency: Cámara de Industrias de Costa Rica

Submitted to
Bernhardt Johst: Cámara de Industrias de Costa Rica
Prof. Robert Kinicki and Prof. Lauren Mathews: Worcester Polytechnic Institute

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Elisabeth Boulanger

Jeffrey Ducki

Karen Paklin

Tatiana Vitorino Prata

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Abstract

The goal of this project done in conjunction with the Cámara de Industrias de Costa Rica (CICR) was to recommend strategies for the advancement of training programs that would facilitate the further growth of green jobs in Costa Rica. By researching economic green development in China, Russia, Mexico, and Brazil and conducting qualitative interviews with nine companies and two universities within Costa Rica, we developed a list of recommendations classified in the areas of coordination with public and private institutions, management and evaluation, CICR training programs, job search issues, and international collaboration. These recommendations will help the CICR advance the proliferation of green jobs and training programs in Costa Rica.

Acknowledgements

We would like to thank all of those who contributed to the development and success of our project. We would like to express our appreciation to the Cámara de Industrias de Costa Rica, and especially Bernhardt Johst, for their commitment to our project and for providing us with the opportunity to complete it. We would like to express our gratitude to Professor Ingrid Shockey for helping us to prepare our Preliminary Qualifying Project (PQP) report. We would also like to thank Professors Robert Kinicki and Lauren Mathews, our onsite advisors, for their continued support and guidance through the completion of this project. Furthermore, we would like to thank Worcester Polytechnic Institute for making this project a possibility and the onsite director in Costa Rica, Professor Susan Vernon-Gerstenfeld. Finally, we would like to thank our site liaisons, Jimmy and Marcela Music, the faculty and staff of the Interdisciplinary and Global Studies Division and every company, university, and organization representative that we interviewed to make this project successful.

Executive Summary

In response to driving factors such as climate change, the rising prices of fossil fuels, international environmental policy and collaboration, and new technological advancements, the global economy is shifting to sustainable development in areas such as energy efficiency, renewable energy, and carbon neutrality. This movement towards a greener economy is sparking a transition to more green production and consumption, leading to green job generation and a need for programs to train this particular workforce. With its goal to reach carbon neutrality by 2021 approaching, Costa Rica has dedicated itself to promoting green initiatives, but there is still a gap in the development and proliferation of green jobs and training programs. The Cámara de Industrias de Costa Rica (CICR), our sponsoring agency, represents the industrial sector of the Costa Rican economy and is striving to develop green initiatives in its member companies (Cámara de Industrias de Costa Rica, 2009).

The goal of this project was to recommend strategies for the implementation and advancement of training programs that would facilitate the further growth of green jobs in Costa Rica. This includes a brief analysis of the development of green sectors in China, Russia, Mexico, and Brazil to provide international examples that later inform our recommendations specific to Costa Rica. We accomplished this goal by assessing green training programs in Costa Rican organizations and universities, evaluating current practices of Costa Rican employers in industries to train workers for green jobs, and identifying gaps in green job and green training program development.

The team conducted interviews with university professors and researched training organizations to characterize how current and future employees are being prepared for green jobs. Our referred contacts in the Cámara de Industrias further explained the status of green jobs in Costa Rica. To determine what barriers limit the preparedness of workers for green jobs, we interviewed representative from nine companies across various Costa Rican industries to identify gaps and potential areas of improvement in training programs and green jobs. There is a possible bias in the sample interviewed because it consists of member companies of the CICR that are all referred contacts by our liaison at the CICR. Additionally, many of the large companies interviewed are leading this green reform and are thus not fully representative of Costa Rican industry but provide valuable information for charting the future path of all companies. The team then made recommendations accordingly to the Cámara de Industrias.

We performed a qualitative analysis of the results from company and university interviews. Each company represented its respective industrial sector and the team categorized each in terms of size, sector, knowledge of green sectors of the economy, presence of green jobs, presence of green job training programs, connection to universities and organizations, and future commitment to green initiatives. The categories allowed for comparisons to be made between companies in the driving factors of and barriers to green job creation and training programs. A word cloud visually represented the identified barriers to green job creation discussed at each company. This showed recurring themes amongst all companies. This word cloud technique was also used as a supplemental representation of common words present in recommendations that each company made for the CICR. Recognizing the connections and gaps between university training and the preparedness of green workers in industry facilitated the creation of a list of recommendations on how the CICR can promote green job generation and preparation in its member companies.

Our results indicated that there has been a growth of green jobs and training programs in Costa Rica. We identified companies with limited green initiatives and those that have environmental departments, green jobs, and green job training programs. There appears to be a correlation between both increased company size and international involvement with the presence of green initiatives and training programs. These larger companies also had increased involvement with organizations and universities to educate workers and employ graduates but we did not conclusively connect this with the presence or absence of green jobs. All companies interviewed expressed an interest in developing or expanding green job programs in the next five years. Some recurring barriers to developing green jobs were lack of funding, time, and demand from consumers and clients to invest in green initiatives, and the need for an initial framework to establish them. Another obstacle that was identified was a lack of employee education and environmental awareness.

The initial list of recommendations for the CICR contained the analysis of both the data from interviews and our insights from background case study research. We then met with experts from our sponsoring agency, José Salas, Wendy Alfaro, Katja Frick, and Bernhardt Johst (our liaison at CICR), to discuss the list. The discussion focused on the feasibility of implementation, likelihood of success, probability of significant impact, and cost effectiveness of the initial draft of recommendations in Costa Rica and revised them based on their feedback. In this meeting, the

experts determined that all our recommendations are feasible and will have an impact on Costa Rica in the future.

By grouping recurring themes together under a broader heading, the recommendations were organized into five categories which include coordination with public and private institutions, management and evaluation, CICR training programs, job search issues, and international collaboration. Below is a subset from our complete list of sixteen recommendations that can be found in Chapter 5. This subset provides an example recommendation from each of the synthesized categories, chosen to demonstrate the significance of each of the five categories in the future leadership initiatives of the CICR.

- The CICR should establish forums or conferences for company representatives to meet, collaborate, and share information regarding experience with green jobs, training programs, and initiatives.
- The CICR should inform companies about how to establish an environmental management system.
- The CICR should offer a program to teach managers and executives the economic advantages of incorporating green jobs and training programs in companies.
- The CICR should create internships for students within the CICR to catalog data on green jobs and training programs, and the CICR should motivate companies to establish internships for local university students with environmental specializations.
- The CICR should utilize international contacts for aid in supporting and funding for companies.

This project will give the Cámara de Industrias an initial study of green jobs and training programs in Costa Rica. The topic of green jobs is relatively new in Costa Rica so this deliverable will provide preliminary strategies to the CICR for facilitating the generation of more green jobs and better prepare workers for green jobs. Our team provided information on worker training programs, establishing environmental management systems and a green framework in companies, advancing manager education, collaboration between companies, universities and organizations, international cooperation, and improving the structure of job search and education systems. By bringing these topics to the forefront, the CICR will develop the tools necessary to

continue to be a platform for leadership and initiate further green initiatives in the industrial sector.

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List of Acronyms

CDM- Clean Development Mechanism

CICR- Cámara de Industrias de Costa Rica

CO₂- Carbon Dioxide

CFE- Comisión Federal de Electricidad

G7- A group of the six greatest, economic powers including the United States, Japan, Germany, France, United Kingdom, Italy, and Canada

GDP- Gross Domestic Product

GIZ - German Agency for International Cooperation

GM – General Manager

GW- Gigawatts; 1,000,000,000 Watts

IPCC- United Nations Intergovernmental Panel on Climate Change

ILO – International Labour Organization

INA- Instituto Nacional de Aprendizaje

IPP- Independent Power Producers

ISO – International Organization for Standardization

KW- Kilowatts; 1,000 Watts

LED- Light emitting diode

MW- Megawatts; 1,000,000 Watts

NDRC- National Development and Reform Commission (in China)

OIT – Organización Internacional de Trabajo

PRC- The People’s Republic of China

PROINFA- The Incentive for Alternative Sources of Energy Program (in Brazil)

RuGBC- The Russia Green Building Council

Rusnano - Russian Nanotechnology Corporation

SU- Shenyang University

UCR – Universidad de Costa Rica

US- United States

Chapter 1: Introduction

Burgeoning with tropical rainforests and volcanoes, the Latin American country of Costa Rica has exploded as a center for ecotourism as well as environmental awareness and preservation in recent years. In order to protect its famed natural resources, which includes picturesque beaches, wildlife, and 3.2 million acres of preserved forests, Costa Rica continues to initiate and make progress in established environmental reform (Long, 2011). Driven to a greener future by concerns for global climate change, resource depletion, and environmental destruction, Costa Rica united with 36 other developed and developing nations within the Kyoto Protocol to limit carbon emissions from 2008 to 2012 (United Nations Framework Convention on Climate Change, 2012). Aspiring to lead, Costa Rica has challenged itself with the additional goal to achieve carbon neutrality by 2021 (Long, 2011). But it is not easy being green, and this is a concept that Costa Rica knows all too well.

Although Costa Rica's alternative energy initiatives are impressive, with ninety percent of its electricity generated by renewable energy, there are significant challenges that hinder it from achieving its objective of carbon neutrality (Long, 2011). The rapidly growing industrialized and transportation sectors in Costa Rica are responsible for a rise in carbon emissions and consumption of fossil fuels. Development and integration of new technologies in green industries of the Costa Rican economy is challenging as there is a lack of clearly structured programs to produce skilled workers for such technologies (Daley et al., 2010). For the purposes of our project, we define a green organization as a governmental, private, academic, or other body that has taken significant steps to operate with energy efficiency, carbon neutrality, and the utilization of renewable energy (Strietska-Ilina et al., 2011). Within our study, there is a particular focus on the private sector in terms of incorporating these green practices.

The sponsor of this project, the Cámara de Industrias de Costa Rica (CICR), is the representative body of industry in Costa Rica that supports the competitiveness of member companies. This agency also promotes the sustainable development of the industrial sector (Cámara de Industrias de Costa Rica, 2012). The CICR aspires to improve industrial sectors of the Costa Rican economy with a focus on the green sectors of renewable energy, energy efficiency, and carbon neutrality. The CICR wishes to further improve these green sectors by not only evaluating the preparedness of green workers but also emulating the successful strategies of

countries like China, Russia, Mexico, and Brazil, which have already made significant progress in becoming economic powers. Taking into consideration the most effective energy policies of other nations and its own potential in green sectors, Costa Rica can advance in carbon neutrality, renewable energy use, and energy efficiency by promoting skills for a productive green jobs sector.

To learn how Costa Rica can foster growth in green jobs sectors by developing new and existing training programs, we studied China, Russia, Mexico, and Brazil. Our literature review consists of an investigation of the strategies and initiatives that each of the case study nations employed in order to generate and further develop green sectors. These nations serve as models to demonstrate the methods and challenges involved in promoting green economies. They are especially noteworthy because their economies are fast-growing and influential in the global energy market. In the past, these nations have lagged in development as compared with the G7 countries, a group that includes the United States, Japan, Germany, France, Britain, Italy and Canada (Deloitte, 2011). According to economists, China, Russia, and Brazil are predicted to surpass the G7 as the largest global economies by 2050 based on GDP and productivity growth (Jain, 2006). Using these four countries as models for green sector economic development, we identified the drivers for green job generation and training in these sectors in Costa Rica.

Our research focused not only on the application of strategies for green sector development utilized by China, Russia, Mexico and Brazil to Costa Rica in terms of feasibility, profitability, and effectiveness, but also on the analysis of Costa Rican companies and universities. With the transition to a greener economy, Costa Rica has the opportunity to bring about a creation of new jobs and a redistribution of the workforce. The real challenge arises from providing the workforce with proper expertise and training. New industries are likely to require workers trained in a number of different areas, including general environmental awareness and job-specific technical skills, with some workers trained as specialists and others more broadly trained (Strietska-Ilina et al., 2011). The CICR has already begun the process of educating member companies through training sessions. Since “there is no organized coordination mechanism between academia and the public and private sectors to respond to the skills needed for becoming carbon neutral or creating a green economy,” (Strietska-Ilina et al., 2011, pg. 255) we examined how the CICR might help provide Costa Rica with the skills and training necessary

for its citizens to move into green jobs. The progress of green training programs is essential to the evolution of innovative green sectors within the nation.

The goal of this project was to recommend strategies to the CICR for the implementation and advancement of training programs that would facilitate the further growth of green jobs in the Costa Rican industry. Our objectives included evaluating mechanisms for training of green industry employees by universities and associations and determining the preparedness of employees in the workforce through green training programs. The team completed this evaluation through interviewing contacts within universities and companies and identified the gaps and barriers that limit the preparation of employees for green jobs. Furthermore, by structuring questions to identify these barriers to green job creation as well as recommendations to overcome them, our analysis of the data identified the reoccurring themes with regard to limitations and possible future development in preparing workers for green jobs. All companies were categorized with regards to size, sector, knowledge of green sectors of the economy, presence of green jobs and green job training programs, connections to universities and organizations and future commitment to green initiatives. In the analysis of our results we also identified barriers to green job creation discussed at each company and the recommendations each company made to the CICR.

The data suggests that there is a correlation between increased company size and international involvement with the presence of green initiatives and training. While the larger companies had increased involvement with universities, there is not enough data to support that the connection is related to green jobs. The majority of the companies interviewed expressed an interest in the development or expansion of green jobs programs in the future. Recurring barriers to the development of green jobs were lack of funding, time and consumer or client demand. Another barrier identified was a lack of environmental awareness and employee education. Additionally, we examined the connections between university training and the preparedness of employees for green jobs. Utilizing the results from these company and university interviews and also connecting these results to the case study research, we developed a list of recommendations for the CICR. We identified five major categories for recommendations: collaboration between the CICR, public and private institutions, company evaluation and management framework, CICR training programs, job search issues, and international collaboration and consultation. Resulting from the improvement of training programs conducted by the CICR, universities, and

associations, a better prepared workforce will facilitate green job generation within companies that wish to expand in this new sector. Our recommendations will help the Cámara de Industrias improve and advance green job training programs and green job preparation in Costa Rica.

Chapter 2: Literature Review

This chapter begins by defining terms relevant to the project and creating working definitions for use in this project. We provide information regarding our sponsor, CICR, followed by four case studies for comparison – China, Russia, Mexico, and Brazil, to assess whether strategies employed by these nations can be applied in Costa Rica. Each case study addresses how the respective country developed its green economic sector. The last section not only discusses the current status of Costa Rica’s green industry and actions already initiated by the CICR to promote green job growth and training programs but also makes a comparison between Costa Rica and the case study countries.

2.1 *The Greening of the Global Economy*

A “green” economy, or one which minimizes pollution and waste and efficiently utilizes energy, water and materials, is emerging globally. There is an increase in jobs that are more sustainable and support renewable products (Renner et al., 2008). This is due in part to the challenges created by climate change which in turn drive the need to meet emission reduction targets set by the United Nations Intergovernmental Panel on Climate Change (IPCC) (Bolin, 2007). Over the last two decades, the main drivers towards the greening of the global economy have been the rising price of fossil fuels, technological advancements, government policies, economic growth and the demand for more sustainable human behaviors (Eyraud et al., 2011). The demand for a more sustainable world has resulted from human activities such as building houses and businesses that have created environmental problems by relying on fossil fuels, generating pollution, waste, and deforestation. The information released from highly publicized IPCC reports has contributed to the shift in the flow of global investments towards renewable energy generation, energy efficiency and carbon neutrality. The trend of global conversion to green production and consumption has begun to and will logically continue to create numerous new green jobs.

The United Nations Environment Programme describes green jobs as work in agricultural, manufacturing, research and development, administrative and service sectors that contributes to preserving and restoring environmental quality (Renner et al., 2008). This includes the creation of jobs that reduce energy, minimize waste and pollution, and protect ecosystems and biodiversity, while at the same time providing sufficient wages, safe conditions, and rights

for workers. Green innovation is the business sector's attempt to stay at the cutting edge of technology while increasing its profitability. This is because use of green technology is increasing in businesses, prompting them to utilize this new technology to stay competitive. However, while researching green jobs, we must be cautious of "green washing", which is when companies or their representatives market their organizations as being environmentally friendly or reducing energy consumption when in fact they do not (Renner et al., 2008). Not all green industries and technologies are green; some do not actually protect or improve natural ecosystems (Porfir'ev, 2012). Furthermore, government legislation is especially important to provide funding or other incentives for green projects, goal setting, and policies (Renner et al., 2008).

2.2 Key Terminology

Slogans such as "go green" appear in many common establishments today, such as supermarkets, college campuses, clothing stores, hotels and businesses alike. Merriam-Webster defines *green* as "tending to preserve environmental quality (being recyclable, biodegradable, or nonpolluting)" (Merriam-Webster, 2012). Given the vagueness of the term "green," it was necessary for the team to develop a working definition for the purposes of this project.

Therefore, we define green as a characteristic that has a "positive environmental impact including environmentally, economically, and socially sustainable enterprises and economics consisting of reducing consumption of energy and raw materials, limited greenhouse gas emissions, minimizing waste and pollution, and protecting and restoring ecosystems" (International Labour Organization, 2012). Examples of green industries include utilization of wind power, hydropower, solar energy, fuel cells, pollution controls, recycling, organic and sustainable farming (U. S. Department of Labor Bureau of Labor Statistics, 2012). Green skills will be defined as the attributes and abilities of an employee necessary to work in any green industry. For example, the skills necessary to be a technician or engineer that uses green technology, such as that involved in renewable energy generation, are green skills (Teschler, 2011).

2.3 Cámara de Industrias de Costa Rica

Since its establishment in 1943, the Cámara de Industrias de Costa Rica (CICR) has represented the industrial sector of the Costa Rican economy. The mission of the CICR is to develop sustainable industries (Cámara de Industrias de Costa Rica, 2009). It is committed to increasing the competitiveness of its member companies within local and international markets. The organization provides services for business management systems and corporate development within the establishment of the Institute of Entrepreneurial Excellence in 2004. This branch of the CICR focuses on providing services to member businesses (Cámara de Industrias de Costa Rica, 2012). Recent initiatives of the CICR have addressed the problem of record high fuel and energy prices by presenting an “Energy Manager” training program to member businesses, and by informing employees of energy efficiency strategies and management programs (Cámara de Industrias de Costa Rica, 2012). In supporting a sustainable industrial sector for Costa Rica, this industry development has a strong basis in the need for environmental preservation. The CICR has investigated techniques for improving renewable energy, energy efficiency, and carbon neutrality. It strives to promote the industrial sector by decreasing carbon emissions and developing more energy efficient strategies to accommodate the evolving economy. For this investigation, the stakeholders are the individual companies and businesses that comprise the membership of the CICR, and their stake is to increase their competitiveness in a more sustainable economy.

2.4 Lessons Learned from China, Russia, Mexico, and Brazil

The CICR is researching other countries to learn from their green sector development and apply similar strategies to create jobs in Costa Rica. In particular, the nations of China, Russia, Mexico and Brazil can provide Costa Rica with informative case studies of developing countries advancing economically while promoting sustainability and green job growth. What sets China, Russia and Brazil apart from other nations is their recent remarkable economic growth. Rates of economic expansion in these developing countries have surpassed those of the world’s traditional superpowers. In the past ten years, the US economy increased by 20% while the economies of Brazil, Russia, and China grew at rates of 36%, 69%, and roughly 250% respectively (Biggemann & Fam, 2011). When considering GDP and productivity growth, specialists project

that these three countries will overcome the G7 – United States, Japan, Germany, France, United Kingdom, Italy and Canada—as the biggest economies in the world by 2050 (Jain, 2006). The trend indicates they will be in the top ten world economies in the future (Biggemann & Fam., 2011; Jain, 2006). Mexico is an effective case study because it is of a similar socioeconomic and geographic background as Costa Rica. As emerging economic forces in the world economy as well as energy producers and consumers, these countries have implemented green sectors and jobs in their economies and play an important role in shaping environmental policies and standards abroad (Zhang et al., 2011).

2.4.1 China

The People's Republic of China (PRC), the fourth largest country in the world, at 9.6 million square kilometers, is the world's most populous country with 1.34 billion people and includes the world's largest labor force. China has the third largest GDP, 11.4 trillion U.S. dollars, and the tenth fastest growing GDP, with an annual growth rate of 9.2% in 2011 (Central Intelligence Agency, 2012a).

The green sectors of China's economy are evolving in part as the result of political initiatives. The People's Republic of China Plan for the Reform of the Electric Power Industry, established in 2002, reallocated the power sectors to five independent power producers, or IPPs. This disestablished the State Power Company's monopoly over power production. Continuing the reform of the power sector, the PRC initiated a transition to renewable energy in order to further expand clean energy use. In 2006, the PRC instituted the Renewable Energy Law defining the process for the development of renewable energy and cost-cutting methods such as reduced taxes and subsidies for power companies. As a means to accomplish this task, the energy management system was restructured, resulting in the establishment of the National Development and Reform Commission, or NDRC, as the primary energy policy regulator in 2007 (Su et al., 2010). In an effort to minimize the difference in cost between renewable energy and conventional energy, this legislation created a feed-in tariff causing the end users of the renewable energy to pay an additional fee, and therefore minimizing the reluctance of power companies to convert. By sharing the costs of converting with the end users of the electricity, the funds helped subsidize the added cost of using renewables compared to conventional power for electricity producers (Su et al., 2010).

Leading the world in carbon emissions, China's fossil fuel driven economy must undergo significant reform in order to be sustainable. By 2020, China strives to achieve its self-set carbon reduction goals: decrease its level of carbon dioxide emissions from per unit of GDP in 2005 by 40-45%, increase non-fossil fuel primary energy consumption by 15% from the 2005 level, and increase the forest area by 40 million hectares to serve as a carbon sink (Qin et al., 2010).

Acknowledging the necessity to combat climate change, the Chinese government instituted a number of laws to provide guidelines for China. The Scientific and Technologic Actions on Climate Change, a governmental plan outlining developments in science and technology, set out to advance the technologies required to implement renewable energy sectors. In addition to advancing the renewable energy sector, an additional governmental plan called the Medium and Long Term Development Plan for Renewable Energy, in 2007, increases energy conservation and reduces the amount of carbon emissions in China. As part of the Clean Development Mechanism (CDM) initiative created by the Kyoto Protocol, China led the way in early 2011 having 42.74% of the CDM projects in the world (Balme, 2011).

Government intervention contributed to the evolution of several green sectors of the economy, but the photovoltaic energy industry has had success in both providing renewable energy and in creating jobs. The photovoltaic energy production in China has increased from 0.07 gigawatts (GW) in 2006 to 0.29 GW in 2009 compared to the electrical generating capacity of coal at 750 GW in 2010, and China is responsible for 30% of all photovoltaic panel production in the world (Schneider et al., 2011). This energy sector has the highest potential for job creation in China out of the other renewable energy sectors. The photovoltaic sector generates jobs directly, in the form of manufacturing jobs, and indirectly through the need for technicians in the installation process (Cai et al., 2011; Furchtgott-Roth, 2012). With a partly automated process, such as the production and installation of photovoltaic panels, a specialized, educated, and qualified labor force is necessary. The China Solar Photovoltaic report on solar energy in 2007 predicted that the photovoltaic industry would create roughly 100,000 jobs in China by 2020 and has the potential to comprise 5,000,000 jobs in China by 2050 (Strietska-Iilina et al., 2011). The disadvantage that China faces is having to import half of the polysilicon used to produce high quality and affordable photovoltaic panels. As a result of limited research and development, Chinese producers cannot reduce the cost of production of photovoltaic panels and the use of polysilicon. Caused mainly by troubles with control of the nation's power grid,

China exports a majority of the panels it produces because photovoltaic electricity production costs are more than double that of traditional power. This cost is greater for China than the US and Europe due to past monopolies over the power production (Furchtgott-Roth, 2012). As a result, China exports the majority of the photovoltaic panels that it produces. China's photovoltaic global market rapidly expanded until prices fell and anti-dumping and anti-subsidies court cases by the US severely reduced revenue. Since the US and Europe make up 90% of the sales, the profit margin of solar panel producers rapidly declined. As a result, numerous small and medium photovoltaic panel producers in China went bankrupt. In response to limited production, Chinese companies looked to support from US and European industrial partners and self-investment in the industry to reduce costs. A focus of the investment established the Xi'an Solar Technology Center and further contributions of \$300,000,000 from photovoltaic producers made it the world's largest privately funded research and development center for solar technology. In 2011 alone, it spent \$174,000,000 on research and development of solar energy production (Juan, 2012). Another lack of development in this sector is the fossil fuel use in producing the photovoltaic panels. Improving the education of managers and engineers can help promote the growth of manufacturing and production processes and instruct companies how to incorporate the use of renewable energy within these processes; however, the education system is behind in structural development in comparison to the rate of renewable technology development. In response to an increase in renewable energy use, China would have to expand technical education to meet demands for skilled designers and manufacturers of these technologies (Cai et al., 2011; Su et al., 2010; Geng et al., 2012).

As a rapidly growing economy with an increase in GDP of approximately 10% yearly, China's annual primary energy consumption rose 9.8% each year between 2001 and 2007. China is advancing its industrial development more rapidly than any other developed or developing country and the consistent dominance of fossil fuel in the economy is shown in Figure 1 (Eisen, 2011). With coal accounting for 60% of the energy production in China before 2000, it is imperative that more efficient energy policies are employed to prevent resource supplies from being depleted (Chang et al., 2003). Contrarily, implementing more efficient policies will inevitably result in the disestablishment of numerous jobs. In 2007, this is a notable effect in the electricity and heat production and supply industry which consisted of over 2.9 million workers when the NDRC disestablished 152,000 jobs due to the closing of 14.38 GW of inefficient small

coal-fired plants and increased jobs and production in renewable sectors (Cai et al., 2009; Furchtgott-Roth, 2012). Between 2006 and 2009, these energy policies resulted in a net reduction of 44,000 jobs; however, the potential indirect job creation in renewable sectors including wind, photovoltaic, and biomass in 2010 offset this job loss (Furchtgott-Roth, 2012).

Further initiatives by the government have been concerning the improvement of energy efficiency within buildings. As of 2008, the Chinese government increased regulations regarding the consumption of energy within civil buildings constructed after 2008 (Wang et al., 2011). With an energy saving code currently under reform, these new regulations encourage construction companies to use efficient technologies and materials, and emphasize the importance of managerial regulations and audits to maintain maximum efficiency in daily operations. This energy savings code reformed the civil building codes from 1980, and further regulations have resulted in increases in energy savings in buildings of 30% in 1986 and 50% in 1996. Currently, the goal is to increase these energy savings by 65%, and the regulation codes are still in development. This energy savings strategy focuses on electricity consumption and heating utilizing solar energy for space heaters and LED lights for electricity savings. China led the world in solar water heater installation in 2008 (Fang, 2011). The future of green jobs in the construction sector depends on vocational education and training within the technical fields of improving building efficiency design, mass transit design, and other engineers for renewable technology design (Strietska-Ilina et al., 2011). Furthermore, in the case of China, education systems need to be restructured in accordance to the demands of technically skilled positions for renewable energy production (Furchtgott-Roth, 2012).

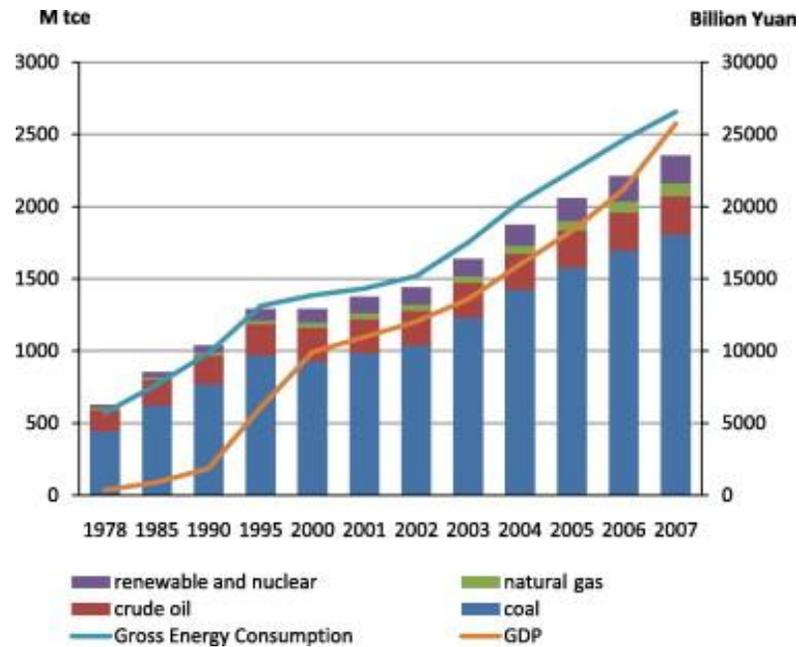


Figure 1: China's Primary Energy Supply, Energy Balance and Economic Growth in the Past Three Decades (Liu et al., 2011).

In an effort to improve sustainability and environmental awareness, the Chinese government designated Shenyang University (SU) as a model for environmental practices and a center for green education. The model for “greening” a university is displayed in Figure 2. Using an energy evaluating audit, a joint committee of administrators, faculty and students from SU identified a list of areas where the university could initiate environmental reforms. The university implemented a variety of sustainable initiatives including the collection of waste water, solar heating for ground pumps, improving insulation of buildings, reviewing quotas of energy consumption, and the replacement of outdoor lighting with compact fluorescent bulbs, LED lighting. With insulation in all of the student dorms, energy savings in heating the buildings was 20%. Furthermore, green education is a main component of the model university. As part of the education system, research and development departments investigate advances in sustainable technologies and create opportunities for jobs for students at the University. By including specialized classes for environmental protection and awareness, the updated curriculum for engineers and managers provides them with knowledge of mitigating resource consumption and waste emissions within their occupation. This environmental protection and awareness is incorporated within specialized classes that concern energy conservation, carbon footprint, resource management, waste management, and other environmental issues. The general student

body is also educated on the details and significance of these environmental issues. Finally, SU established an international exchange program with Japan's Nagasaki International University where students are immersed in a partner country's culture by travelling and studying abroad. Consequently, students return with an understanding of Japan's attempts at developing green sectors. This university serves as a model university because many other universities in China and universities in general have had limited success in green initiatives and green education. Furthermore, most universities lack the funding for projects such as these, and Shenyang was only successful due to funding and subsidies from local governments and the Shenyang municipality. Specific planning and structure of creating green initiatives within universities along with government investment is necessary for the successful establishment of a center for green education and practices (Geng et al., 2012).

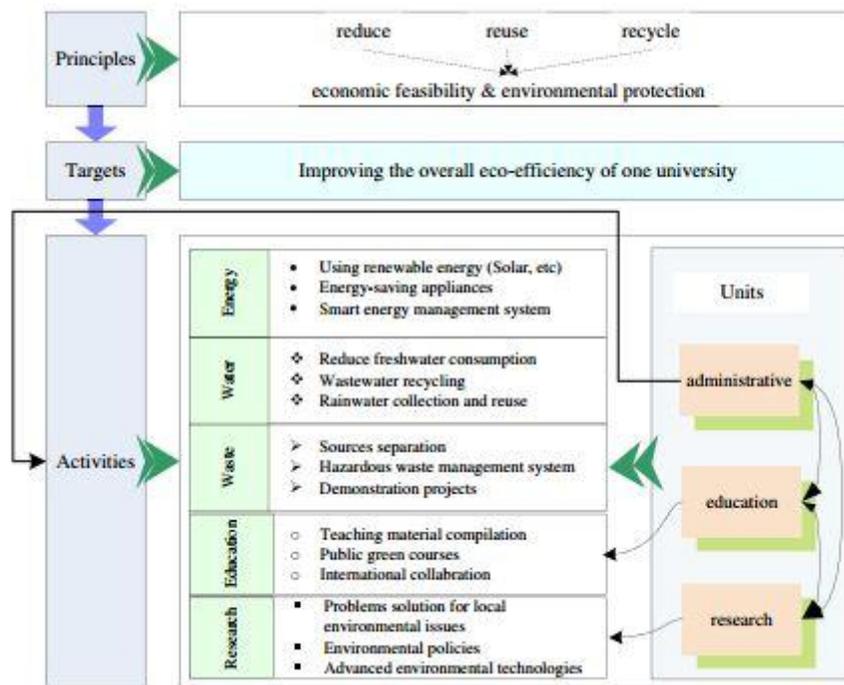


Figure 2: A Model for Greening Shenyang University (Geng et al., 2012).

2.4.2 *Russia*

As the largest country in geography and the ninth most populated, Russia is a strong economic power in a position to be a world leader in energy policy and green standards.

However, some experts believe that Russia's actions have demonstrated that it has had little

regard for the environment (McGraw Hill, Inc., 1994; Frost & Sullivan, 2008; Rowe, 2011). Russia's economy has changed since the Soviet Union collapsed, from an isolated, centrally planned economy to one that is market based and integrated in the global economy (Central Intelligence Agency, 2012b). When Russia first started approving policies that would develop its green sector economy after the dissolution of the Soviet Union in 1991, the plans were limited. The Concept of Russian Energy Policy in New Economic Conditions was created in 1992, and was followed by the Main Directions of Energy Policy of the Russian Federation in 2010 (Zhang et al., 2011). Russia has had difficulty putting into place its green initiatives, mandating in 2003 that only 1% of electricity be generated by renewable resources by 2020 (Frost & Sullivan, 2008). Russia also did not have technology marketing agencies, experience giving demonstrations to promote products, or long-term financing organizations to support its initiatives (Zhang et al., 2011; Berger, 2012). Vladimir Putin, the Russian Premier, approved the policy titled Electricity Sector on the Basis of Renewable Energy Sources for the Period up to 2020, establishing more technical indicators of renewable energy development (Zhang et al., 2011). The Energy Strategy of Russia was updated in 2010 for the period up to 2030, demonstrating the government's new commitment to changing Russia towards more sustainable resource use (Ministry of Energy of the Russian Federation, 2010).

As the world's leading producer of oil and the second largest producer of natural gas, Russia's oil and gas resources are quickly being depleted, making it necessary for Russia to develop green industries and a renewable energy sector (Frost & Sullivan, 2008). Russia has abundant renewable energy sources such as solar, wind, hydroelectric, and geothermal, and the landmass that would facilitate the production of biomass-based energy sources (Frost & Sullivan, 2008). Although the Soviet Union was the first country in the world to build utility-scale wind turbines in the 1930s, much of Russia's equipment is obsolete and needs modernization. Although Russia's equipment is out of date, the wind energy sector in Russia employs between 10 and 450 people per year for each terawatt hour of electricity produced. By 2020, wind power production for Eastern Europe, including Russia, is expected to generate 343.2 terawatt hours per year. This will potentially employ 270,600 people (Renner, 2001). The production and use of photovoltaic cells is also a well-developed technology in Russia as a result of the Soviet space program; Sputnik 3 was solar powered and sent into orbit in 1958 (International Energy Agency, 2003). In the past few years, Russia has begun to expand its solar energy sector with the Russian

Nanotechnology Corporation (Rusnano), a state company that partnered with a Swiss engineering firm to develop a \$630 million solar plant in Russia. A company called Nitol is Russia's largest producer of polysilicon, the material used to make solar panels, in the country. This material is also exported to countries outside of Russia, such as the United States. The production of the raw materials for solar panels as well as the production of the panels is done in Russia; there is no importation of products in the creation of a solar panel in Russia (BusinessWeek, 2009). In addition to utilizing small amounts of wind and solar energy, following the end of World War II, Russia increased its hydroelectric power generation. Today, as one of the top five countries in production of hydroelectric power, it is Russia's primary renewable energy resource (Renner et al., 2008).

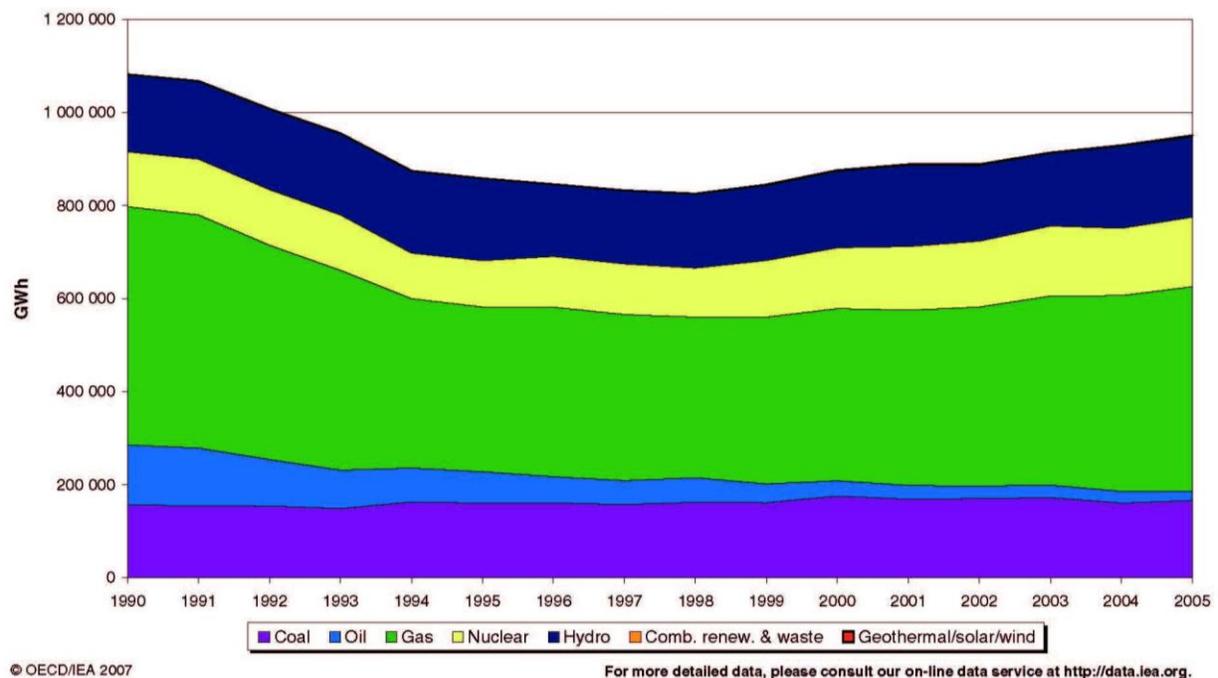


Figure 3: Evolution of Electricity Generation by Fuel Type from 1990 to 2005 in Russia (Global Energy Network Issues, 2009).

As seen in Figure 3 above, besides coal, oil, gas and nuclear sources of electricity generation, hydroelectric is one of the only renewable electricity sources utilized. It is the primary renewable resource utilized in Russia, while other renewable sources are used in such small amounts that they are not visible on the graph. However, hydroelectric power has many

drawbacks including high cost, destruction of land/habitats, displacement of small or large populations and dependence on regular and sufficient precipitation (The U.S.G.S. Water Science School, 2012). Non-hydro renewable energy accounts for just over 1% of total primary energy supply (International Energy Agency, 2003; Business Monitor International Ltd, 2010; Power Engineering International, 2011). According to ExxonMobil (2012), Russia, and more particularly the area closest to the Caspian Sea, uses mostly oil, gas, coal, nuclear, biomass, waste and hydroelectric power for sources of electricity. There is no energy demand for renewables, which explains a general lack of statistics on green jobs created specifically in Russia (ExxonMobil, 2012). As of 2009, hydropower accounts for 5.6% of the primary energy demand in Russia (Business Monitor International Ltd., 2010). As of 2003, there were 100-150 Russian enterprises that manufacture renewable energy systems (International Energy Agency, 2003). Russia has the engineering and technical experience to expand its renewable sector to areas other than hydropower, but it lacks workers with managerial, financial, legal and market transaction skills to advertise and sell products (International Energy Agency, 2003). There is also a need for international partnerships and training programs that will provide workers with necessary skills.

For example, Russia has partnered with the U.S. to work on energy efficiency. As part of their collaboration, they have developed the Smart Grid project, which seeks to improve efficiency in electric power systems, both in San Diego, U.S. and Belgorod, Russia. The two countries have held technical workshops together, sharing lessons learned, and have worked on developing smart cities through urban planning (U.S. State Department: Bureau of European and Eurasian Affairs, 2012). In addition to this international collaboration, limited training programs exist in Russia that provide skills for workers in green sectors. For example, the Russia Green Building Council (RuGBC) has a green certification program that consists of a training and certification program that provides companies an ability to increase their knowledge in sustainability among their employees. This also includes a program that recognizes any of the company's specialists that have the skill set to provide professional services in sustainability. This certification program includes a workshop where participants learn key definitions dealing with sustainability and participate in activities where they understand the links between sustainability and building design, construction and operations strategies. These workshops help employees understand how to include concepts of sustainability into their work. Another

workshop part of this program deals with energy efficiency for existing buildings where participants are trained on techniques to improve operations and reduce energy costs. Other workshops within this program help their participants understand the economics of green development, green standards and project management (Green Building Council Russia, 2011). Additionally, the Climate Doctrine of the Russian Federation, a document developed at the request of the president of Russia, discusses training of professionals on the climate and its impact on the economy and environment. This includes training a highly skilled research staff, graduate students at Russia's leading academic institutions, intern scientists, professionals, postgraduate students, and diplomatic staff and advisers for international negotiations (Ministry of Energy of the Russian Federation, 2010).

2.4.3 Mexico

Political turmoil has impeded Mexico's ability to focus on expanding its renewable energy sectors. For example, in 1975, Mexico implemented its Energy Plan with the goal of shifting its reliance on oil for generation of electricity to nuclear and renewable resources by 2000. However, by the year 2000, the relative representation of electricity generated by renewable resources had decreased from 38% in 1975 to 26.5% in 2000 (Bazán-Perkins et al., 2008). As of 2009, the relative amount of electricity generated by renewable resources decreased once more to 14.6% (Cancino-Solórzano et al., 2010). This decrease in renewable resources resulted from the government having decided on short term goals to meet the rising demands of electricity consumption as opposed to following the long term plan set out for the country by the Energy Plan (Bazán-Perkins et al., 2008). From 2000 to 2010, the majority of Mexico's energy was derived of mostly nonrenewable resources such as petroleum, gas, and coal instead of renewable resources (Figure 4).

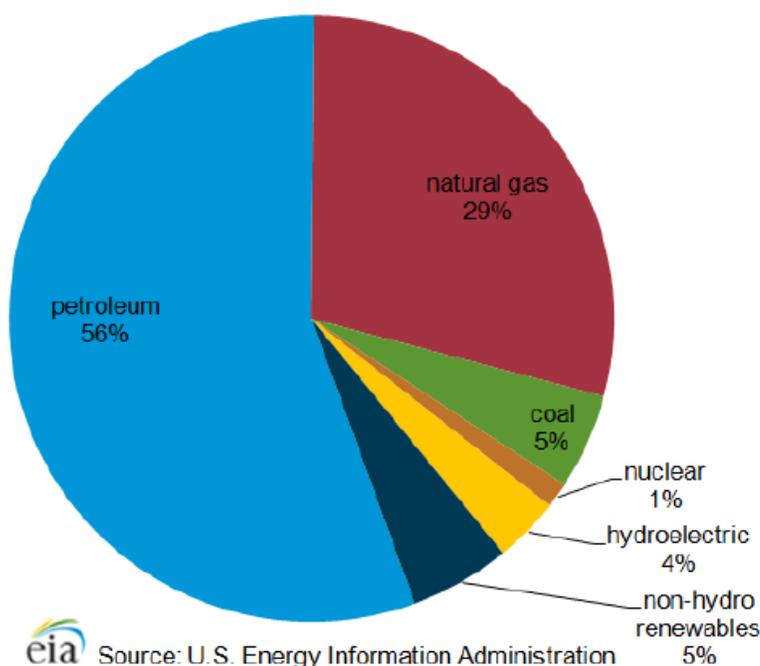


Figure 4: Renewable and Nonrenewable Energy Consumption in Mexico by Type, 2010 (U.S. Energy Information Administration, 2012).

To combat this decline in renewable resources and promote a more environmentally sustainable nation, Mexico enacted the Renewable Energy Development and Financing for Energy Transition Law in 2008. This act was intended to deter its economy from a heavy reliance on fossil fuels towards cleaner alternative energy sectors such as solar, wind, hydroelectric and geothermal resources (Center for Clean Air Policy, 2011). These renewable energy sectors will be discussed in further detail in this section as well as the development of green skills for workers in those sectors beginning with a summarized history on Mexico's policies concerning the generation of electricity (Cancino-Solórzano et al., 2011).

During the second half of the 20th century, the renewable energy sectors in Mexico have had a complicated evolution. Mexico's Constitution dictated in 1960 that the government would provide "electricity generation, transmission, distribution, and supply as public services," which brought forth the establishment of the Comisión Federal de Electricidad (CFE). This legislation barred private sectors from participating because at the time the Mexican government had bought out the private sectors within the country (Center for Clean Air Policy, 2011). As the years passed, it became difficult for the CFE to keep up with the demand for electricity. Finally, the

situation was exacerbated when Mexico's loans defaulted in the 1990's, leading the country into debt. The negotiated agreement with its creditors included a provision to prohibit government enterprises from increasing debt, and this agreement has limited further expansion by the CFE in terms of renewable resources (Center for Clean Air Policy, 2011). This lack of funds has pushed Mexico to look towards private and international investment to expand renewable resource sectors that are currently undeveloped and hold a high potential for profitability. As the consumption of electricity from 1960 to 2000 rose, the amount of non-renewable resources decreased, such as gas and oil. To counteract that and help generate more electricity, the CFE began meeting the demand in the 1990's with renewable resources, such as wind, solar, hydroelectric and geothermal resources.

Mexico's wind sector generates 0.1% of total electricity production for the country as of 2011. Although this represents a small amount of the total electricity generated by the renewable energy sector (Figure 4), Mexico houses the second largest wind farm in Latin America, the Venta II (Cancino-Solórzano, 2011). Mexico retains the potential for greater expansion in wind energy, but limited funds have the government looking towards foreign investment and private organizations to finance development. In the past, the CFE has been able to establish wind farms such as the Venta I wind farm in 1994, which supplied 2.3 MW of energy annually. The Venta II was constructed in 2005 using foreign aid and has since generated 83.3 MW of energy annually. The CFE was reluctant to invest in wind farms, and so the Venta II was funded by loans from the World Bank (\$113,865,000), the Spanish Carbon Fund (\$11,340,000) and the Bio-Carbon Fund (\$945,000), and became operational by 2007 (Center for Clean Air Policy, 2011). The further development of wind farms included plans for the Venta III and four wind farms in Oaxaca which were estimated to generate a combined 585 MW per year upon the completion of construction at the end of 2012 (Cancino-Solórzano et al., 2011). The Venta III itself produces 103 MW per year and was constructed and operated by Iberdrola, a company from Spain with \$112,050,000 invested by the European Investment Bank (EIB) (Wind Power, 2012; European Investment Bank, 2009). As a private company, Iberdrola signed an agreement to sell the electricity generated by the wind farm to the CFE for the next 20 years as it is the CFE who is responsible for the generation, transport, distribution and selling of electricity (Iberdrola, 2012).

Solar power is yet another renewable resource for Mexico to expand upon. Mexico has a high availability of solar radiation ranking it as the third country with the largest geographical

capacity to generate electricity utilizing solar power. However, the development of solar is limited as wind has been found to be preferable as it can be harvested both night and day. In 2012, a solar powered plant in Baja California, Mexico was completed by the Microm firm, a Mexican company, with 4000 photovoltaic panels. This generates 1 MW of energy and serves as an experimental model for further expanded versions by the CFE (Fox News Network, 2012). Due to debt and the need for capital, the Mexican government has been looking towards international investment to aid the installments of solar power plants. The Baja Sun Energy is another firm that will construct a solar farm by 2013 to generate 10 MW of energy annually on the Mexico-U.S. border. This solar farm will be produced as a joint venture between companies Grupo Maiz (Mexican), Arima EcoEnergy (Taiwanese) and the park Silicon Border (Replogle, 2011). An example of another investment is SolFocus Inc, a U.S. company. It has joined with Synergy Technologies LLC and Mexican real estate and developer Grupo Mesa for a solar power plant to generate 450 MW of energy per year. This plant is to be operational by the end of 2013 (SolFocus, 2012). The construction of Mexico's limited number of solar plants has been funded by international investments (U.S.A. Department of Energy, 2002). Another solar power plant has been constructed in the Agua Prieta, Sonora, Mexico by a company from Spain named Abengoa Solar, to generate 478 MW of energy per year but will not be operational until 2013 (Cancino-Solórzano et al., 2010; Saidi, 2008; National Renewable Energy Laboratory, 2012).

The largest renewable energy sector presently in Mexico is hydroelectric power. The largest hydroelectric plant in the country as of 2010 is Chicoasé which generates 2400 MW of electricity per year (U.S.A. Department of Energy, 2002). As of 2009, Mexico's hydroelectric plants generated 12% of the country's electricity (Cancino-Solórzano et al., 2010). Having expanded upon their first plant in 1970, the CFE has increased the number of hydroelectric plants to four, each with a capacity of 960 MW as of 2004. Economic research projects have found that by 2020 electricity generation can be raised from 960 MW to 2400 MW in hydroelectric plants via improving efficiency. However, the lack of qualified workers, mechanized tools, and financing impedes advancement (Bazán-Perkins et al., 2008). Unfortunately, the growth of hydroelectric power is limited due to a scarcity of rivers, environmental concerns, relocation of rural communities, and droughts. Often, local stakeholders oppose the installment of hydroelectric plants, and have had sufficient influence such that plans for their construction have been cancelled (U.S.A. Department of Energy, 2002).

Another of Mexico's important renewable energy sectors is geothermal electric power. As of 2000, Mexico's geothermal sources have an estimated potential to generate 8,000 MW of electricity, which ranks second best in the world (U.S.A. Department of Energy, 2002). According to a 2004 Mexican Department of Energy statement, the CFE will not be producing any more geothermal plants for another ten years because of debt (Ruiz et al., 2008). Mexico plans to expand upon these renewable energy sectors and increase the efficiency of electricity generated. From 2000 to 2010, the majority of electricity generated in Mexico was conventional thermal (fueled by gas), followed by hydroelectric plants, then non-hydro renewable sources (consisting mostly of geothermal) and then nuclear power (for which there is one power plant in Mexico) (Figure 5).

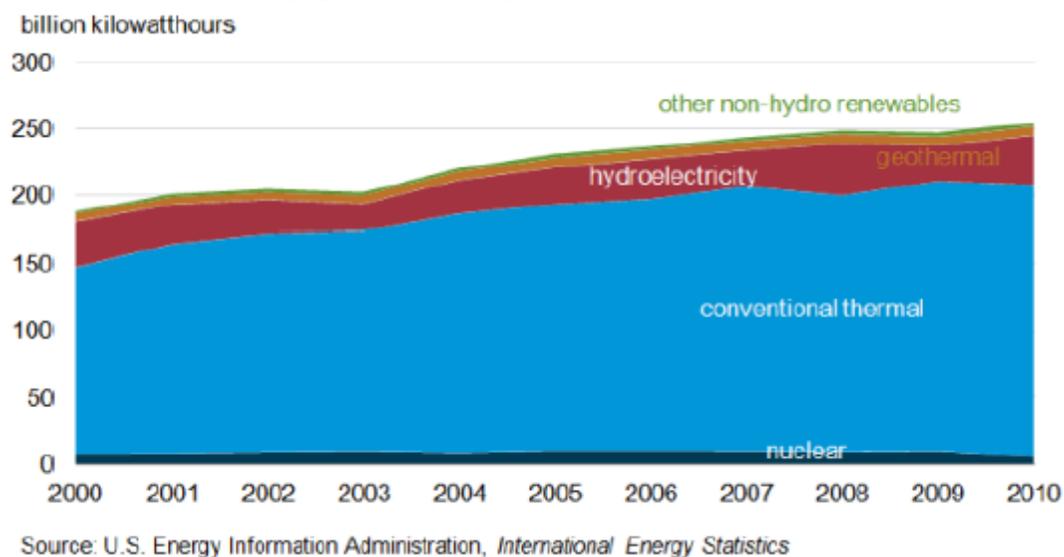


Figure 5: Electricity Generated in Mexico Categorized by Fuel Type from 2000-2010 (U.S. Energy Information Administration, 2012).

These investments in renewable resources could have resulted in an influx of new jobs for workers with the technical skills to operate energy harvesting machinery. However, the current supply of such workers is limited, as are the training programs that could help promote the education of workers in green jobs. To address educational training programs for green jobs, the CFE as well as other private sector organizations have invested in several educational opportunities. For example, the Universidad CFE provides training for two specific career paths.

One training program is for electrical engineering, specializing in customer service, mediation and conduction. The other training program is for business administration and marketing, specializing in integral, billing, executive, and customer service (Universidad CFE, 2007). In order to fulfill any gaps in the training students received at the university, the CFE has provided courses for graduates who have entered the work force. These courses provide more specialized training in areas including but not limited to the maintenance of machines, statistical analysis, as well as human resources (Comisión Federal de Electricidad, 2012). Apart from educational standards set by the CFE, Mexico has had limited development in effectively implementing policies to promote green industries and related job growth.

2.4.4 Brazil

Brazil's National Plan on Climate Change outlines the current environmental policy and objectives to counteract climate change in Brazil. This plan endeavors to perpetuate the utilization of ethanol and biodiesel in the transportation sector as well as to the global market for biofuels. Another objective is to promote the use of alternative energy sources in the nation's energy supply. It seeks to encourage economic improvement by increasing the competitiveness of products made in Brazil while reducing the country's carbon footprint. Furthermore, it works to ultimately achieve zero illegal deforestation across Brazil (Strietska-Illina et al., 2011). In addition, education has become vital to train a workforce of green employees that must meet the requirements of this legislation.

The Brazilian government began its green movement in 1975 with the establishment of the Brazilian Ethanol Program. It was initially spurred to decrease dependence on foreign fuel during an oil crisis. The program works by substituting petroleum and diesel fuels with ethanol made from sugarcane (Pimentel, 1980). This has caused the production of 5.6 million alcohol-powered motor vehicles between 1975 and 2000 and replaced up to 25% of the petroleum in the fuel tanks of over 10 million vehicles with ethanol (Pereira et al., 2012). Brazil now holds the second largest portion of the world's ethanol market in terms of production and exportation (Table 1). It is estimated that the ethanol production industry has created over 700,000 jobs (Goldemberg et al., 2004). Additionally, since the launch of the program, ethanol use in transportation has been estimated as preventing the release of 800 million tons of CO₂ (Strietska-Illina et al., 2011). However, the carbon impact of biofuel production, including ethanol

produced with sugar cane, is difficult to measure and a source of controversy. Converting forests to cropland, burning sugarcane, and the manufacturing of ethanol release greenhouse gases (Searchinger et al., 2008; Government of the State of São Paulo, 2004).

Table 1: The Production of Ethanol and Place in the World Market (Pereira et al., 2012).

Position	Countries	TEP (million)	%
1	USA	13.3	49.9
2	Brazil	8.7	32.5
3	Germany	1.5	5.7
4	China	0.8	3.2
5	Canada	0.7	2.5
6	Sweden	0.3	1.2
7	France	0.3	1.0
8	Colombia	0.1	0.5
9	India	0.1	0.5
10	The Netherlands	0.1	0.5
11	Spain	0.1	0.4
12	Austria	0.1	0.3
13	Thailand	0.1	0.3
14	Poland	0.1	0.3
15	UK	0.1	0.3
	Others	0.2	0.8
	World	26.6	100

Source: MME [9].

Legislation has recently been enacted that will make it a crime to burn sugar cane in 2014 in an effort to further reduce the carbon footprint of the Brazilian Ethanol Program. This has caused the manual planting and harvesting of sugar cane to be replaced with automated processes. This will result in a shift in labor skills from nontechnical to highly skilled jobs in mechanized operations. Some companies are generating programs to train existing employees in these advancements instead of contracting new workers. Finally, the Sugar Cane Manufacturing Organization has established a program to aid the restructuring of the workforce by retraining rural sugar cane workers in reforestation and beekeeping (Strietska-Illina et al., 2011).

Hydroelectric generation is another source of renewable energy that is important in Brazil. Hydroelectric power produces 93% of the nation's electricity. Brazil accounts for approximately 12% of the world's marketplace for hydraulic energy. The downside to hydraulic energy is that it makes the country very susceptible to drought-induced energy shortages (Pereira et al., 2012). The Incentive for Alternative Sources of Energy Program (PROINFA) is thought to be amongst the most significant programs for stimulating alternative energy production and

use in Brazil and around the world. It has brought about the generation of 3,299 MW of power and created 150,000 jobs by 2009. The program did this by working with 144 power plants across 19 Brazilian states to utilize installed power from wind farms, small hydroelectric plants, and biomass power stations (Strietska-Illina et al., 2011). PROINFA implemented strategies such as feed-in tariffs and bidding for renewables to bring about the 3,299 MW of power generation and to strive for the ultimate project goal – renewable energy sources comprising 10% of electricity generation in Brazil by 2020 (Dutra & Szklo, 2008). Furthermore, Brazil's Ten Year Expansion Plan has invested billions of dollars into the future development of wind energy, biomass, biofuels, and small hydroelectric plants (Pereira et al., 2012).

Solar energy is another promising but underdeveloped energy source in Brazil. In March 2009, the Provisional Measure No. 459 established the "My House, My Life" program. This program funded the creation of 1 million low-income family houses. In this project, the Federal Bank and Ministry of Environment called for the use of solar panels in construction. Between 2009 and 2010 this venture not only gave homes to those in need but also employed an estimated 800 project managers and 7,000 solar panel installers (Strietska-Illina et al., 2011). This legislation improved the quality assurance practices used in construction through training and the development of quality management criteria and accountability. Brazil has coupled initiatives for economic growth with regard for the environment to become a forerunner of renewable energy expansion.

As the second fastest growing economy in the world in terms of GDP, Brazil emits significantly less CO₂ than other developing countries per capita. It currently ranks 18th in the world (Figure 6; Pereira et al., 2012). As a participant in the Kyoto Protocol, Brazil discovered that a major contributor to the greenhouse gas emissions in the nation is deforestation, accounting for more than 80% of emissions (Fearnside, 2001). With the ultimate goal of zero illegal deforestation at the forefront, Brazil plans to have a 40% decrease in illegal deforestation from 2006 to 2010 and then implement two consecutive 30% reduction periods between 2010 to 2014 and 2014 to 2018. This action plan is projected to prevent the release of 4.8 tons of CO₂ from 2016 to 2017 (Strietska-Illina et al., 2011). These restrictive measures will help to curb the rise in emissions that normally accompany economic development and industrialization.

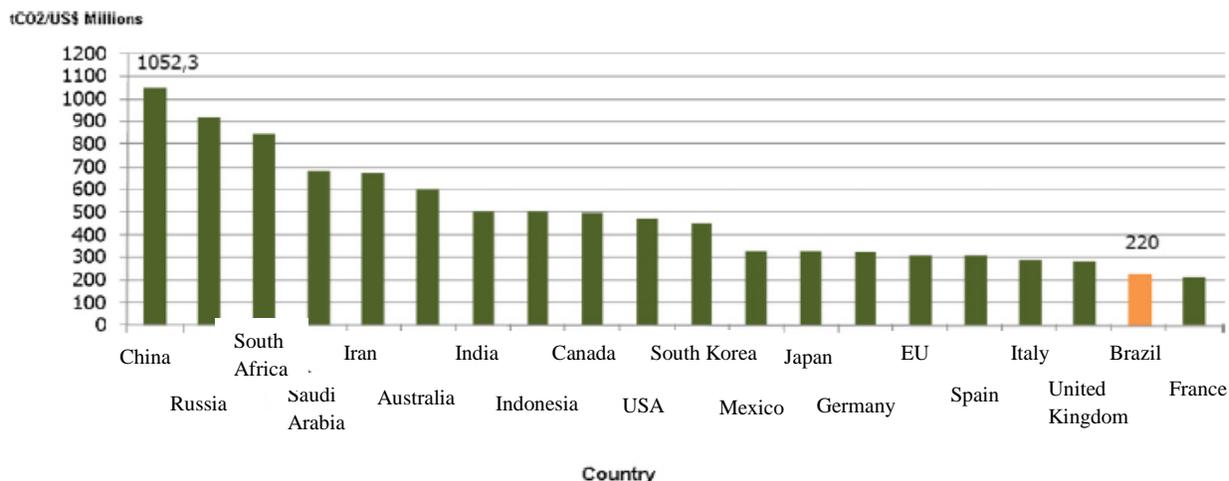


Figure 6: Occupational Groups Related to Green Economic Sectors Showing Increased Growth Potential in the Next Five Years in Brazil as of 2008 (Caruso, 2010).

By 2020, Brazil strives for a 40% reduction in greenhouse gas emissions from the emission levels of 1990, as well a reduction in deforestation in Amazonia (Pereira et al., 2012).

It wants to “eliminate net loss of the Brazilian forest cover by 2015” and “double the area of planted forests from 5.5 million to 11 million hectares in 2020 and eliminate net loss” (Strietska-Illina et al., 2011, pg. 226). The National Qualifications Plan including the Agroextractivism Program is estimated to assist 2,532 individuals by instituting vocational training programs with a focus on environmental preservation in communities whose environments are endangered by the construction for the North-South railroad. Additionally, the National Forestry Plan invests in expanding and educating its workforce to manage and sustain the national forests. This includes assisting the indigenous populations, marketing local products, and updating the national forest information system (Strietska-Illina et al., 2011). These strategies have the potential to protect the national forests and also generate green jobs.

Brazilian educational institutions are readying themselves to meet the training demand of companies that have workers subject to these legislative criteria (Caruso, 2010). Environmental education is present in nearly 100% of all elementary schools. It has become imperative in universities especially in the edification of environmental engineers. Educating workers for environmental sectors is done by private institutions such as SENAI (Serviço Nacional de Aprendizagem) and SENAC (Serviço Nacional de Aprendizagem Commercial) and public universities and the Federal Educational Institutes. For example, SENAI provided 78

environmental courses in 2009 for many different educational levels such as technical and vocational training and university and graduate studies. Topics include management, conservation, and sustainability and 44, 137 students were enrolled that year. The National Environmental Education Policy promotes training individuals in environmental inspection and control, made ecology a mandatory component of nationwide curricula, supports environmental training for teachers, and encourages the teaching of climate change in schools. The Ministry of the Environment has enacted several projects to fuel environmental education such as the Green Room Project which has created 390 green rooms or interactive spaces for environmental training and education in schools across Brazil. Furthermore, the Brazilian Support Service to Small and Medium Sized Companies is an institution that works in collaboration with industry and government to develop environmental courses, planning, and preservation including researching renewable energy (Caruso, 2010). Brazil is focusing on educating the youth in environmental studies to increase awareness and satisfy the need for qualified workers emerging with the generation of green jobs.

The environmental policy detailed in this section is the main driver for the restructuring of the workforce and thus the creation of green jobs in Brazil. The legislation usually specifies the efficient use of resources or the reduction of carbon emissions and mandates the use of greener technologies which require new jobs and skills. Brazil has enacted environmental policy, invested in new technologies, and established environmental education in the school system to promote green jobs proliferation (Caruso, 2010). This has resulted in substantial growth in green industries, as shown in Table 2. In 2008, the number of green jobs in the nation increased to 1,405,001 (Table 2). In acquiring this number, a green job was defined as belonging to a company that performed a green economic activity. In addition, it is projected in the next five years green job growth has the potential to occur in the areas demonstrated by Table 3.

Table 2: Employment in Green Sectors in Brazil (Caruso, 2010).

Criteria	Employees 2006	Employees 2008	Annual Average Growth (%)
Renewable based fuel source	80,403	107,735	15.7
Avoided costs	386,424	471,763	10.4
Clean Energy	296,868	343,655	7.6
Changes in transport matrix	134,605	155,012	7.3
Environmental Quality	180,714	193,043	3.3
Carbon Sequestration	128,096	133,793	2
Total	1,207,110	1,405,001	7.9

Table 3: Occupational Groups Related to Green Economic Sectors Showing Increased Growth Potential in the Next Five Years in Brazil as of 2008 (Caruso, 2010).

Minor Groups	Employees 2008
Administration professionals	14,552
Agricultural, forestry, and fishery laborers	198,790
Assemblers	12,643
Electrical equipment installers and repairers	125,904
Electronics and telecommunications installers and repairers	82,132
Engineering professionals (excluding electrotechnology)	23,425
General office clerks	80,633
Machinery mechanics and repairers	77,581
Manufacturing laborers	16,683
Mining and construction laborers	110,267
Mobile plant operators	35,546
Other stationery plant and machine operators	37,000
Physical and engineering science technicians	56,295
Sheet and structural metal workers. Molders and welders, and related workers	37,000
Total	908,451

Brazil boasts the biggest economy, population, and landmass in South America. By 2025, its economy is projected to jump from the ninth to the fifth largest in the world (Pereira et al., 2012). Jointly with its economic growth, its efforts to counteract climate change were highlighted this past summer when Rio de Janeiro hosted the United Nations Conference on sustainable development, nicknamed Rio +20 (United Nations, 2011). Brazil has enacted legislation that has developed flourishing green sectors and led to green job creation.

2.4.5 Green Sector Drivers within the Case Study Nations

Green sector development and the generation of green jobs in each of the case study countries is driven by specific and reoccurring factors. The motivation of each country to expand the green jobs sector results from the combination of government policies, success in the market and the need to reduce greenhouse gas emissions. Commonalities in how each of these nations have achieved growth in green jobs sectors include an emphasis on international collaboration and the creation of specific training programs to prepare the workforce in areas such as solar panel production or energy efficiency practices. Each of the governments contributed to the generation of green jobs through legislation which had wide ranging effects from the disestablishment of monopolies over power production to cost cutting incentives. However, several of the policies enacted in these countries did not yield measureable change.

Development of green sectors has led to success in world markets, including Brazil's dominance in the ethanol market and China's in the solar panel market. This success in the marketplace motivated the further expansion and investment in these markets to increase the number of jobs and profit within the sector. Furthermore, especially within developing countries such as these, the drive for green jobs results from the necessity to reduce carbon emissions. The practical driver for shifts to renewable energy is the need for countries to avoid the national security crisis that would occur if their economies were still dependent on fossil fuels when these become expensive and difficult to find. Nations are striving to develop alternative energy sectors because the countries cannot survive if they run out of energy. Figure 7 contains data showing the generation of electricity in 2010 from renewables compared to the total and the non-hydraulic renewable energy. China, Russia, and Mexico still have a significant reliance on fossil fuels, while Brazil generates 87.77% of its electricity from renewable sources. All of the case study nations have limited reliance on non-hydraulic power from 5.86% to as little as 0.3%. Therefore, none of the case study nations have any significant renewable resources except for hydroelectric.

Electricity generation for selected countries, 2010.

	Net renewable (billion kWh)	Total generation (billion kWh)	Renewable as percent of total	Hydropower as percent of total	Renewable ex-hydro as percent of total
Australia	18.21	241.45	7.54	5.11	2.43
Brazil	429.67	489.53	87.77	81.92	5.86
Canada	360.25	580.58	62.05	59.94	2.11
China	764.54	3964.95	19.28	18.00	1.28
France	78.53	538.96	14.57	11.53	3.04
Germany	104.23	576.76	18.07	3.26	14.81
India	132.36	879.99	15.04	12.53	2.51
Italy	76.19	279.01	27.31	17.95	9.36
Japan	102.84	1013.23	10.15	7.25	2.90
Mexico	46.01	254.36	18.09	14.44	3.65
Russia	167.47	983.20	17.03	16.73	0.30
Spain	94.09	279.65	33.65	14.95	18.70
U.K.	26.25	352.66	7.44	1.00	6.45
U.S.	436.47	4120.03	10.59	6.24	4.35

Source: U. S. Energy Information Administration, *International Energy Statistics*, Accessed November 17, 2011, <http://www.eia.gov/cfapps/lpdbrproject/IEDIndex3.cfm?tid=6&pid=29&aid=12>.

Note: Hydropower generation figures are for 2008 for France, India, Italy, Russia, Spain, and the UK.

Figure 7: Electricity Generation for Selected Countries in 2010 (Furchtgott-Rott, 2012).

International collaboration in terms of both international investment and cooperative training programs and workshops have advanced Mexico by providing it with funding and advanced China and Russia through technical and educational workshops concerning green sectors and jobs for employees and students. As Brazil is already advanced in green programs, it has also enacted policies that created numerous green jobs, such as Brazil's National Plan on Climate Change, the Brazilian Ethanol Program and the Incentive for Alternative Sources of Energy Program. Similarly, training programs and projects have been established in each of the countries in order to prepare the workforce, advance research and development, create jobs, increase energy efficiency, and implement the use of renewable energies.

2.5 Comparison to Costa Rica

Costa Rica is a developing nation committed to going green that has yet to fully establish the political and economic infrastructure needed to achieve this goal. Costa Rica's economy is shifting from being based in agriculture to one dominated by services, tourism, and technology. Its traditional economic sectors include agriculture, forestry and fishing, resources and power, manufacturing, the service industry, and transportation. Therefore, much of what Costa Rica does is driven by tourism, agriculture, and transportation. Currently, 67% of Costa Rica's GDP is

from tourism and services including hotels, restaurants, tourist services, banks and insurance (U.S. Department of State, 2012). With this shift from agriculture to technology, it has challenged itself to achieve carbon neutrality by 2021, which will cost an estimated \$7.8 billion, a daunting amount to a small country of 4.5 million inhabitants with a GDP of \$55.35 billion (Long, 2011; Central Intelligence Agency, 2012c). In 2005, Costa Rica released approximately 12 million tons of carbon dioxide and sequestered approximately 3.5 million tons (Long, 2011). Presently, an impressive 90% of its electricity is produced from renewable resources. In 2003, about 85% of electricity came from wind power, hydropower, and geothermal sources, whereas 15% was produced from oil imports (Nandwani, 2006). Also, reforestation is currently occurring in Costa Rica and this is comparable to successful reforestation that has taken place in Brazil. While Costa Rica does use numerous renewable resources, there are about 200 new vehicles on the road in Costa Rica every day, increasing carbon emissions (Long, 2011).

Despite Costa Rica making strides to combat climate change, there is still a gap in the development of sustainable economic sectors and the proliferation of green jobs. The growth of green jobs was higher than the growth of total employment from 2001-2009. Approximately 117,500 jobs in Costa Rica are considered green activities according to the Organización Internacional de Trabajo (OIT). This accounts for 6% of total employment in Costa Rica. According to OIT, there is a potential for 407,600 green jobs which would account for 20.9% of employment. (Programa de las Naciones Unidas para el Medio Ambiente, 2008).

Through this green job growth, there is a need for relevant education and training programs. Various Costa Rican laws, such as the Organic Environmental Act and the Biodiversity Act, have incorporated environmental education for citizens at every level of education. In addition, Costa Rica's Organic Environmental Act Number 7554 states that environmental issues should be permanently included in education at every level, and that this will be encouraged by central and local governments as well as public and private organizations. The goal of the act is to foster an environmental culture that would lead to sustainable development. Costa Rica's National Climate Change Strategy reinforces these acts by proposing that the public be involved in and educated by government sponsored programs in climate change and environmental policy. This strategy also promotes environmental university curricula and programs at various levels within Costa Rica's 56 universities and 74 vocational schools (Daley et al., 2010). Although Costa Rica is promoting education on the environment and

climate change, this is not necessarily being translated to industry and green jobs. According to the study, “Skills for Green Jobs in Costa Rica,” excessive bureaucracy tends to hinder Costa Rica’s ability to do business and the necessity of companies to comply with standards restricts innovation in the green sector (Daley et al., 2010). Additionally, public sector businesses sometimes lack skills and knowledge needed to manage these areas while a power generation monopoly restricts innovators and new opportunities. In private sector businesses, only a small group of consultants specialize in green fields and even though Costa Rican laws are attempting to educate citizens on environmental issues, there is still a gap between formal education and the skills and training needed in industry (Daley et al., 2010).

In a recent study done by the CICR, only 49% of Costa Rican companies interviewed knew the term green jobs (*empleos verdes*). Of these companies interviewed, 59% produced a measureable benefit to the environment. This data suggests there is still a large gap in Costa Rican companies that do not understand green jobs or the need for them. In this same study, 34% of the companies interviewed said they believed their company would utilize green jobs in the coming years. The future of green jobs in Costa Rica is vital to its competitiveness and sustainability in the world economy (Ferrari-Estudio et al., 2012). Costa Rica’s future for green jobs is important for the success of its environmental initiatives. The need for our investigation has come about from the necessity of training programs for these green jobs. We will examine companies to learn about their green jobs and training programs and produce recommendations that incorporate the case study information. To evaluate the case study countries for use in our recommendations, we will provide a matrix (Appendix E) that has information from this literature review on each nation’s programs and initiatives.

Chapter 3: Methodology

The goal of this project was to recommend strategies for the implementation and advancement of training programs that would facilitate the further growth of green jobs in Costa Rica. A comparative analysis of economic green sector development in China, Russia, Mexico and Brazil and an evaluation of Costa Rican universities and companies identified gaps and potential areas of improvement in training programs. The objectives were to:

1. Evaluate current green job training programs in Costa Rican universities.
2. Characterize the strategies that employers have already established, future action that must be taken, and the barriers that exist limiting the preparedness of workers inside the workforce in Costa Rican companies.
3. Identify gaps in training programs and develop recommendations for strategies that could benefit Costa Rica and present our recommendations to the CICR.

3.1 Objective 1: Evaluate Current Green Job Training Programs in Costa Rica

To characterize the current status of preparedness of future employees for green jobs based on training programs by organizations and universities, we conducted informal interviews with CICR employees and referred contacts and interviews with university professors. We gathered data on Costa Rica's effort and progress in terms of preparing workers for green jobs and facilitating the expansion of green jobs. This was achieved through interviewing professionals in the CICR, reviewing related information and documents provided by the CICR, and interviewing contacts in universities.

The professionals in the CICR were referred to us by Bernhardt Johst, our on-site liaison from the CICR, and they have expertise in researching Costa Rica's efforts to generate green jobs and identifying the barriers that limit the development of green jobs. These professionals were chosen for informal interviews based on their knowledge of green jobs and training programs that currently exist in Costa Rica (see Appendix A for informal interview questions). Ultimately, our project informed the CICR of changes that should be made to improve green training programs, which made it critical that we obtain as much information as possible from CICR employees. The interviewees were also able to provide additional contacts and resources

for our study. Table 4 below lists these professionals in addition to their position and purpose of each interview.

Table 4: Names and Affiliations of Professionals Interviewed to Gain Insight into Green Job Training Programs.

Contacts	Affiliation	Position	Purpose
José Salas	CICR	Human Resources	To learn which sectors and specific companies were most important to investigate. Also, to learn his definition of green jobs and small, medium and large companies.
Katja Frick	CICR	Consultant for the GIZ Program ACCIÓN Clima	To learn more about the topic of green jobs and areas that could be improved in Costa Rica. To learn about her position as consultant for GIZ program for environment and energy issues in industry.
Wendy Alfaro Chaves	OIT	Consultant in Sustainable Development	To learn about her position as a consultant to the CICR and to learn which sectors she thinks will develop green jobs in the near future.
University Contact A	University A	Lawyer in Environmental Issues/ Eco-consultant	To determine the current status of green job training programs that the university has designed to fulfill the influx of jobs in the green economy.
University Contact B	University B	Human Resources	To determine the current status of green job training programs that the university has designed to fulfill the influx of jobs in the green economy.

Additionally, from these interviews, we were referred to contacts within universities. This is a snowball sample, which is a sample chosen through a series of referrals. Bernhardt Johst

referred a number of colleagues to us and each of them referred us to a number of contacts in companies and universities which comprised our sample. Table 4 shows the name and affiliation of each person we interviewed, as well as a brief summary of the specific purpose of each interview. The university contacts were chosen based on referrals from CICR professionals and also on their knowledge of the topics of green jobs and training programs. We designed the interview questions such that they would provide data on the current status of training programs and how each university is preparing students for green jobs. We asked questions that assisted in cataloging training programs and their recent and future development. We also evaluated the link between universities and companies in regard to internships and collaboration in training employees and students. Then we organized and prioritized the questions in order of importance. In Table 5 below, sample questions for the university interviews demonstrate the type of questions asked of the interviewees (see Appendix B for the full set of interview questions).

Table 5: Important Sample University Interview Questions

Sample University Questions
What kind of training programs does the university offer for green jobs and skills?
How is the university responding to industry demand?
What curricula and majors does the university offer for future employment in green sectors?
In what industries do you see green jobs appearing in the next five years?
What is driving the need for green jobs?

These standardized interviews comprising in-depth qualitative questions yielded insight into the ability of university training programs to facilitate the generation of green jobs in a consistent manner (Doyle, 2004). Standardized interviews consist of questions that are the same for each interviewee. We supplemented the interview data with information from each university's website to gain a thorough understanding of their curricula for green job and environmental programs, strategies for tracking the employment of alumni, and anticipated development of the curriculum.

For all of the interviews conducted, we met at the CICR, set up a conference call, or sent an email containing the interview questions. While conducting these interviews, one member of the team served as primary interviewer (E.B., J.D., or T.V.P), and one as secretary (K.P.) to transcribe the proceedings. The proficiency of the participant in English determined whether the interview was held in English or Spanish. We requested permission to record the interview and notified the participants that the recording would not be published and would only be reviewed by our project team.

3.2 Objective 2: Assess Green Training Programs and Jobs in Costa Rican Companies

In order to characterize the preparedness of employees for green jobs, we conducted a series of interviews with four small and medium-sized enterprises (See Table 6) and five large companies (See Table 7).

Table 6: List of Small and Medium Companies.

Company	Industry sector
A	Furniture production and sales
B	Construction machinery and containers
C	Manufacturing & supplier of industrial parts
D	Manufacturing (plastic bags)

Table 7: List of Large Companies.

Company	Industry sector
E	Construction (concrete, aggregates)
F	Agriculture (pineapples, bananas, fruit)
G	Agriculture (sugar)
H	Manufacturing (tires)
I	Agriculture (milk & dairy products)

The company interview questions were developed into three clusters (See Appendix C for the complete list of questions). The first cluster was designed to assess programs and initiatives that companies are utilizing to train workers and prepare them for green jobs (See Table 8 below). The second cluster determines the strategies and initiatives that need to be implemented and how green jobs and training programs will progress in the future (See Table 9 below). The third cluster of questions was designed to ascertain the barriers and difficulties that prevent the progression of training programs and green jobs within the company (See Table 10 below). These barriers may include but are not limited to lack of funds, minimal exposure to CICR programs regarding green jobs, or lack of employee education in green ideals. The questions also collect background information about the company and interviewee and have the participant define important terms such as green, green jobs, and green skills in order to gauge his or her knowledge of these terms and their presence within the company itself. Most importantly, these questions addressed green jobs and training programs. We organized and prioritized the questions based on their pertinence to green jobs and training programs with particular regard to the amount of time we had for the interview. In Tables 8-10 below, sample questions for the company interviews demonstrate the cluster of questions asked of the interviewees (See Appendix C for the full set of interview questions).

Table 8: The Strategies That Employers Have Already Established in Terms of Green Initiatives and Training Programs.

Sample Company Interview Questions
<p>Does your company have green training programs? What has your company done to train workers in green practices?</p> <ul style="list-style-type: none"> a. Describe any green training programs. Are they successful and effective? <ul style="list-style-type: none"> i. If not, what problems do they have and what are they lacking? b. Describe green training programs you would like to have your workers go through. c. Do you conduct your own green training? <ul style="list-style-type: none"> i. If you do not conduct your own green training, who do you outsource it to? d. Do you have any connection with local universities for green training?
<p>How many green training programs does your company have per year? How many total training programs does your company have per year?</p>
<p>How do you find your workers?</p> <ul style="list-style-type: none"> a. Do you work jointly with universities or attend job fairs? b. Does your company offer internships to students?
<p>What has your company done to be green? Are there any green policies or standards?</p> <ul style="list-style-type: none"> a. Has your company established any policy for the reduction of carbon emissions? b. Has your company established any policy for recycling or waste management? If there are no standards in place, how does your company remove waste and recyclables? c. What factors have motivated the implementation of green initiatives in your company?

Table 9: Future Action that Must Be Taken in Terms of Green Initiatives and Training Programs.

Sample Company Interview Questions
What do you think the CICR can do to help the company generate green jobs or prepare workers for green jobs? What has it done already? Was it successful?
Do you think your company will generate green jobs in the next five years? If so, what types of jobs would they be?
Do you have any recommendations as to changes that can be made within your company regarding green jobs and training programs?

Table 10: Characterizing the Barriers Within Companies That Limit Development in Green initiatives and Training Programs.

Sample Company Interview Questions
What obstacles have impeded your company from being green?
Describe any green training programs. Are they successful and effective? i. If not, what problems do they have and what are they lacking?
What difficulties exist for the implementation of strategies in [energy efficiency]?

In the case that the company did not have green jobs, the interview questions were tailored to address general training programs (See Table 11 below). The development of green practices within the company in relation to renewable resources, energy efficiency, and carbon neutrality was also addressed.

Table 11: Interview Questions Used When Company Does Not Have Green Jobs or Training Programs.

Sample Company Interview Question
<p>If your company does not have green training programs, does your company have other training programs? What has your company done to train workers?</p> <ol style="list-style-type: none"> a. Describe any training programs. Are they successful and effective? <ol style="list-style-type: none"> i. If not, what problems do they have and what are they lacking? b. Describe training programs you would like to have your workers go through. c. Do you conduct your own training? <ol style="list-style-type: none"> i. If you do not conduct your own training, who do you outsource it to? d. Do you have any connection with local universities for training?

The large companies were chosen by Bernhardt Johst, whereas the small and medium sized companies were selected by José Salas, Human Resources Director at CICR. The companies are part of those industrial sectors which have the greatest impact on the Costa Rican economy with regards to sustainability, green jobs, and skill development (with the exception of the tourism industry, which is outside the scope of the CICR's focus). They were chosen because the CICR has experience with each of the companies and are aware of various initiatives within the companies due to prior interaction. This helps to provide a sample that more accurately represents the current state of green training programs and worker preparedness in Costa Rican industry. The large companies were selected because Bernhardt Johst has seen firsthand that they are implementing green initiatives and, thus; these companies would provide information on established green jobs and training programs. José Salas determined the small and medium sized companies by utilizing his personal contacts. He chose these companies based on the following criteria. In Costa Rica, 80% of the industries are micro, small and medium sized companies. Therefore, four small and medium sized companies were selected for interviews as they represent the majority of industries in Costa Rica. The companies interviewed are also associated with the Cámara de Industrias and have collaborated with past Cámara de Industrias surveys. These interviews targeted a range of Costa Rican companies from those that have had notable success in creating green jobs to those that have limited understanding of green jobs.

At each company, we interviewed environmental managers or other high level managers. We utilized standardized interview questions in addition to in-depth qualitative follow up questions (Doyle, 2004). These standardized interview questions facilitated the comparison of each company based on their responses to the same questions. At the end of the interview, we asked in–depth qualitative, or more flexible open ended, questions to follow up on topics that needed more clarification or elaboration. This often provided a more extensive discussion concerning a company’s individual practices or initiatives. We asked targeted and follow-up questions to obtain as much information from each company’s representative(s) as possible. One person conducted the interview, while another teammate recorded the proceedings. The proficiency of the managers in English determined the language of these interviews (interview questions can be examined in further detail in both languages in Appendix C). At the start of each interview, we asked for permission to record the interview and informed the participants that the recording would be used afterwards solely for our note taking purposes.

Interviewing environmental managers provided insight into the companies’ knowledge of green jobs and training programs and assessed the training required to perform their employees’ jobs successfully. The information gained from the interviews identified Costa Rica’s areas of success in terms of green job development and where it might need to improve. The interviews addressed this objective by assessing the existence of green jobs and training programs and identifying barriers that are limiting the training of these green employees in the workforce. We used the knowledge gained in the interviews to recommend strategies for what needs to be done to better prepare workers for green jobs.

3.3 Objective 3: Analysis and Development of Recommendations

We developed a list of recommendations by synthesizing information learned from the case study countries, China, Russia, Mexico, and Brazil, and from analyzing results gathered from the interviews and other research discussed in the previous two objectives. To characterize policies for the promotion of green jobs in our model nations of China, Russia, Mexico, and Brazil, we conducted thorough research utilizing library and Internet resources. We researched each country to learn its strengths and weaknesses as they relate to respective green sectors. These green sectors included photovoltaic, hydroelectric, wind, geothermal, and biofuel production. In order to assist in the comparison of these case studies to Costa Rica, we

categorized and organized the data into a matrix that identifies relationships between the countries in the areas of success and gaps within development. The matrix includes information such as population, area, government, economy, government intervention and international collaboration. We researched the four target countries as case studies and created a matrix in order to make recommendations to the CICR on how Costa Rica can further develop its green economic sector and create future green jobs. Researching the case studies provided background information that was analyzed to identify comparisons to or applicable trends for Costa Rica.

We analyzed the interview results by performing a qualitative analysis of the data. The qualitative analysis was completed by identifying driving factors and barriers of green job creation and drawing conclusions regarding actions that the CICR can take in promoting green job preparation and helping companies overcome these barriers. When a company had success in aspects of green job training, we incorporated its strategies into our recommendations. On the other hand, when there was a lack of knowledge in a certain area, we relied on our case study nations as our primary resource in making recommendations. Within these recommendations, we also informed the CICR of barriers preventing companies' success.

We organized the responses to each question into categories that showed a comparison of the companies in the presence of green jobs and training programs. The characteristics that each company was evaluated on were size, sector, knowledge of green, presence of green jobs, presence of green job training programs, connection to universities and organizations, and future commitment to green initiatives. This categorization and ranking of specific characteristics of companies enabled us to make qualitative statements that represent the preparedness of the companies as a whole. For each characteristic, the company was placed into one of three categories. Furthermore, categorizing companies allowed for the identification of variables that were causes for trends of each characteristic. The three categories for each characteristic are displayed in Table 12 below.

Table 12: Characteristics and Categories for Organizing Companies' Responses.

Characteristic	Categories	Criteria
Size	Small	1-29 employees
	Medium	30-99 employees
	Large	100 or more employees
Understanding of Green	No understanding	No understanding of terms green jobs, green skills, green
	Limited understanding	Limited understanding of terms green jobs, green skills, green
	Complete understanding	Complete understanding of terms green jobs, green skills, green
Presence of Green Jobs	No green jobs	No green jobs
	Less than 10% of jobs were green jobs	Less than 10% of jobs were green jobs
	Equal to or greater than 10% of jobs were green jobs	Greater than or equal to 10% of jobs were green jobs
Presence of Green Job Training Programs	None	No green job training programs
	Limited	One green job training program or general training programs that cover environmental issues
	Numerous	Many green job training programs
Connection to Universities	None	No connection to universities
	Limited	Limited programs for students/with universities
	Strong	Presence of internships or scholarships to universities; attendance at job fairs
Connection to Organizations	None	No connection to organizations
	Limited	Limited connection to organizations
	Strong	Outsourcing job training, hiring workers through organizations
Future Commitment to Green Jobs and Initiatives	None	No desire for green initiatives in the future
	Limited	Some green initiatives planned for future
	Strong	Committed to many green initiatives in the future

Categorizing responses was based on the interviewees' answers to related questions. This data was compiled into tables for each characteristic in order to represent the areas that are of highest and lowest level of preparation in companies. Furthermore, we organized the barriers and recommendations from the companies on how to overcome them. In order to organize and weight recurring themes, a word cloud analysis of the barriers and the analysis of the recommendations organized and weighted reoccurring themes. A word cloud is used to show which words in a source text appear most frequently. For the word cloud with barriers to green job creation, we utilized the responses to question 20d (see Appendix C), tallied how many times each word occurred, and pasted the number of occurrences into the word cloud generator, Wordle (Feinberg, 2011). For the word cloud with recommendations for green job creation, we used the responses to question 14 (See Appendix C), tallied how many times a theme appeared, and pasted the number of occurrences into the word cloud generator. Therefore, the largest words generated by the visual word cloud comprise the most commonly appearing themes from the responses.

Once the analysis was complete, each barrier and recommendation was sized based on importance, allowing us to take into consideration which were the most prevalent and reoccurring when making recommendations. The highest weighted barriers suggested the most common factors limiting the preparedness of employees in the workforce. We identified gaps that existed between the type and availability of university preparation programs and the needs of employers that are trying to fill green jobs. For this analysis, a gap is defined as a disparity or disconnect between a university or organization and a company in terms of level of development in a specific aspect of green job preparation. Upon identifying the gaps, we made recommendations from the knowledge we gained through our research and we designed our recommendations to bridge these gaps.

After compiling an initial list of our recommendations, we had a meeting with Wendy Alfaro, Katja Frick, Bernhardt Johst and José Salas to review and critique our recommendations. Our team designed a list of conversation points that evoked a discussion-based critique of our initial recommendations (See Appendix D). The topics of the discussion included the feasibility of implementation, likelihood of success, probability of significant impact, and cost effectiveness of our recommendations in Costa Rica as well as recommending improvements. Based on the discussion in this meeting, our modified set of final recommendations incorporated the advice of

the attendees. Finally, we presented the recommendations to the CICR. This document of recommendations contains strategies to facilitate green job generation and the implementation of training programs for industry in Costa Rica.

Chapter 4: Results and Analysis

First, we conducted informal interviews with CICR professionals and contacts. Next, we interviewed university contacts. Then, we conducted interviews with small, medium and large companies. The results from the company interviews were organized using tables and then evaluated. A word cloud analysis technique was also used for analysis of barriers and recommendations. The university interviews were also analyzed for reoccurring themes concerning green training. Finally, we carried out a comparative analysis with the case study nations of China, Russia, Mexico and Brazil to help inform our recommendations.

4.1 Objective 1 Results: University Interviews

We conducted interviews with university contacts to gain an understanding of current green job training programs that exist in Costa Rican universities. We asked questions regarding the curricula at the universities and training programs for green jobs and fields. Table 13 below shows the universities and positions of the interviewees and then a summary of each interview completed.

Table 13: University Descriptions and Contacts' Positions.

University	Description	Number of Students Enrolled	Position of Interviewee
A	General public university with various majors such as general sciences, social sciences, agro sciences, engineering, health.	39,000	Lawyer in Environmental Issues/ Eco-consultant
B	Private university that offers a four-year undergraduate program in agricultural sciences and natural resources management to promote sustainable development.	400	Human Resources

4.1.1 University A

On November 26th, we received the responses to university interview questions in Spanish via email correspondence with University A. Our contact is a professor, course coordinator, and faculty chair for environmental law at her university. Her responsibilities include designing and updating the syllabus, coordinating the activities of the chair, and inviting experts to speak on issues related to course material. A majority of law professors at this university were educated in Costa Rica at the undergraduate level but then pursued higher education and specializations abroad. Additionally, she defined a green job as one that contributes to the sustainable development of the country. She thinks that the need for green jobs is developing because certain companies want to gain an advantage over and differentiate themselves from their competition by incorporating sustainability. To be prepared for green sectors, she feels that students should become more environmentally aware and be willing to take on the challenges associated with establishing sustainable development in Costa Rica. She had no knowledge of how the university chose courses to train students for green jobs or if it has training programs.

The professor mentioned that in relation to green skills the environmental law curriculum focuses on themes such as corporate social responsibility, environmental performance and efficiency. She believes students find work after graduation in green jobs in the areas of biology, biotechnology, science, and engineering, and that in the next five years, green jobs will be generated in Costa Rica in the fields of biotechnology, nanotechnology, chemistry, and engineering. Additionally, she thinks that teaching green skills will provide more qualified professionals to satisfy the demand for green jobs. The interviewee indicated that the university is not responding to the country's needs for educating future leaders in sustainable development or to industry demands. She writes that the university has limited motivation for teaching green skills. Furthermore, she did not know if the university had connection to companies for green training programs but she foresees it will in the future. The interviewee suggests that the CICR should promote policies for investment in green job development. Her recommendation to facilitate the generation of green jobs with the development of training programs is a joint effort between the universities and the industrial sector as well as government policy for investment in this area.

4.1.2 University B

On November 30th, we received an email response to university interview questions in Spanish from the Director of Human Resources at University B. He defined a green job as one that is environmentally friendly, helps develop sustainable economies, and utilizes the proper management of natural resources. The interviewee believes that skills for green jobs include having environmental awareness, ethics, and a sense of social responsibility in order to balance the needs of the community with protecting the natural resources available. In his opinion, employees in green jobs should be knowledgeable in new sustainable practices and technologies that they can integrate into industrial practices. In acquisition of green skills at University B, students can pursue a Bachelor's Degree in Agricultural Sciences. The university is also developing a plan to create a graduate program related to this major. During the first and second years of study, students work twice a week in different academic farms on campus in the areas of sustainable farming, crop modulation, forestry, organic farming, natural resource management, agriculture engineering, and waste management. Furthermore, in the third year, they are required to complete a 15 week internship concerning agriculture, community development and entrepreneurship in Costa Rica or abroad in collaboration with the Office of International Academic Programs to apply knowledge they have learned at University B to solve real world problems and gain work experience to help them in their future employment. Students complete this module experience in their senior year by developing and implementing a work plan or project related to their personal career goals.

The faculty at this international institution for learning is comprised of educators from 19 different nations with previous experience in agriculture and promoting sustainable practices around the world. The interviewee feels that because Costa Rica made a commitment to become the world's first carbon neutral economy by 2021, there needs to be a joint effort between the government, industry, and private citizens to strive towards this goal. In turn, the need for green jobs stems from the fact that this challenge means that companies require employees with the knowledge and green skills to achieve carbon neutrality. He went on to elaborate that Costa Rica needs green employees mainly in the production (agriculture, livestock) and tourism sectors. The interviewee thinks there is a lack of a framework present in industry for environmental management that is limiting the development of green jobs. In the next five years, he thinks that green jobs will be created in the tourism and manufacturing industries. University B tracks

student progress after graduation via the Graduate Office. Periodically, the school sends out a survey to learn about the current employment and career progress of its graduates in order to establish networking with alumni and help them advance in the professional world.

The Director of Human Resources shares that University B educates agents of change and creates leaders that promote positive change in society. In order to respond to industry demand, the university helps students acquire the capacity to exercise leadership, social responsibility, practical reasoning and analysis to solve problems, and technical and managerial skills. He says they also learn to communicate effectively, work in teams, learn independently, and promote the development of agriculture and sustainable management of natural resources. The university will continue being an innovator in environmental studies and social responsibility in order to satisfy the demand for green jobs and continue being a green employer. Furthermore, he explained that because climate change is affecting the development of communities, agriculture, and economy, University B has been motivated to establish projects in sustainability that allow students to acquire green skills and experience in how to effectively resolve problems associated with this phenomenon. He recommends that training professionals in green practices in order to build an environmentally aware workforce with a sense of social responsibility is the key to generating and preparing workers for green jobs. Furthermore, he thinks companies with the help of the CICR need to modify the way they do business to be more sustainable and thus create new opportunities for green jobs and training.

4.2 Objective 2 Results: Company Interviews

We conducted four small and medium-sized company interviews and five large company interviews. Most of the interviewees were environmental managers or general managers. The companies were in various industrial sectors such as manufacturing, agriculture, technology and construction. Scheduling the interviews with the small and medium sized companies was unproblematic and most of these interviews were completed during the first weeks of interviewing. Scheduling the large company interviews was more of a challenge as the interviewees took longer to respond to emails and phone calls. During the interviews, we utilized a script of questions (See Appendix C), and then asked relevant follow up questions. The follow up questions could have led to variability in responses because of different follow up questions asked. Five of the nine interviews were conducted in Spanish, which could have led to missed

nuances in the answers (but one team member, K.P., is fluent in Spanish). The interview questions asked in Spanish were easier for the participants to answer in detail; however, this made it more difficult for us to ask follow-up questions as two members of the team have limited understanding of Spanish. In addition, there is a potential bias in the sample of companies interviewed because they are all members of the CICR and referred contacts of our sponsor. It is not mandatory for Costa Rican companies to be members of the CICR. In order to become a member, there is an application process as well as monthly dues. The attitudes and actions of this set of companies may not reflect the overall attitudes of all Costa Rican companies because of their ongoing relationship with the CICR. Below are summaries for each of the company interviews, divided into two main sections, one for the small and medium-sized companies and one for the large companies.

4.2.1 Small and Medium-Sized Company Interviews

Four small and medium sized company interviews were completed by the team. These companies are listed in Table 14 below along with each company's industrial sector, size, and number of employees. The table also shows the position of the interviewee. Following the table are the results from each of the company interviews.

Table 14: List of Small and Medium Companies Interviewed and Relevant Information.

Company	Industry Sector	Company Size	Number of Employees	Position
A	Furniture production and sales	Medium	96	Supervisor-Human Resources Manager and Financial Manager
B	Construction machinery and containers	Small	27	Head of Marketing
C	Manufacturing/Supplier of Industrial Parts	Small	15	General Manager
D	Manufacturing (plastic bags)	Medium	46	General Manager

4.2.1.1 Results from Company A Interview

On November 6, 2012, the team conducted the first company interview. The language of the interview was Spanish. Company A is a small family-owned furniture manufacturer consisting of 96 employees across five facilities. This company is in the manufacturing sector, making office furniture made of metal and wood. The supervisor interviewed was the Financial and Human Resources Manager. Her responsibilities include monitoring all five plants, managing furniture byproducts, and completing various projects.

When asked about her knowledge of green jobs, the supervisor defined a green business as one that is trying to use or is currently using only green resources and minimizing waste, as waste can be recycled and reused. This company representative discussed the need for increased awareness of the conservation of resources, paper and electricity in this company's case. Company A does not have green jobs or green job training programs; however, the supervisor did speak about informal recycling programs taking place in the company. On the other hand, the company does not have an employee with the specific position of regulating waste disposal and recycling. The company's employees also turn the lights off at lunch and try to give maximum life to products, solvents, and chemicals. They do not use recycled parts in their furniture but make repairs with used parts.

In terms of education of employees, the company supports workers who want to further their education. For example, the company will make a monthly payment for schooling. Occasionally the company has employees work with Instituto Nacional de Aprendizaje (INA) to attend courses in English or computers. While the company has university interns, this is not a formal program. The company finds employees through personal recommendations, and does not attend job fairs or seek out students at universities. Applicants just need experience; no formal degree is required as most of the jobs are administrative and operational.

Company A faces many barriers to green job creation. The supervisor indicated that employees have very little awareness of energy efficiency. For example, she said her employees will put four chairs inside a large oven during the production process instead of filling the oven and that this is a waste of energy. She believes this is due to a lack of knowledge, as most people do not relate electricity with natural resources. The company representative also said that funding was a problem because she attends CICR programs but cannot afford to bring other employees.

She also said that a lack of supervision of employees causes a lot of materials to be wasted. The supervisor had several recommendations for future green initiatives in the company. She would like to use and sell recycled products but this requires more funding which would otherwise be for employees' salaries. Furthermore, she would train all staff to understand that everything needs to be recycled and saved in some form. In the future, she sees opportunity for a green position in the company to oversee the proper disposal of materials. Table 15 below shows a recommendation the company representative made to the CICR.

Table 15: Recommendations Made by Company A to the CICR.

The CICR should work to develop an environmental consciousness in company managers so that they can explain the need for green job creation to employees.

4.2.1.2 Results from Company B Interview

On November 7th, the team interviewed in Spanish the Head of Marketing at Company B. Company B is a small company with 27 employees in Costa Rica. Company B is in the construction sector of the economy and specializes in the use of heavy machinery and in handling cargo. She defined the term green as initiatives that reduce the impact of the company's processes on the environment. The company did not have green jobs; however, green initiatives were incorporated into its practices, which include replacing gas powered rollers with hydraulic rollers to reduce fossil fuel consumption, discarding tires and oil to a waste management company, and informally conserving paper, water, and electricity in their daily routine. There is no protocol in place for monitoring these conservation strategies. There are no green training programs, but the company has quarterly training where the focus is decided based on the company's needs and often concerns on-the-job safety, teamwork, marketing, or computer programs. Training is often done by a member of the company unless a client requests training or specific certifications, in which case the employees are trained by the client. When six of their drivers recently required specific certifications, they were trained by an external organization.

Furthermore, the interviewee said that there were no connections with universities in terms of internships or job searches; however, the company offers scholarships to employees furthering their education. She explained that operators and drivers find the company in order to apply instead of responding to an advertisement or other formalized job search tool. To fill administrative positions, the company has strong connections with the CICR which refers the majority of the candidates. She elaborated on her commitment to green initiatives in the future by recommending strategies that the company could incorporate including changing the fleet machinery from gas to diesel or electricity and establishing a quality manager position to oversee green aspects of the company. She stated that the main barriers to generating green jobs and initiatives are lack of budget for initial expenses, lack of a qualified individual to structure educational programs for green jobs, and lack of publicity and advertisement by the CICR of its beneficial programs. Table 16 below list the recommendations the company representative made to the CICR.

Table 16: Recommendations Made by Company B to the CICR.

<p>The CICR should have a structured program of education for training in green practices and courses for green awareness.</p> <p>-More training will cause more workers to have ideas for development and projects incorporating green technologies because there is no current definite structure.</p>
<p>The CICR should improve advertising of programs in terms of a brochure or mailing notice about future programs.</p>
<p>The CICR should create a program that companies can send workers to in order to get certified in a specific area regarding green training and receive a certification that can provide a benefit to the company.</p>
<p>The CICR should create an education program focusing on investing large sums of money in green initiatives to earn a profit.</p> <p>- Initial cost of creating a green initiative holds companies back, and financial training can teach companies effective ways to invest.</p>

4.1.2.3 Results from Company C Interview

On November 8th, the team conducted an interview in Spanish with the General Manager (GM) of Company C. Founded in 2006, Company C is a small company made up of 15 employees. It is part of the manufacturing sector and specializes in producing equipment for manufacturing all over Latin America. The GM defined a green job as one that does not impact the environment. Furthermore, he indicated that Company C has no green jobs or training programs at this time but feels that generating them would give the company a competitive advantage. Company C is currently involved in a program with the CICR in which the CICR assesses where it can advance in areas such as accounting, internal procedures, human resource management, process management, environmental management, and energy use. CICR chose Company C for this program because of its involvement in the manufacturing of medical equipment. At the end of the program, the company has to set goals for improvement. Company C is presently establishing an internal development plan and is working with a consulting firm. This includes creating procedures to train all the employees and improve the efficiency of its manufacturing processes.

The company does not have a connection with local universities to train workers. Though Company C does not have a formal internship program, it offers work experience and aid to students who express an interest in learning about the company. It does not participate in any university job fairs to find employees but rather finds them through recommendations or posting open positions on the Internet. The GM specified that the most significant barrier preventing the company from implementing green initiatives is a lack of time, funding, and resources to plan green initiatives. With such few employees, everyone has to take on a large workload and cannot easily attend meetings and training programs. He did not express any plans for future green initiatives but did state that Company C engages in recycling of materials used in manufacturing and administrative processes such as paper, plastic, cardboard, aluminum and steel. In order to establish green initiatives, he stated that the development of a procedure for material and environmental management within the company would be advisable. Table 17 below shows a recommendation the company representative made to the CICR.

Table 17: Recommendations Made by Company C to the CICR.

The CICR can help companies train employees for green jobs by developing specific programs that educate workers in environmental protection. This includes teaching workers how to dispose of waste properly or how to save energy.

4.1.2.4 Results from Company D Interview

On November 12th, the team conducted an interview with Company D, a medium company that consists of 46 employees and was founded in 1977. The interview with the General Manager (GM) was conducted in Spanish. Company D is part of the manufacturing sector and specializes in producing flexible plastic packaging. It is an innovator in redesigning plastic products to minimize plastic used throughout processing and waste produced. His definition of green is an activity which causes the least environmental impact possible with particular emphasis on using resources efficiently and minimizing waste throughout the entire life cycle of an industrial product. He discussed that Company D recycles and reuses the majority of materials throughout the industrial processes that take place. This is motivated by the company's founding philosophy to be pioneers in redesigning plastic packaging to use less material and decrease waste. In order to reduce energy consumption, it also upgraded to more energy efficient machinery from 2000 to 2005. This change has decreased energy costs from about \$10 million to \$7 million per year. Additionally, he explained that the work schedules were recently redistributed to maximize production hours when the demand for energy was low to reduce electricity cost and increase energy efficiency. In time, by tracking energy bills, it can monitor the effect of these changes on the company.

Company D has no official green jobs and minimal green training programs. It does have training programs regarding waste management, integrated quality management, and equipment operation. Though the company does not have a connection with local universities to train workers, it sends personnel to Instituto Nacional de Aprendizaje (INA) for training. He went on to say that about ten years ago INA started a plastics training center. It sends students and professors to companies to supplement theoretical learning with practical understanding of industrial processes. Thus, students of INA visit and spend semesters working at Company D.

The company does not participate in any university job fairs to find employees. Instead, it posts open positions in the newspaper. The GM thinks that implementing green training programs in

the company would be advantageous because they would breed environmental awareness amongst the workers. On the contrary, he does not think that being green will necessarily give the company a competitive advantage because “the consumer is as green as money allows,” as translated from Appendix F. In his opinion, consumers will choose green products if they cost the same or less than their counterparts. They will typically choose the least expensive product despite the satisfaction of contributing to the environment with the exception of specific markets like Europe, Canada, and parts of the US. In the next five years, he thinks that small and medium companies (including his own) will have an environmental inspector, a position dedicated to making sure the company complies with market regulations especially in the area of waste management, which is beyond the control of the employer. The GM said that the most prominent barrier to green job development and training in Company D is cost and time. He wishes that more hours could be dedicated to employee training but each hour spent training is one hour less spent producing. Table 18 below lists recommendations the company representative made to the CICR.

Table 18: Recommendations Made by Company D to the CICR.

The CICR should establish training programs that help individuals develop the mind set to reduce, reuse, redesign, and recycle and breed awareness of environmental impact.
The CICR should make environmental studies a priority in schools as well as integrating it across disciplines so that green themes can be applied to all aspects of education and later the workplace.
The CICR should create government incentives or subsidies for companies that want to implement green initiatives. Companies need the money to make the initial investment that will later on generate savings.
The CICR should push the government to mandate companies to redesign their packaging in order to minimize waste.

4.2.2 Large Company Interviews

The team completed five large company interviews. Four of the five companies were international with headquarters outside of Costa Rica. These companies are listed in Table 19 below along with each company's industrial sector, size, and number of employees. The table also shows the position of the interviewee. Following the table are the results from each of the large company interviews.

Table 19: List of Large Companies Interviewed and Relevant Information.

Company	Industry Sector	International Headquarters	Company Size	Number of Employees	Position
E	Construction (concrete, aggregates)	Europe	Large	600	Environmental Manager
F	Agriculture (pineapples, bananas, fruit)	U.S.	Large	5500	Director of Environmental Affairs
G	Food Processing (sugar)	None – headquarters located in Costa Rica	Large	510	Environmental Coordinator
H	Manufacturing (tires)	Asia	Large	800	Process Engineering Manager, Regional Manager of Environmental Affairs for Latin America, Account Manager of Human Resources, Manager of Finances, and Corporate and Community Relations Coordinator
I	Agriculture (dairy, milk products)	None – headquarters located in Costa Rica	Large	3000	Manager of Sustainability

4.2.2.1 Results from Company E Interview

On November 15, 2012, the team interviewed Company E, a large company with 600 employees. The language of the interview was English. This company is in the construction sector, utilizing three primary materials: cement, premixed concrete, and aggregates of sand and rock. The interviewee is an Environmental Manager who runs programs that help to minimize the ecological footprint of the company. These programs pertain to climate change, CO₂ emissions, energy efficiency and sustainable construction, and her areas of focus are energy efficiency and waste management.

When asked about her knowledge of the term green, she discussed that a company that calls itself green must do something to manage its impact on the environment. She also said that a company should try to understand and minimize its environmental impact but that no company can ever be 100% green. She spoke about the importance of waste management in helping to protect the environment. Company E has several green initiatives in place. It has a hydroelectric plant that produces electricity and has plans to expand it. It also works with a company that manages waste and uses less fuel. Company E's method for making cement uses less energy than traditional techniques. A formal program for energy efficiency also exists including stickers that encourage workers to shut off the lights in bathrooms, meeting rooms and offices. In addition to these initiatives, the company ran a contest to incentivize families to become more energy efficient. Forty families who are saving electricity in their homes entered the contest and the family that saved the most electricity received a refrigerator. This promotes energy efficiency and awareness among the other employees who view their colleagues saving energy and are encouraged to follow suit. The team also asked this company representative about what the term green skills means. She listed skills such as communication of environmental themes, knowledge of technical aspects of green practices, ability to measure cost to benefit ratio of sustainable initiatives, business and financial skills and also the capacity to motivate and encourage employees to complete everyday tasks in new eco-friendly ways.

Company E has ten employees in green jobs, including the interviewee. These green jobs are all management positions, as there is one environmental manager in each branch of the company. Although the company does employ people in green jobs, there are limited green job training programs within the context of opportunities generated by the company. This is because these managers are hired with a specific degree or background. For example, the environmental

manager interviewed by the team studied business in Costa Rica and then studied in Germany to obtain a master's degree in sustainable management with the German Agency for International Cooperation (GIZ). She said that all of the workers employed in green jobs in the company studied in other countries and with outside organizations. In addition, this company's headquarters are in Europe and there are branches of the company located in other countries. Headquarters has a calendar planned with events and training courses within the environmental departments. Examples of training courses include green purchases, sustainability practices. Headquarters asks Company E of Costa Rica to send participants to training and cover the associated costs so it is sometimes not possible for them to send employees.

The interviewee indicated that a majority of the green initiatives present in the Costa Rican plant are created to comply with the standards set by the company's headquarters. Although the company has limited green job training programs, it does have one training program given to new employees which includes information about the techniques the company uses to measure environmental aspects and explains climate change and methods used to calculate their carbon footprint. Company E also offers internships to university students, mostly in the environmental or innovation department.

The company representative said the company was very interested in establishing future green training programs and that she foresees the addition of one to two more positions for green jobs in the next five years. Although this company already has several green jobs, it still faces many barriers on its path to increase the number of green jobs. According to our interviewee, one problem that employers face is that the workers are unaware of current trends in the world today in terms of climate change and environmental issues. Another barrier to increasing green jobs is cost. Customers will choose the cheaper option for purchasing cement, and products made at a green company cost more to produce. The company has to find clients who are willing to pay more for sustainable construction. The manager also said that in this economic environment creating environmental positions is not a budget priority, which inhibits green job generation. The company must focus revenue on production and sales of products. To make changes in Company E, she suggested that every department could have courses about environmental awareness and that managers should attend this training program. She indicated that a barrier to green job creation is that the CEO of the Costa Rican plant of Company E is more concerned with production and sales than with establishing more green initiatives. Her final

recommendation for Company E was that to improve energy efficiency, equipment, compressors and acids would need to be changed. Table 20 below lists recommendations the company representative made to the CICR.

Table 20: Recommendations Made by Company E to the CICR.

<p>The CICR should create a study that includes counting how many positions are green, what companies are doing and benefits for companies to have green jobs. -Green jobs could help to reduce the unemployment rate because lower level workers could be trained to fill these positions.</p>
<p>The CICR should offer more energy management programs; they could advertise these programs on TV or in the newspaper.</p>
<p>The CICR should look to other companies to see how they are implementing green initiatives.</p>

4.2.2.2 Results from Company F Interview

On November 27, 2012, the team conducted an interview with Company F, a large multinational company with approximately 5,500 employees in Costa Rica and 36,000 worldwide. The language of the interview was English. This company is in the agricultural sector of the economy, specializing in fresh fruit and vegetables, particularly pineapples and bananas in Costa Rica. The company produces their own fruit and exports the majority of their products. The interviewee is the Director of Environmental Affairs for Latin America for the company and studied at the University of Costa Rica in addition to Santa Clara University in the United States.

When asked about his understanding of green jobs, the director defined green jobs as those related to any industry or activity in the industry that reduces or mitigates environmental impact. He discussed the importance of managers understanding the impact that their business has on the environment and considering it in their decision making. Regarding green jobs, other than the director we interviewed, Company F has an environmental department in each division of the company such that one person is in charge of environmental affairs. This company also employs environmental auditors, whose roles are to examine and assess carbon emissions and neutrality and other green programs. While technically there are approximately fifteen green jobs

in the company, the director said that every employee in the company needs green skills and that everyone receives training on how to reduce the environmental impact of their job. The major focus of the company is to train all employees in operations to have green skills. There are two types of environmental training programs present at Company F. One is general management system training, which teaches employees about the management system in place. This system identifies what environmental aspects and impacts are and how to control these impacts. The second type of training is specific to positions within the company, for example, a farm worker learning to apply pesticides to reduce impact on the environment would receive training specific to his daily responsibilities.

In addition to internal training programs, Company F does work with outside organizations for training such as certification companies. They also hire workers who attended Earth University, which has environmental training programs, as they know these employees will already have environmental awareness. Regarding education of employees, the company employs mainly farm level employees with a primary school education. Managers typically have at least a high school degree and a college degree. Employees are hired through job fairs and the company does offer internships to students, particularly from Earth University and the University of Costa Rica.

The director discussed the need for the company to utilize renewable resources and work on alternative energy. Regarding green initiatives within the business, Company F is currently researching renewable energy prices and also working with college students to study the possibility of using the company's biomass to produce electricity. The company also has the goal of carbon neutrality by 2021 and has been researching techniques to reduce emissions, such as renewing their container fleet, using fewer refrigerants, and using controlled release fertilizers to reduce nitrogen use. Company F also recycles plastic and agrochemicals and will only buy these chemicals from companies that will reuse the materials following use. The director said the factors motivating these green initiatives are environmental management systems, a country analysis conducted in 2007 which piloted the idea that companies should align themselves with the country's strategies for carbon neutrality by 2021, and customer demand.

One major barrier this company faces is technological as it is dependent on fossil fuels to power equipment. Another large constraint is the financial debt accrued through the global economic crisis over the past few years. This has caused a lack of funding for more green

initiatives and better technologies that could increase energy efficiency or utilize alternative energy. A third obstacle the director discussed was that the market is not yet driving companies to be climate neutral. Table 21 below lists several recommendations the company representative made to the CICR.

Table 21: Recommendations Made by Company F to the CICR.

The CICR should utilize international contacts such as the GIZ for aid in supporting companies.
The CICR should obtain development funding or contacts with international organizations that have knowledge of green business. -The purpose of international contacts is that Costa Rica does not have renewable energy technologies, so these contacts can help Costa Rican companies learn about those technologies.
The CICR should audit companies in the industry and have companies comply with a set of standards for environmental impact. -Set up a committee with representatives from the company, the CICR, and the ministry of health and agriculture.

4.2.2.3 Results from Company G Interview

On November 29, 2012, the team conducted an interview with Company G which is a large company of 510 employees distributed across 15 plants solely in Costa Rica. The interview was conducted in English but the participant answered in both English and Spanish. The company is in the food processing sector and specializes in all products containing sugar such as drinks, gelatin, sprinkles, and biological control agents. After meeting briefly with the Administrative Manager to answer questions related to human resources, we interviewed the Environmental Coordinator. He defined green in one word as sustainability and goes on to elaborate on it as maximizing the efficiency of a process while reducing the impact this process has on the environment. His definition of a green job is not only the person that works directly with the environmental aspects of the company such as the Environmental Consultant but also indirectly those employees that try to go about their daily tasks with environmental consciousness by recycling paper.

Company G has extensive green initiatives in place such as having commenced a pilot program to reduce electricity consumption by using LED lights, changed the conveyer belts in production to utilize the power of gravity and thus consume less energy, and replaced outdated truck fleets and cranes with those that are more efficient. It also utilizes a computer program that measures the paper use of each employee to identify where processes need to be digitalized in order to minimize paper consumption. The person we interviewed showed us a presentation of how the company is monitoring yearly electricity use per unit sugar produced, waste levels, and water usage in all the plants. Last year, this monitoring system facilitated a 28% reduction in electricity consumption. In an effort to increase the use of renewable energy, Company G had to bring in experts from the United States and Canada because knowledge in this area is limited in Costa Rica. The Environmental Coordinator said that there is one official green job in Company G and that is his own position, but he feels that there are about 50 jobs that can be indirectly considered green jobs per his definition. There are engineers that oversee water treatment, waste management, and reuse of materials as well as an accountant that tracks the use of materials and resource. Instead of having one employee in charge of environmental aspects, he says that Company G divides environmental responsibilities amongst all levels of the organization and all workers to some degree. Company G does not have a formal internship program but it has had various interns in areas such as industrial engineering, maintenance, and human resources. It finds employees by advertising open positions via newspaper and the Internet. In 2012, company G had nine green training programs, and in 2013, it will have 16. It has created a digitalized matrix of who needs to attend which of the 16 different training programs related to the ISO14001 standard and what will be covered. Company G has a management database system accessible to all employees that contains all the company's procedures including quality, safety, and this training information.

Company G conducts its own training but also outsources to external organizations for very specific topics related to safety stands and ISO certifications. The interviewee thinks that implementing green training programs in the company would be beneficial because a company has to be going green or it will be out of the market within a few years. In his opinion, clients want to work with a green company and this would provide a competitive edge. For example, Company G is required by one of its clients, a world renowned soft drink manufacturer, to engage in sustainable buying and conduct environmental audits of each other's plants to identify

improvements that can be made. The Environmental Consultant said that the most prominent barrier to green job generation and training in Company G is the initial investment required to fund green initiatives. He went on to say that with the high cost of new technologies, it is hard to return the investment within 2-3 years. In the next five years, he feels that a number of green jobs will be created in Company G in environmental management and engineering of renewable energy. In the future, he would like to see more programs in the company regarding carbon neutrality. The recommendations made by Company G to the CICR are located in Table 22.

Table 22: Recommendations Made by Company G to the CICR.

<p>The CICR should educate managers and other corporate officials in green jobs and training programs so that they can make changes throughout the entire company. Though educating workers in lower positions of power is important, there is still the obstacle of trying to persuade their managers that these green initiatives are worthwhile and cost effective.</p>
<p>The CICR should provide specific information to companies of each industry on how to develop green initiatives, jobs and training programs instead of giving a general presentation to companies from all industrial sectors on why they should have green jobs. Companies who are willing to make these changes lack the necessary guidelines or technical procedures.</p>

4.2.2.4 Results from Company H Interview

On December 3, 2012, the team conducted an interview with Company H, a large company consisting of 800 employees in the Costa Rican plant. Its headquarters are located in Asia. The interview was conducted in English. There were five participants in the interview, a Process Engineering Manager, a Regional Manager of Environmental Affairs for Latin America, a Key Account Manager of Human Resources, a Manager of Finances, and Corporate and Community Relations Coordinator. Each interview participant answered different questions depending on their specialization within the company, while for several questions, several to all of the participants responded. This company, in the manufacturing sector, specializes in tires and rubber products. The participants interviewed work to create a better community in the company and protect and conserve the environment in and around the plant.

One of the interviewees described green as a product or service that is in harmony with the environment and that uses resources while simultaneously trying to minimize the company's

impact on the environment. He also mentioned that energy efficiency, waste management, and the behavior of the company as a whole are important factors in his definition of green. One of the company representatives defined a green job as one that takes into consideration everything mentioned previously in the definition of green and applies it to everyday activities. She believes that every employee at Company H has a green job because they know about environmental rules and policies that must be followed and environmental impacts to protect society and the company. This manager also noted the importance of an employee having an open mind such that he/she can learn new methods of conducting every day activities and apply them to his/her career.

Company H has many green initiatives in place such as the installation of solar panels that generate electricity for several offices and the creation of programs to minimize carbon emissions. The company holds various certifications such as ISO 14001 and focuses on three main objectives: working in harmony with nature through environmental education and research, valuing natural resources and reducing CO₂ emissions. Energy efficiency has also been increased in the company through many energy saving initiatives such as installation of energy efficient lamps. There is also a solid waste management plan in place such that 88% of solid waste is treated and then recycled. The wastewater produced by the company is treated in a waste water treatment plant and waste has been reduced by 30% in the past five years. In addition, recycled materials are being incorporated into the company's tires. One of the interviewees said there was a demand from their clients to be green as the industry in general is asking for more green initiatives and a sustainable company.

The company does have connections with universities and employs students from public and private universities in both Costa Rica and North America. Students in this co-op/internship program work for Company H for six months and after six months, the students can extend the internship or possibly be hired permanently. Currently, there are approximately 40 students in this program distributed in various areas of the company. In addition to training students for eventual employment in the company, all employees are trained prior to working at the company.

As training is of high importance to this company, prior to an employee working in the company, the workers undergo one to two months of intensive training. Company H has training programs that consist of environmental issues. Employees are taught about how to measure CO₂

emissions and that the company is striving to be carbon neutral by 2017 in order to reach the government's goal of carbon neutrality by 2021. Training is conducted internally and externally.

The greatest barrier to green job creation at Company H has been training and education. The interviewees indicated that society is not focused on the environment and that environmental education has to begin in the home and in primary school. This will create environmentally conscious adults and employees. The company representatives also suggested that Company H needs to improve in its use of renewable energy. One of the interviewees stated that the motivation for green initiatives in the company comes from headquarters and maintaining their standards, however, the Costa Rican plant has been very proactive with regards to green initiatives independently. She also discussed that the founder of the company believed strongly that a company must be conscious of the environmental impacts of the company's processes. Table 23 below contains recommendations made by Company H to the CICR.

Table 23: Recommendations Made by Company H to the CICR.

The CICR should establish a forum where companies meet, collaborate and share information regarding green jobs and training programs. They can discuss their own practices, help each other develop better practices, and work together to better green jobs and training programs in Costa Rica. At this forum, information should also be provided regarding international initiatives in green jobs and training programs.

4.2.2.5 Results from Company I Interview

On December 4, 2012, the team conducted an interview in Spanish at Company I with the Manager of Sustainability. Company I is classified as a large company in the agricultural sector. Having been established for 75 years, it consists of 3500 employees within Costa Rica. The company specializes in agricultural products such as lactic foodstuffs and nectar drinks.

The Sustainability Manager defined green as the awareness people have of how much they affect the environment in day to day activities including the utilizing energy efficiently. She defines a green job as a job that is not necessarily specific to the environment but is based on the concept of people working in harmony with the environment and efficiently using resources to have the lowest possible environmental impact. She also defines sustainability as part of the

economic, environment, and social aspects of any organization to be green. Company I, certified in ISO14001, has several green programs such as incentivizing schools to recycle with a reward system that has led to the accumulation of more than forty kilos of recyclables. Another green program focused on waste management. The company began selling their waste to treatment facilities instead of paying large sums of money for its transport to landfills. Another green initiative it has implemented is buying back expired milk and yogurt from supermarkets, mixing them in tanks, and selling them to farmers to feed to their pigs.

To increase its efficient energy, Company I has changed outdated motors to those that are more fuel efficient, the illumination to LED lights, and insulation of tubes to prevent unnecessary loss of heat. It is also working on powering its boilers with biomass instead of coal as well as having select projects regarding the use solar panels. The interviewee stated that some barriers to green development include cost and the investment associated with new technologies. She thinks it is not possible to execute green initiatives if the return on a high cost investment is low.

The Sustainability Manager also mentioned that there are approximately 60 jobs within in her department, but does not consider them green jobs. An example of what she feels are duties associated with green jobs include the efficient consumption of water and use of gasoline as well as turning off the lights, managing resources, and adequately treating waste. The representative from Company I indicated that there is such a high number of people wanting to work in the company that it does not have difficulty finding employees and that this responsibility is handled by the Office of Employment. Company I does not attend universities for job fairs, nor does it offer student internship programs. It does work in conjunction with universities for training but not for green job training in particular. It also outsources training to INA or UNA. Company I has an internal “university” or training system as well as a total of 200 general and green training programs. Some themes covered in training programs within the company include the environmental protection, waste reduction, quality assurance, and safety and security. The interviewee believes that implementing green training within the company is beneficial because it promotes sustainability and environmental awareness.

The interviewee stated that the demand to go green from clients within Costa Rica is not as high as the level in Europe or the United States. She feels that going green gives companies a competitive advantage, however, regardless of how carbon neutral their products are; consumers are swayed by the price and quality of the product instead. The most prominent barrier to green

job generation and training in Company I is the lack of support from the government to advance green areas. In the next five years, the Manager of Sustainability thinks the number of jobs in Company I will increase but not all job growth will be in the green sectors. In the future, she recommends that the company can improve by reducing and recycling its packaging materials as well as educating consumers to do the same. Table 24 lists recommendations to the CICR to promote sustainability, green employment and training programs within companies.

Table 24: Recommendations Made by Company I to the CICR.

The CICR should collaborate with the government so that green jobs might be recognized at the national level.
The CICR should promote initiatives to go green within companies such as recycling programs with the purpose of promoting environmental awareness among employees.

4.3 Objective 3: Analysis of Company Interview Responses

To analyze the results of the company interviews, we organized the responses to each interview question into categories that showed a comparison of the companies in the presence of green jobs and training programs. The characteristics that each company was evaluated on were size, sector, knowledge of green, presence of green jobs, presence of green job training programs, connection to universities and organizations, and future commitment to green initiatives. The categories for ranking size of the companies were small, medium, and large. A small company was determined as one to twenty-nine employees, a medium company as thirty to ninety-nine, and a large company as equal to or greater than one hundred. Our interviews consisted of five large companies with 600, 5,500, 510, 800 and 3000 employees and two medium companies with 46 and 96 employees, and two small companies with 15 and 27 employees.

4.3.1 Understanding of Green

Green is a characteristic defined as “positive environmental impact including environmentally, economically, and socially sustainable enterprises and economics consisting of

reducing consumption of energy and raw materials, limited greenhouse gas emissions, minimizing waste and pollution, and protecting and restoring ecosystems” (International Labour Organization, 2012). The level of understanding of green was determined through the analysis of answers to Question 6 (See Appendix C) and the interviewee’s understanding of the term throughout the entirety of the interview and then represented in Table 25 below. The three categories are a complete understanding of green, limited understanding of green, and no understanding of green.

Table 25: Categorizing Each Company Based on Understanding of Green.

Company	Company Size	No understanding of green	Limited understanding of green	Complete understanding of green
A	Medium		X	
B	Small		X	
C	Small		X	
D	Medium			X
E	Large			X
F	Large			X
G	Large			X
H	Large			X
I	Large			X

The data suggests that out of the nine companies interviewed, three had a limited understanding of green whereas four had a complete understanding of green. All of the companies had an understanding of components of what we considered to be a complete definition. Each of them stated that green was characteristic of limiting impact to and contamination of the environment. Several of the companies incorporated the specifics of a reduction of energy and raw materials within company processes. The companies’ perception of green initiatives appears to be directly related to the actions the company has or has not taken regarding environmental programs. The companies with representatives who had a more

complete understanding of green tended to have more green initiatives in place within the company.

The data indicates that the size of the company has a direct impact on the understanding of green as shown by the trend of large companies to have a strong understanding while small and medium sized companies have a more limited understanding. Furthermore, the data suggests that degree of understanding of green is the result of the establishment of environmental positions within the company. For each company, we interviewed an environmental position unless the company did not have an environmental coordinator or management position; therefore, the understanding of green came from the most qualified employees of the company.

4.3.2 Presence of Green Jobs

The presence of green jobs was determined based on the response to Question 7 (See Appendix C) and then displayed in Table 26 below.

Table 26: Categorizing Each Company Based on Presence of Green Jobs.

Company	Company Size	No presence of green jobs	Less than 10% of jobs are green jobs	Equal to or greater than 10% of jobs are green jobs
A	Medium	X		
B	Small	X		
C	Small	X		
D	Medium	X		
E	Large		X	
F	Large		X	
G	Large			X
H	Large		X	
I	Large		X	

The data suggests that large companies are more successful in creating green jobs. Small and medium companies appeared to lack a large enough workforce to dedicate positions to green initiatives instead of company processes and management. The data indicates that the small and medium companies are not willing to take on the added expense of green employees, and the small companies do not see having green jobs as cost effective. In contrast, the large companies view green jobs as an asset and necessity and are willing to take on the added expense. The larger companies also may have had a greater presence of green jobs due to external assistance such as from other countries, branches of the companies located outside of Costa Rica, and from outside organizations. Three of the five large companies had headquarters outside Costa Rica and acknowledged that much of the motivation for and capability of green jobs and initiatives resulted from support and guidance of the headquarters. Furthermore, companies in international markets acknowledged the increased demand of green products in economies such as the US and Europe and stated that a company will not be competitive without a certain degree of green commitment. All of the large companies had assistance, such as education, training, or from outside Costa Rica or expressed the need for outside help in the future especially in terms of consulting with experts in renewable technology. It may be more difficult for smaller companies to obtain outside assistance and then create green jobs and training programs.

Additionally, the data indicates a possible relationship between the industrial sector and the presence of green jobs within a company. The agricultural and food processing companies in our sample exhibited a structured department such as a department of sustainability or an environmental auditing system. There are also numerous green jobs among the lower skilled laborers because of the large presence of agricultural farm laborers. While these jobs were not entirely considered green jobs, there are green components of the jobs in specific skills dealing directly with the environment such as precision agriculture, reducing the use of pesticides and contaminants, and recycling efforts.

4.3.3 Presence of Green Training Programs

The presence of green training programs was evaluated based on the responses to Questions 8 and 10 (See Appendix C) and represented in the Table 27 below.

Table 27: Categorizing Each Company on the Presence of Green Job Training Programs.

Company	Company Size	No green training programs	Limited green training programs	Numerous green training programs
A	Medium	X		
B	Small	X		
C	Small	X		
D	Medium		X	
E	Large		X	
F	Large			X
G	Large		X	
H	Large			X
I	Large			X

There is a trend that mainly large companies had green job training programs with only one medium company having green job training programs. Similarly, the data indicates that there is a correlation between the presence of green jobs and the presence of training programs suggesting that green training programs are the result of having green jobs. These training programs mostly existed when the company had a structured environmental management system. The large companies' training programs consisted of specific energy efficiency strategies, waste management, quality management, environmental awareness, and calculating environmental impacts. This suggests that when companies lack a structured department or environmental management system, there is a lack of qualified employees to educate the workforce and a lack of commitment to companywide education.

4.3.4 Connection with Universities

We determined the connection with universities through the responses to Questions 8, 9, 13, 15 (See Appendix C). This information can be found in Table 28 below.

Table 28: Categorizing Each Company Based on Connection with Universities.

Company	Company Size	No connection with universities	Limited connection with universities	Strong connection with universities
A	Medium		X	
B	Small		X	
C	Small	X		
D	Medium	X		
E	Large		X	
F	Large			X
G	Large		X	
H	Large			X
I	Large		X	

The data in Table 28 above does not suggest a direct relationship between the connection to universities with the presence of green jobs, training, and initiatives because in the majority of the companies, the connection to universities was not for environmental education. There is a correlation between size and connection in that larger companies are more likely to have a strong connection than small companies; however, the majority of the interviewees acknowledged that the internships and scholarships consisted of all disciplines and were not focused on environmental topics. Several companies insisted that renewable energy concepts are still new to Costa Rica and are not developed within Costa Rican universities, and therefore; consultants or employees are often hired internationally or from an outside organization. Similarly, due to the fact that most of the job search is done through recommendations or workers applying directly to

the company as opposed to job fairs, companies rely more on organizations, especially international, for providing qualified individuals for green positions. This data suggests that the universities are not preparing enough students in environmental specializations or companies are not aware or connected to these programs.

4.3.5 Connection with Organizations

The connection with organizations was evaluated based on the responses to Questions 8, 9, 13 and 15 (See Appendix C). This information is located in Table 29 below.

Table 29: Categorizing Each Company Based on Connection With Organizations.

Company	Company Size	No connection with organizations	Limited connection with organizations	Strong connection with organizations
A	Medium		X	
B	Small		X	
C	Small		X	
D	Medium		X	
E	Large			X
F	Large			X
G	Large			X
H	Large			X
I	Large			X

Every company exhibited a degree of connection or collaboration with another organization with the large companies having stronger connections. The data suggests that a possible reason for this is that as companies grow in size, other factors that are related to size such as connections with more clients initiate more collaboration and expanding departments require more qualified individuals. This additional need for qualified individuals increases the companies' attention in creating training programs and connections with organizations to find

these individuals. In order to improve specialized training and find specialized employees, some companies increased attendance to CICR programs along with membership in the energy commission within the CICR. In addition to collaboration with the CICR, Company E's department managers were all trained abroad for environmental specialized education, and the interviewee worked with the German Agency for International Cooperation (GIZ) and received a scholarship to earn a master's in sustainable management in Germany.

4.3.6 Presence of Green Initiatives

The presence of green initiatives was evaluated based on the responses to Questions 20 through 24 and the data displayed in Table 30 below.

Table 30: Categorizing Each Company by Presence of Green Initiatives.

Company	Company Size	No green initiatives	Limited green initiatives	Numerous green initiatives
A	Medium		X	
B	Small		X	
C	Small		X	
D	Medium		X	
E	Large			X
F	Large			X
G	Large			X
H	Large			X
I	Large			X

There was a trend in small and medium companies to be categorized as limited due to a lack of positions responsible for green initiatives and investment in these practices. Furthermore, these companies all lacked an environmental management program and positions in order to provide the company with a framework of strategies and expertise in the procedure of implementing them. Every company with numerous green initiatives had a structured protocol,

such as auditing or measuring environment aspects of the company and tracking progress. Several interviewees emphasized the importance of a procedure of auditing in order to know areas of improvement. This data suggests that the presence of specific management and tracking of environmental impact or efficiency correlates to a greater presence of green initiatives.

Furthermore, large companies, each with strong connections to other organizations, incorporated numerous green initiatives and practices into the enterprise. Connections with international headquarters greatly improved the presence of green initiatives through motivating companies to comply with the standards of the headquarters and the training and procedures provided by the headquarters. Similarly, companies selling to international markets implement more green jobs and initiatives because they see the competitive advantage as greater in markets like the US and Europe where consumers are more willing to buy a more expensive green product. Moreover, having connections and collaborating with suppliers, distributors, and clients have advanced each of the large companies in terms of sharing initiatives and utilizing each other's practices.

As with the presence of green jobs, the data indicates that the agricultural sector has more commitments to green initiatives within the company due to so many certifications and standards within the food processing and distribution industry. In addition, there are specific overseeing organizations such as the Cámara de Bananeros which oversees and audits the entire banana industry.

4.3.7 Future Commitment to Green Initiatives

The future commitment to green initiatives was characterized based on the responses to Questions 17 and throughout the interview as a whole. The categorized responses were then organized in Table 31 below.

Table 31: Categorizing Each Company on Presence of Future Commitment to Green Initiatives.

Company	Company Size	No commitment to green initiatives in the future	Limited commitment to green initiatives in the future	Strong commitment to green initiatives in the future
A	Medium		X	
B	Small		X	
C	Small	X		
D	Medium			X
E	Large			X
F	Large			X
G	Large			X
H	Large			X
I	Large			X

Commitments often consisted of the interviewee expressing interest in the creation of a management position or positions with the company to oversee all processes of the company and look for methods to improve efficiency and reduce waste in the future. A reoccurring motivation for expanding green jobs and initiatives is cost effectiveness; however, the size of the initial investment or lack of demand from consumers and clients hindered this advancement, according to the interviewees. This data suggested that small and medium companies were hindered the most in making the initial investment in terms of lack of budget. Furthermore, even though these companies acknowledged that the CICR is effective in selling the idea of developing green jobs, training, and initiatives, they lacked the knowledge of the next processes to implement green initiatives. Several large companies stated that a motivator was striving to meet standards set by

the headquarters, which is only in the case of the large international companies, and reputation in the market as a green producer. Some of the large companies discussed the need to utilize renewable energy sources in the future and were investigating this further.

4.4 Objective 3: Analysis of Barriers and Recommendations

The team completed an analysis of the barriers and recommendations for green job creation using the visual aid of a word cloud. We constructed these word clouds using the responses to company interview questions. The responses from each company were compiled into one document for the barriers and recommendations, recurring words and themes were tallied, and then the number of occurrences for each word was placed into a word cloud generator. The word cloud displays the most commonly appearing words from these responses and the colors of the words are arbitrary. Through the creation of these word clouds, there were some translation issues as some words used in Spanish were translated to multiple respective words in English. For example, “costos” in Spanish translates to cost but could also be interpreted as money or funding. To minimize variability in translations, a single team member (K.P.) did all the transcriptions and translations of interviews conducted in Spanish.

4.4.1 Barriers to Green Job Creation

The barriers to green job creation that each company representative discussed are shown in Figure 8 below. The figure contains a word cloud with various obstacles including cost, environmental awareness, time, and educational programs.



Figure 8: Word Cloud Showing Barriers to Green Job Creation in Companies Interviewed.

To analyze the qualitative interview data on barriers to green job creation, we created a word cloud, Figure 8, which shows the reoccurring words that appear the most throughout the interviews. This method is significant in showing the number of occurrences of each word relative to each other based on size. The largest words in the word cloud represent the most commonly occurring words in the interview answers. In the analysis, we grouped related words, such as money, cost, and budget, to represent the same reoccurring theme. By grouping synonyms, the word cloud limits error in cases where a single word in Spanish has several equivalent words when translated to English. The largest barrier to green job creation discussed at each company interview was the cost of creating green jobs. Each interviewee said that it was a significant investment for him/her to create green jobs at his/her company, and it was not always in the best interest of the company to budget for this investment. The companies could

not afford to pay for green job training programs. The initial cost to create green jobs is too great of an investment and as a result companies cannot afford to create green jobs within their budget.

Another obstacle at most of the companies was a lack of knowledge and environmental awareness in employees. It was suggested that the workers need to develop a consciousness of the environment and understand current and relevant issues and trends in the world with regards to green initiatives. Time and a lack of hours in the day were also problematic in the companies interviewed. It was mentioned that every hour spent training employees in green jobs was an hour that products were not being made. Another barrier is formulating the training programs and structuring education programs. Green jobs are new to companies and creating a training program catered to green jobs is foreign to most employers. Finally, the customers or clients of the companies go with a less expensive option than with the green and environmentally friendly business. Products made at a green company may cost more money. Below is a prioritized list of the barriers discussed previously. The barriers are listed in order of most frequently to least frequently appearing in the interview responses, which also corresponds to the size of the barrier in the word cloud. For example, cost is the most commonly recurring word in the barrier responses and is ranked first on the prioritized list.

Prioritized List of Barriers:

1. Cost
2. Lack of Environmental Awareness
3. Lack of Education
4. Lack of Specialized Training Programs
5. Lack of Technical Skills
6. Lack of Structure of Environmental Management System
7. Lack of Customer and Market Demand
8. Lack of Supervision
9. Lack of Advertisement of CICR Programs

recycling. The companies also suggested that government intervention and funding seem to be important factors in the recommendations made as well as the concepts of developing, reducing, and redesigning. Companies seemed to want the guidance of the CICR to develop green initiatives. This includes helping to establish the primary framework for green jobs and training programs as well as educating managers in the benefits of these endeavors.

4.5 Objective 3: Analysis of University Interview Responses

Because our insight into university viewpoints was limited to two interviews, we are not able to make any strong inferences into links between universities and companies in Costa Rica. The two university representatives apparently had slightly different interpretations of the intended purpose of each question. This resulted in slightly different types of answers received from the interviewees. Because the interviews were conducted via email and not in person, we were unable to clarify respondent's interpretations of questions. This interview method also made it easier for university contacts to circumvent a question or answer it incompletely without stating outright that they had no knowledge of the topic.

The respondent from University A suggested that the university does not seem to be responding effectively to industry demands and the country's needs for educating future leaders in sustainable development. On the other hand, the representative from University B indicated that his university is promoting skills that will better prepare students for careers in agriculture but not targeted to other green jobs. At University A, the interviewee stated that the institution has limited motivation for teaching green skills. University B offers a Bachelor's Degree in Agricultural Sciences with a graduate program in a developmental stage. The contact acknowledged the importance of the agriculture and manufacturing sectors for future green jobs. The contact from University B also indicated that many professors in environmental fields were educated abroad, and that Costa Rican universities may seek educators from other countries to teach in these areas. The professors of Environmental Law at University A were educated mostly in Europe and University B has professors from 19 nations around the world. This may show that higher education programs in Costa Rica in these areas of specialization may be lacking. These areas of study may be new and yet underdeveloped in Costa Rican education. Furthermore, the data shows that there is limited collaboration between universities and companies in developing training for students for future employment in green jobs. Though students may have internships

with companies to gain work experience in green fields, there was no cooperation mentioned by interviewees between university and companies in the development of curriculums or programs for green job preparation.

4.6 Objective 3: Formulation of Recommendations

To formulate recommendations to the CICR, the team identified five target themes from the interview analyses. These were: collaboration with public and private institutions, company evaluation and management framework, training programs, job search issues, and international collaboration and consultation. We then formulated sixteen preliminary recommendations using the results and analysis from company and university interviews and information from the case study nations. Next, we presented these preliminary recommendations in a meeting with Bernhardt Johst, Katja Frick, José Salas, and Wendy Alfaro where the discussion centered on the feasibility and possible implementation of the recommendations. This critique allowed us to revise and substantiate specific recommendations based on their feedback. Chapter 5 presents and elaborates on the revised list of recommendations.

Chapter 5: Recommendations

The CICR was the first organization established in Costa Rica to lead the development of various industrial sectors. Our recommendations are targeted to what the CICR can do to improve the preparation of employees for green jobs. These recommendations fall into five categories: collaboration with public and private institutions, company evaluation and management framework, training programs, job search issues, and international collaboration and consultation (Table 32). While the recommendations are divided into categories for ease of explanation in the following sections, they are in reality all interconnected.

Table 32: Table Showing Categories of Recommendations and Specific Recommendations.

5.1 Collaboration with Public and Private Institutions
The CICR should establish forums or conferences for company representatives to meet, collaborate, and share information regarding experience with green jobs, training programs, and initiatives.
The CICR should establish sector specific-committees comprised of representatives from companies and various ministries and chambers that oversees and audits the entire industrial sector that it represents.
The CICR board of directors should collaborate with directors in primary education schools in order to incorporate environmental topics into the curriculum.
The CICR should coordinate with government entities and banks to develop an investment program and financial education to help companies make the initial investment for green jobs, training, and initiatives.
5.2 Company Evaluation and Management Framework
The CICR should inform companies about how to establish an environmental management system.
The CICR should develop a program for companies to perform a self-audit of the environmental factors of the company.

5.3 CICR Training Programs

The CICR should create an action plan for worker training programs in “green consciousness” to send to companies.

The CICR should improve advertisement of programs utilizing a brochure or mail to make companies aware of future programs.

The CICR should offer training programs in conjunction with educational institutions focused on specific and technical training for the necessary skills needed for green jobs.

The CICR should create an incentive program for companies that develop green jobs, training, and initiatives.

The CICR should offer a program to teach managers and executives the economic advantages of incorporating green jobs and training programs in companies.

The CICR should establish focused programs for general managers within large companies to motivate them to educate smaller suppliers, distributors, and other clients of green initiatives.

5.4 Job Search Issues

The CICR should further develop its job search website to include green jobs and create job fairs that are specifically focused on green job positions in Costa Rica.

The CICR should create internships for students within the CICR to catalog data on green jobs and training programs, and the CICR should motivate companies to establish internships for local university students with environmental specializations.

5.5 International Collaboration and Consultation

The CICR should utilize international contacts for aid in supporting and funding for companies.

The CICR should establish a program for companies to have the opportunity of hiring a consultant to help the company develop green jobs, training, and initiatives.

5.1 Collaboration with Public and Private Institutions

The CICR should establish forums or conferences for company representatives to meet, collaborate, and share information regarding experience with green jobs, training programs, and initiatives.

Establishing a forum provides an opportunity for company representatives to meet together and discuss their personal companies' practices and procedures for establishing them. This forum can also include ministries, institutions, and universities. By understanding the specific steps taken, companies may be able to overcome the barriers preventing them from implementing these initiatives such as which suppliers of renewable technologies to consult. The collaboration will also allow companies to provide each other with benchmarks of the use of renewable technology, environmental management systems, policies for carbon neutrality, and other green jobs and initiatives to compare and learn from. The forum will include large companies providing insight for small companies, representative of the majority of the industry in Costa Rica, on how to proceed in establishing green jobs and initiatives in the future. The CICR, members of universities, ministries, and INA can also collaborate within these forums to develop initiatives and demonstrate the benefits of collaboration to companies that are reluctant to disclose information and strategies. This will help to find the most efficient and successful processes and strategies.

Companies could be grouped by sector and also by placing small, medium, and large companies together. The large companies with more developed green jobs, training, and initiatives can benefit by collaborating with other large companies. Small and medium companies learn from the successes of large companies and from the procedure in establishing a framework for green jobs, training programs, and initiatives.

The CICR should establish sector specific-committees comprised of representatives from companies and various ministries and chambers that oversees and audits the entire industrial sector that it represents.

These sector-specific committees can discuss overall productivity of the sector but also help companies develop green jobs, training, and initiatives that one company has to the rest of the industrial sector. As an example, Company F acknowledged that the Cámara de Bananeros

(which oversees the banana industry) has been helpful in the past in improving the productivity of the sector. An industry association, Corbana, is a semi-governmental organization that also represents the banana industries and has been helpful in publicizing the environmental policies and green initiatives that the industry is engaged in. As these cámaras target specific sectors, having a committee with representatives from these cámaras and companies can help to establish minimum standards for the entire industry to comply with. These committees can also encourage companies to comply with higher standards and obtain certifications.

The CICR board of directors should collaborate with directors in primary education schools in order to incorporate environmental topics into the curriculum.

Education and awareness of environmental issues begins in schools and the home. All the interviewees have acknowledged positions in their companies lacking knowledge of environmental issues, and many of the companies have a general education of green topics displaying the need for all workers to have knowledge and especially awareness of these topics. The CICR can accomplish this by collaborating with the directors in primary education schools with topics specific to the industry's needs resulting in a more prepared workforce and population in the future. Most of the interviewees discussed the need for environmental education to start in the home and primary school. In order to create a structured curriculum, the CICR can establish a committee consisting of CICR members, Ministry of Public Education, Director of Primary Education. This committee can also include experts from universities and professionals in companies in order to design the curriculum and education programs in response to industry demands and technological advancements. The CICR can begin by creating a pilot program using one to several schools in San Jose. The CICR can then study the impact and feasibility of this program and possibility of implementing the program in public schools in Costa Rica.

The importance of environmental issues in public education is discussed in Section 2.4.4 as Brazil has already begun incorporating environmental issues into the curriculum of primary schools. Brazilian educational institutions are readying themselves to meet the training demand of companies that have workers subject to these legislative criteria (Caruso, 2010). Environmental education is present in nearly 100% of all elementary schools. Additionally, the Ministry of the Environment has enacted several projects to fuel environmental education such

as the Green Room Project which has created 390 green rooms or interactive spaces for environmental training and education in schools across Brazil. Brazil is focusing on educating the youth in environmental studies to increase awareness and satisfy the need for qualified workers emerging with the generation of green jobs.

The CICR should coordinate with government entities and banks to develop an investment program and financial education to help companies make the initial investment for green jobs, training, and initiatives.

The CICR is an inter-organizational platform that can work with banks for funding assistance. All of the companies acknowledged that one of the major barriers in expanding green jobs, training, and initiatives was the cost. Since green initiatives are relatively new in Costa Rica and are often very technical, requiring education and training of workers, the cost of implementing these strategies represents a large investment for the company. Especially without the proper awareness of possible fiscal paybacks from these practices, companies are reluctant to invest any sum of money. If the CICR provided or facilitated the dispersal of loans to companies, companies would be more willing to invest in green initiatives, and could pay the loan back as the green initiatives provide a payback. A prerequisite to this loan would be an audit to establish a baseline from which savings can be tracked and calculated upon implementation of the specific green initiative. This funding could come from donations from large companies as an endowment and possible incentive for them as a tax deduction. It could also come from government entities and banks. A program with an organization, CONAPE, provides students the funds to complete their education. CONAPE finances the educational careers of students and then students begin repayment upon degree completion. In the future, it can provide special funds to educate students for green jobs in order to meet industry needs. A similarly structured program can be put into place to help companies fund green initiatives. A public organization, established by this program, would provide companies with a loan to be invested in green initiatives that would be paid back using the savings. Coupled with this investment program, the CICR can design training programs for financial managers educating them how to properly invest money in order to provide the maximum financial return as well as pay back the loan.

5.2 Company Evaluation and Management Framework

The CICR should inform companies about how to establish an environmental management system.

We found that some small and medium sized enterprises do not know how to make a strategic plan for the development of green jobs and training programs. An environmental management system can track and audit energy and material usage, development and record green initiatives, publicize quality standards, and establish internal green training techniques and records within their companies. This establishment process should begin with an evaluation to obtain baseline data regarding green practices and initiatives that can be later referenced for improvement. Establishing a baseline can further motivate companies to establish goals and standards and structure a personalized framework for environmental management. This system can provide small and medium companies unaware of the procedure of establishing green practices with the first steps necessary to create green jobs and initiatives. Additionally, many of the International Organization for Standardization (ISO) standards lead to the development of environmental management systems specifically in ISO14001. ISO develops standards that provide specification for good practice and make industry more effective and efficient (International Organization for Standardization, 2012). As a suggestion for smaller companies with less funding, one interviewee mentioned that ISO standards could be followed without paying for a certification.

This information can be compiled into a database providing a centralized source for all employees to assess information on environmental topics, educate themselves on current environmental standards, take training courses and evaluations to track progress, and calculate and reduce their environmental impact. Documenting this data is especially important in a small company where there might only be a single environmental position because if this employee left the company, the process and knowledge would remain with the company.

The CICR should develop a program for companies to perform a self-audit of the environmental factors of the company.

One of our interviewees from Company H explained a saying within their company, “you can’t improve something if you can’t measure it.” The CICR should educate companies about

auditing, measuring, and tracking environmental factors, such as carbon footprint, emissions, energy efficiency, recycling, and waste management. For example, companies that transport goods to market via cars and trucks can utilize software or hardware to track mileage, engine use, and fuel consumption. The purpose of this is for future improvement in companies and to have metrics and indicators to show their progress. Having measureable factors and progress will assist in goal setting, complying with standards, and tracking cost savings from green initiatives.

The CICR can match companies with qualified auditors in order to evaluate the environmental aspects of the company. Based on a review of the results from the evaluation, the CICR can suggest a plan of action for future improvement in green initiatives. The suggested action plan can provide a tailored guideline that matches companies on current level of development and feasible advancements for the future. This system can rank the company and have specific initiatives and steps to provide to companies of each rank. For example, companies with no green jobs can begin with an environmental management system and reducing water, electricity, and paper uses. More advanced companies that have already have these initial practices can install solar panels or another renewable energy. Auditors are typically found in large companies but they can go to small and medium sized enterprises to help managers develop training programs that have not been developed as major programs of the CICR. This would be in coordination with public and private universities such as INA and other technical schools.

5.3 CICR Training Programs

The CICR should create an action plan for worker training programs in “green consciousness” to send to companies.

This action plan or procedure can consist of a pamphlet or some type of reference material that provides the company with the knowledge of how to develop a program for general environmental education for all workers or integrate it into existing general employee training programs. Main topics of education are the environmental impacts of the company and each employee and how to minimize waste and energy in day to day tasks. Creating this understanding in every employee in the company will help individuals develop the mind set to

reduce, reuse, redesign, and recycle in their occupation. Furthermore, teaching all employees how to calculate carbon footprints both within the company and also in their homes will provide employees with a sense of “ownership” over their own environmental impacts. In order for workers to implement green practices within their day to day jobs, they must exhibit this awareness and the open-mindedness to make the changes. At most of the interviews conducted, the importance of a green consciousness was stressed in the development of training programs.

The CICR should improve advertisement of programs utilizing a brochure or mail to make companies aware of future green job training programs.

Several of the companies stated that the training programs are helpful; however, they suggested the improvement of program advertisement because they are not always aware of all upcoming training. Companies are also not sure if the description of the companies that should attend applies to them. Having a more comprehensive advertisement program would help gain more attendance at training programs.

The CICR should offer training programs in conjunction with educational institutions focused on specific and technical training for the necessary skills needed for green jobs.

The majority of the companies interviewed agreed that the CICR has had some success in selling the idea of green jobs; however, companies lack the knowledge and training for specific processes and face challenges in the incorporation of green practices in their operations. In addition to the presentations to companies of all industrial sectors on the need for green jobs, the CICR should design programs for specific industries on the procedure or necessary steps to develop green initiatives, jobs, and training programs. After the CICR analyzes the results from the current survey, the topics of the training programs will be determined. As discussed throughout Section 2.4: Lessons Learned from China, Russia, Mexico, and Brazil, a great challenge in creating green jobs is the development of training programs. The case study countries had many challenges establishing green sectors because they lacked trained employees. Companies that are willing to commit and incorporate these green processes lack a guideline or technical procedure on how to implement them. These programs can inform companies on management of disposable products and byproducts, being energy efficient, and techniques to install renewable energy. For example, the program can inform companies of a solar panel

provider and the necessary steps in purchasing, installing, and using this renewable energy. The CICR can also point companies in the direction of other member companies who have had success in these areas.

The CICR should create an incentive program for companies that develop green jobs, training, and initiatives.

The CICR can create specialized training programs and offer companies incentives for sending one or more of their employees to be trained. Upon completion of the program, the employee would become certified in that topic. These programs can be designed to educate an employee on a specific topic or technical skill with which they can then return to the company and train the workforce. This will provide companies with a procedure for establishing companywide internal training on topics where no internal specialization existed. Additionally, becoming certified may increase prospective and talented individuals' interest in the companies and improve the reputation and competitiveness of companies in their sectors. Certifications are undertaken with the intent of positive return on investment due to an advantage in a specific market and will thus prove to be an effective incentive for companies to develop green jobs and training programs.

The CICR should offer a program to teach managers and executives the economic advantages of incorporating green jobs and training programs in companies.

Since the management and administrative positions are responsible for the decisions of the company, it is important to educate them on the environmental aspects of the company. The CICR should create programs or send out an informative pamphlet that describes the long term savings and competitive advantages of establishing green practices. The interviewees often suggested offering training for managers, and one company acknowledged that human resources positions often attend programs of similar topics but cannot establish the practice in the company as a manager is responsible for the decision making to implement green initiatives. For example, a financial management or administrative position would not be as likely to cut funding or programs due to a lack of understanding of economic and environmental benefits. Educating managers in different departments of companies would also create a united executive department of each company. Furthermore, any type of certification that the company has improves the

productivity of a company and the productivity and interest of the employees. According to *Environmental standards and labor productivity: Understanding the mechanisms that sustain sustainability*, there is a direct relationship between established environmental standards such as certifications and increased labor productivity (Delmas & Pekovic, 2012). This promotes an environment for employees to share ideas and talent.

The CICR should establish focused programs for general managers within large companies to motivate them to educate smaller suppliers, distributors, and other clients of green initiatives.

Motivating large companies to spread the knowledge and practice of green initiatives will facilitate the establishment of green initiatives within smaller companies without as many CICR programs. Large companies have direct influence over smaller client companies to improve practices and comply with the same standards. This collaboration can lead to each company sharing initiatives and using the most efficient processes. Most of the interviewees from the large companies stated that they collaborated with clients, and one company provided its suppliers with a manual describing the processes that they utilized and held them to the same standards. These programs should be designed for general managers because they are the main drivers of the generation of green jobs within companies. One possible challenge with this recommendation is if the companies are Costa Rican, they may not want to share any information on green initiatives. The CICR will need to explain that if these companies share information they will grow because their suppliers can expand as well with this new knowledge. Typically, international companies will share information on green initiatives.

5.4 Job Search Issues

The CICR should further develop its job search website to include green jobs and create job fairs that are specifically focused on green job positions in Costa Rica.

Only one company stated that they attended job fairs, and it was unrelated to green jobs. Some companies often find employees with environmental specializations either from the University of Costa Rica or Earth University; however, it is from past connections with the

university and not job fairs or a website. Creating this website or job fair can extend these connections to all companies regardless of whether they have a history of hiring from UCR or Earth University or not. This will also prevent the possibility of a qualified graduate with education in Costa Rica or abroad from leaving Costa Rica in order to find a job in his or her specialization. The job search website can include a list of companies implementing green initiatives and will be helpful to increasing awareness of the environment.

The CICR should create internships for students within the CICR to catalog data on green jobs and training programs, and the CICR should motivate companies to establish internships for local university students with environmental specializations.

Cataloging this data will further our research and help the CICR examine the amount of green jobs, training, and initiatives. These students will then learn management aspects and environmental aspects of companies and will gain experience in the environmental sector. Furthermore, this strengthens connections between the CICR, universities, and companies. With the CICR hiring university students, providing them with experience, and help finding a job within a company, there is a greater likelihood of companies hiring directly from universities in the future.

Furthermore, the CICR should motivate companies to establish environmental internship programs in order to provide students with similar experience. In return, hiring a student studying an environmental topic will provide the company with new theories and ideas from new environmental curriculums that employees may not have seen or would consider. As internships in the CICR can strengthen connections, these internships will also increase the inclination of companies to hire from local universities for environmental specializations since they are more likely to hire from past connections.

5.5 International Collaboration and Consultation

The CICR should utilize international contacts for aid in supporting and funding for companies.

Many of the companies acknowledged the CICR's success in working with the GIZ, and many have connections themselves. One company had connections with the GIZ in providing a scholarship for pursuing a master's in an environmental major studying abroad in Germany. Furthermore, several companies suggested looking internationally for experts in such areas as renewable energies because the topic is still new to Costa Rica and is not as present in Costa Rican universities. The CICR can look elsewhere for contacts to learn about these technologies because many companies and universities do not have experience with renewable technologies. This need for international assistance was stressed in Chapter 2 in each of the four case study nations. For example, Russia worked with the United States on the Smart Grid project to improve energy efficiency and share technical workshops (U.S. State Department: Bureau of European and Eurasian Affairs, 2012). Additionally, Shenyang University has an exchange program with Japan's Nagasaki International University to learn about Japan's green sectors, see Chapter 2 for more detailed information regarding these two programs (Geng et al., 2012). International contacts are of great importance because they may have knowledge of more developed technologies or training programs.

The CICR should establish a program for companies to have the opportunity of hiring a consultant to help the company develop green jobs, training, and initiatives.

Since most small and medium companies do not have specific environmental positions in their establishment, the CICR can connect a consultant with a company in order to work on implementing initiatives, training programs, and establishing a framework for future development. This consultant could be from the International Labour Organization (ILO) as an example. The CICR can help match these qualified individuals to the needs of small companies. This would create more environmental experts in Costa Rica who will work to establish green jobs, training, and initiatives in small and medium companies in all of Costa Rica. Consultants are appealing to companies because they can be hired for a specified amount of time and it is not as much of a commitment as hiring a full time employee. As a result of the experience with the

consultant, the company would be more likely to create more environmental jobs and initiatives due to the newly established practices and framework from the consultant.

In order to further facilitate the implementation of our recommendations, the team estimated the relative feasibility and impact of each recommendation in Table 33. The criteria that evaluated the feasibility of each recommendation consisted of the collaboration necessary between companies and organizations, resource availability such as staff or funding, and time it takes to implement. The criteria for relative impact consisted of the amount of people and companies affected, expected willingness of cooperation from companies and organizations, significance of information provided in training programs, and long or short term effect. Recommendations with high feasibility are significant because the CICR can begin implementing them using minimal investment in terms of time and cost. This table can help the CICR prioritize the order of implementation of our recommendations.

Table 33: Relative Feasibility and Impact of Recommendations

Category	Recommendation	Feasibility	Impact
Coordination with Public and Private Institutions	Forums for company representatives to meet	High	Moderate
	Committee with representatives of companies and ministries	Moderate	High
	Collaborate with directors in primary education schools	Low	High
	Coordinate with government entities and banks to develop an investment program	Moderate	High
Company Evaluation and Management Framework	Environmental management system	Moderate	High
	program for companies to perform a self-audit	Moderate	Moderate
CICR Training Programs	Action plan for worker training programs	High	Moderate
	Improve advertisement of programs	High	Low
	Specific and technical training with educational institutions	Low	Moderate
	Incentive program	Low	High
	Program to teach managers economic advantages	High	Moderate
	Program to motivate managers to educate smaller clients	High	Moderate
Job Search Issues	Job search website for green jobs	High	Moderate
	Internships in the CICR and companies	Moderate	Moderate
Consultants	International contacts	Low	High
	Consultants for companies	Moderate	High

Chapter 6: Synthesis and Conclusion

The focus of this project was to research strategies for the implementation and advancement of training programs that would facilitate the further growth of the green jobs sector in Costa Rica. Our study included a background analysis of four countries, China, Russia, Mexico and Brazil, and also interviews with nine companies and two university representatives. Utilizing the information gained from this research, we recommended strategies to the CICR for the further development of the green jobs sector through the implementation and advancement of training programs in Costa Rica.

The research gained from the background analysis of China, Russia, Mexico, and Brazil provided informative case studies of developing countries advancing economically while promoting sustainability and green job growth. After considering each category of the matrix, Table 34, we determined the most important to be government intervention and aid, international collaboration, and restructuring education programs. Government intervention and aid are necessary for environmental policies to be enacted and implemented in nations as discussed in Section 2.4. International collaboration and investment is particularly important for a country like Costa Rica because Costa Rican employees can learn about new technologies and receive the international assistance to develop them. Costa Rica could bring in experts from other countries to train workers how to produce and utilize these new technologies. Some examples of educational and training programs are listed for each nation in Appendix E. These provide Costa Rica with some examples of successful green training programs started in developing nations that could potentially become a model for Costa Rica to follow. One important educational program is that students in Brazil begin becoming educated in environmental issues in primary school. This provides children with an environmental awareness that can be carried through to adulthood and employment.

In combination with the information gained through background research, we applied the results from university and company interviews to our recommendations. Analysis of the data obtained through the interviews focused on potential areas of improvement in training programs and green job development. The interview results from all of the companies suggested that there is a gap between education in universities and preparation of employees in industry. Costa Rican companies will need to address this gap to create green jobs successfully. To help bridge this

gap, we developed a list of recommendations generated from the evaluation of Costa Rican companies, universities, and also the case study countries. We focused our recommendations in five areas: collaboration with public and private institutions, company evaluation and management framework, training programs, job search issues, and international collaboration and consultation. These areas of recommendation were supported with case study research and interview results. After the CICR implements these recommendations, it is ultimately the responsibility of the companies to carry out the recommendations.

We suggest that our work be extended further in the future with a larger sample size of companies and universities to be more accurately representative of Costa Rican industry. It could also be beneficial to conduct a similar study on a sector by sector scale to obtain results and develop recommendations tailored to every sector of the industry in relation to green job preparedness. The CICR is conducting a survey to be completed in March 2013 which includes a sample size of 80 companies distributed according to the size of the sector and company, and this survey will provide quantitative data to supplement our qualitative data. Our recommendations can be further developed based on these future results. We hope our recommendations will help the CICR improve the preparedness in companies and employees for green jobs and, as a result, facilitate the generation of more green jobs in Costa Rica.

References

- Balme, R. (2011). China's Climate Change Policy: Governing at the Core of Globalization. *Carbon & Climate Law Review*, 5(1), 44-56.
- Bazán-Perkins, S., & Fernández-Zaya, J. (2008). Evaluation of Mexico's 1975-2000 Energy Plan. *Energy Economics*, 30(5), 2569-2586.
- Berger, N.O. (2012). Human Resource Issues in Russia: A Case Study. Retrieved from <http://www.sba.muohio.edu/abas/1998/berger.pdf>
- Biggemann, S., & Fam, K. (2011). Business Marketing in BRIC Countries. *Industrial Marketing Management*, 40(1), 5-7.
- Bolin, B. (2007). *A History of the Science and Politics of Climate Change: The Role of the Intergovernmental Panel on Climate Change*. New York: Cambridge University Press.
- Business Monitor International Ltd. (2010). Russia Power Report Q2 2010, Includes 5-Year Forecasts By BMI. Retrieved from http://store.businessmonitor.com/power/russia_power_report
- BusinessWeek. (2009). Nitol: Russia's Emerging Solar Power Star. *Bloomberg BusinessWeek - Business News, Stock Market & Financial Advice*. Retrieved from http://www.businessweek.com/globalbiz/content/jul2009/gb20090713_992163.htm
- Cai, W., Wang, C., Liu, W., Mao, Z., Yu, H., & Chen, J. (2009). Sectoral Analysis for International Technology Development and Transfer: Cases of Coal-Fired Power Generation, Cement, and Aluminum in China. *Energy Policy*, 37(6), 2283-2291.
- Cai, W., Wang, C., Chen, J., & Wang, S. (2011). Green Economy and Green Jobs: Myth or Reality? The Case of China's Power Generation Sector. *Energy*, 36(10), 5994-6003.
- Cámara de Industrias de Costa Rica. (2009). Reseña Histórica. Retrieved from http://cicr.com/index.php?option=com_content&view=article&id=189&Itemid=8

- Cámara de Industrias de Costa Rica. (2012). Instituto de Excelencia Empresarial. Retrieved from http://cicr.com/index.php?option=com_content&view=article&id=219&Itemid=13
- Cancino-Solórzano, Y., Gutiérrez-Trashorras, A. J., & Xiberta-Bernat, J. (2011). Current State of Wind Energy in Mexico, Achievements and Perspectives. *Renewable and Sustainable Energy Reviews*, 15(8), 3552-3557.
- Cancino-Solórzano, Y., Villicaña-Ortiz, E., Gutiérrez-Trashorras, A. J., & Xiberta-Bernat, J. (2010). Electricity Sector in Mexico: Current Status. Contribution of Renewable Energy Sources. *Renewable and Sustainable Energy Reviews*, 14(1), 454-461.
- Carbon Dioxide Information Analysis Center. (2009). *Ranking of the World's Countries by 2009 Total CO₂ Emissions from Fossil-Fuel Burning, Cement Production, and Gas Flaring*. Retrieved from <http://cdiac.ornl.gov/trends/emis/top2009.tot>
- Caruso, L.A.C. (2010). *Skills for Green Jobs in Brazil: Unedited Background Country Study*. Genève, Switzerland: International Labour Office: Skills and Employability Department. Retrieved from http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_142300.pdf
- Center for Clean Air Policy. (2011). Mexico's Renewable Energy Program. Retrieved from http://ccap.org/assets/Mexicos-Renewable-Energy-Program-A-Step-by-Step-Approach-for-Overcoming-Barriers-to-Renewable-Energy-Deployment_CCAP-October-2011.pdf
- Central Intelligence Agency. (2012a). China. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/geos/ch.html>
- Central Intelligence Agency. (2012b). Russia. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/geos/rs.html>
- Central Intelligence Agency. (2012c). Costa Rica. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/geos/cs.html>

- Central Intelligence Agency. (2012d). Brazil. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/geos/br.html>
- Central Intelligence Agency. (2012e). Mexico. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/geos/mx.html>
- Central Intelligence Agency. (2012f). Government Type. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/fields/2128.html#br>
- Chang, J., Leung, D. Y. C., Wu, C. Z., & Yuan, Z. H. (2003). A Review on the Energy Production, Consumption, and Prospect of Renewable Energy in China. *Renewable and Sustainable Energy Reviews*, 7(5), 453-468.
- Comisión Federal de Electricidad. (2012). *CFE Specialized Training*. Retrieved from <http://www.cfe.gob.mx/ingles/Services/LAPEMTechnicalservices/Pages/Specializedtraining.aspx>
- Daley S., Reyes, L., Vega, E., & Alfaro, W. (2010). *Skills for Green Jobs in Costa Rica: Unedited Background Country Study*. Genève, Switzerland: International Labour Office: Skills and Employability Department. Retrieved from <http://www.ilo.org/public/libdoc/ilo/2010/458913.pdf>
- Deloitte. (2011). If Not BRICs, Then What? Comparing BRICs and G6 Nations in Fossil Fuels. Retrieved from http://www.deloitte.com/assets/Dcom-Global/Local%20Assets/Documents/Energy_Resources/dtt_er_BRICDocumentbd62011.pdf
- Doyle, J. K. (2004). Introduction to Interviewing Techniques. *Handbook for IQP Advisors and Students*. Worcester, MA: Worcester Polytechnic Institute.
- Dutra, R.M., & Szklo, A.S. (2008). Incentive Policies for Promoting Wind Power Production in Brazil: Scenarios for the Alternative Energy Sources Incentive Program (PROINFA) Under the New Brazilian Electric Power Sector Regulation. *Renewable Energy*, 33(1), 65-76.

- Eisen, J. B. (2011). The New Energy Geopolitics? China, Renewable Energy, and the "Greentech Race". *Chicago-Kent Law Review*, 86(1), 9.
- European Investment Bank. (2009). La Venta III Wind Farm Project. *European Investment Bank*. Retrieved from <http://www.eib.org/projects/pipeline/2009/20090486.htm>
- ExxonMobil. (2012). The Outlook for Energy: A View to 2040. Retrieved from http://www.exxonmobil.com/Corporate/Files/news_pub_eo2012.pdf
- Eyraud, L., Wane, A., Zhang, C., & Clements, B. (2011.) Who's Going Green and Why? Trends and Determinants of Green Investment. Retrieved from <http://www.imf.org/external/pubs/ft/wp/2011/wp11296.pdf>
- Fang, Y. (2011). Economic Welfare Impacts from Renewable Energy Consumption: The China Experience. *Renewable and Sustainable Energy Reviews*, 15(9), 5120-5128.
- Fearnside, P. M. (2001). The Potential of Brazil's Forest Sector for Mitigating Global Warming Under the Kyoto Protocol . *Instituto Nacional de Pesquisas de Amazonia- INPA (National Institute for Research in the Amazon)*, 6(3-4), 355-372.
- Feinberg, Jonathan. (2011). Wordle. Retrieved from www.wordle.net
- Ferrari-Estudio, L., Benavides, S., & Esquivel-Consejo G. (2012). *Cámara de Industrias de Costa Rica II Congreso Ambiental* [PowerPoint Slides]. Retrieved from http://www.cicr.com/docs/II_Congreso_Ambiental/CICR.pdf
- Fox News Network. (2012). Mexican President Inaugurates Large-Scale Solar Power Plant. *Fox News Latino*. Retrieved from <http://latino.foxnews.com/latino/news/2012/10/13/mexican-president-inaugurates-large-scale-solar-power-plant/>
- Frost & Sullivan. (2008). Russia and Green Energy: A Long Way to Go. *PR Newswire: United Business Media*. Retrieved from <http://www.prnewswire.co.uk/news-releases/russia-and-green-energy-a-long-way-to-go-156560515.html>

Furchtgott-Roth, D. (2012). The Elusive and Expensive Job. *Energy Economics* 34(1), S43-S52.

Geng, Y., Liu, K., Xue, B., & Fujita, T. (2012). Creating a “Green University” in China: A Case of Shenyang University. *Journal of Cleaner Production*. Retrieved from <http://dx.doi.org/10.1016/j.jclepro.2012.07.013>

Global Energy Network Issues. (2009). *Russia Energy Issues* [Image]. Retrieved from <http://www.geni.org/globalenergy/library/energy-issues/russia/index.shtml>

Goldemberg, J., Coelho, S. T., & Lucon, O. (2004). How Adequate Policies Can Push Renewables. *Energy Policy*, 32(9), 1141-1146.

Government of the State of São Paulo. (2004). Assessment of Greenhouse Gas Emissions in the Production and Use of Fuel Ethanol in Brazil. Retrieved from <http://www.wilsoncenter.org/sites/default/files/brazil.unicamp.macedo.greenhousegas.pdf>

Green Building Council Russia. (2011). RuGBC Certification Program. Retrieved from <http://www.rugbc.org/en/education-training/programmy-soveta>

Iberdrola. (2012). Iberdrola Comissions La Venta III Wind Farm in Mexico, with 102 Megawatt Capacity. *Iberdrola*. Retrieved from http://www.iberdrola.com/webibd/corporativa/iberdrola?IDPAG=ENMODPRENNAC12&URLPAG=/gc/prod/en/comunicacion/notasprensa/120117_NP_01_LaVentaIII.html

International Energy Agency. (2003). Renewables in Russia: From Opportunity to Reality. Retrieved from http://www.iea.org/media/freepublications/archives/RenewRus_2003.pdf

International Labour Organization. (2012). Green Jobs Programme of the ILO. Retrieved from <http://www.ilo.org/empent/units/green-jobs-programme/lang--en/index.htm>

International Organization for Standardization. (2012). ISO. Retrieved from <http://www.iso.org/iso/home/about.htm>

- Jain, S.C. (Ed.). (2006). *Emerging Economies and the Transformation of International Business; Brazil, Russia, India and China*. Northampton, MA: Edward Elgar Publishing.
- Juan, D. (2012). Solar Power Seeks Spring Thaw. *China Daily*. Retrieved from http://www.chinadaily.com.cn/business/2012-05/17/content_15318624.htm
- Liu, W., Lund, H., Mathiesen, B.V., & Zhang, X. (2011). Potential of Renewable Energy Systems in China. *Applied Energy*, 88(2), 518-525.
- Long, C. (2011). Costa Rica's Challenge. *Latin Trade*, 19(2), 22-24.
- McGraw Hill, Inc. (1994). World Bank 'Greens' Russia. *Engineering News-Record*, 233(21), 7.
- Merriam-Webster. (2012). Green. Retrieved from <http://www.merriam-webster.com/dictionary/green>
- Ministry of Energy of the Russian Federation. (2010). *Energy Strategy of Russia for the Period up to 2030*. Moscow, Russia: Government of the Russian Federation.
- Nandwani, S. S. (2006). Uses of Solar Energy in Costa Rica. *Renewable Energy*, 31(5), 689-701.
- National Renewable Energy Laboratory. (2012). Concentrating Solar Power Projects - Agua Prieta II . *NREL*. Retrieved from http://www.nrel.gov/csp/solarpaces/project_detail.cfm/projectID=135
- Pereira, M. G., Camacho, C.F., Freitas, M.A.V., & Fidelis da Silva, N. (2012). The Renewable Energy Market in Brazil: Current Status and Potential. *Renewable and Sustainable Energy Reviews*, 16(6), 3786-3802.
- Pimentel, L. S. (1980). The Brazilian Ethanol Program. *Biotechnology and Bioengineering*, 22(10), 1989-2012.
- Porfir'ev, B.N. (2012). Green Economy: Worldwide Development Trends and Prospects. *Herald of the Russian Academy of Sciences*, 82(2), 120-128.

- Power Engineering International. (2011). Russia: A Recovery in Electricity Demand is Seeing Russia's Power Sector Return to Earlier Plans for Modernization and the Completion of the Restructuring and Liberalization Process, But Many Challenges Remain. *Power Engineering International*, 19(3), S58.
- Programa de las Naciones Unidas para el Medio Ambiente. (2008). *Empleos Verdes: Hacia el Trabajo Decente en un Mundo Sostenible y Con Bajas Emisiones de Carbono*. Retrieved from http://www.unep.org/labour_environment/PDFs/Greenjobs/UNEP-Green-Jobs-Summary-esp.pdf
- Qin, D., Huang, J., & Luo, Y. (2010). Climate Change in China and China's Policies and Actions for Addressing Climate Change. *EPJ Web of Conferences*, 9, 131-135.
- Renner, M. (2001). Going to Work for Wind Power. Retrieved from <http://www.worldwatch.org/node/495>
- Renner, M., Sweeney, S., & Kubit, J. (2008). *Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World*. Nairobi, Kenya: United Nations Environment Program.
- Replogle, J. (2011). Solar Panel Factory & Power Plant Set For U.S.-Mexico Border. *KPBS San Diego: Public Radio, TV and Web*. Retrieved from <http://www.kpbs.org/news/2011/sep/13/integrated-solar-plant-and-farm-planned-mexicali/>
- Rowe, M. (2011). Gas-Rich Russia Starts to Eye Green Energy: After Decades of Primacy in the Fossil Fuels Business Russia is Committing Itself to Improving Energy Efficiency in Industry and Housing, Developing a Renewable Energy Market, and Ultimately Reducing Greenhouse Gas Emissions. But Doubts Remain About Its Ability to Deliver. *Modern Power Systems*, 31(10), 8.
- Ruiz, B.J., Rodríguez-Padilla, V., & Martínez, J.H. (2008). Renewable Energy Sources in the Mexican Electricity Sector. *Renewable Energy*, 33(6), 1346-1353.

- Saidi. (2008). Planta Termosolar Agua Prieta II Sonora (Mexico). *Green Energy*. Retrieved from http://www.saidi.es/PDF/Project_Profiles/Project_profile_AGUA_PRIETA_II.pdf
- Schneider, K., Turner, J. L., Jaffe, A., & Ivanova N. (2011). Choke Point China: Confronting Water Scarcity and Energy Demand in the World's Largest Country. Retrieved from <http://www.vjel.org.ezproxy.wpi.edu/journal/pdf/VJEL10160.pdf>
- Searchinger, T., Heimlich, R., Houghton, R.A., Dong, F., Elobeid, A., Tokgoz, S., Hayes, D. & Yu, T. (2008). Use of U.S. Croplands for Biofuels Increases Greenhouse Gases Through Emissions from Land-Use Change. *Science Express*, 319, 1238-1240.
- SolFocus. (2012). First 50 Megawatts of Large Solar Power Plant in Baja California, Mexico Enabled by Cross-Border Collaboration. *SolFocus, CPV, Solar Systems, photovoltaic, solar tracker, solar panel manufacturers*. Retrieved from <http://www.solfocus.com/en/news-events/press-releases/2012-03-29.php>
- Strietska-Ilina, O., Hofmann, C., Haro, M. D., & Jeon, S. (2011). *Skills For Green Jobs: A Global View*. Genève, CHE: International Labour Office.
- Su, J. H., Hui, S. S., & Tsen, K. H. (2010). China Rationalizes Its Renewable Energy Policy. *The Electricity Journal*, 23(3), 26-34.
- Teschler, L. E. (2011). The Green Job Conundrum. *Machine Design*, 83(12), 1.
- United Nations Framework Convention on Climate Change. (2012). *Kyoto Protocol*. Retrieved from http://unfccc.int/kyoto_protocol/items/2830.php/
- United Nations. (2011). RIO 20+, United Nations Conference on Sustainable Development. Retrieved from <http://www.uncsd2012.org/about.html>
- Universidad CFE. (2007). *Carreras Especiales CFE*. Retrieved from http://www.tecmilenio.edu.mx/cel/portales/cfe/programas/carreras_especiales.htm

- U.S.A. Department of Energy. (2002). An Energy Overview of Mexico. Retrieved from http://www.geni.org/globalenergy/library/national_energy_grid/mexico/LatinAmericanPowerGuide.shtml
- U. S. Department of Labor Bureau of Labor Statistics. (2012). Measuring Green Jobs. Retrieved from <http://www.bls.gov/green/>
- U.S. Department of State. (2012). Background Note: Costa Rica. Retrieved from <http://www.state.gov/r/pa/ei/bgn/2019.htm>
- U.S. Energy Information Administration. (2012). Mexico. Retrieved from <http://www.eia.gov/countries/cab.cfm?fips=MX>
- The U.S.G.S. Water Science School. (2012). Hydroelectric Power Water Use. Retrieved from <http://ga.water.usgs.gov/edu/wuhy.html>
- U.S. State Department: Bureau of European and Eurasian Affairs. (2012). *U.S.-Russia Energy and Energy Efficiency Cooperation*. Washington, DC: U.S. Bureau of Public Affairs, Office of Website Management.
- Wang, Y., Gu, A., & Zhang, A. (2011). Recent Development of Energy Supply and Demand in China and Energy Sector Prospects through 2030. *Energy Policy*, 39(11), 6745-6759.
- Wind Power. (2012). Wind Farms Operator Iberdrola Renewables – Wind Turbines and Wind Farms Database. *The Wind Power*. Retrieved from http://www.thewindpower.net/operator_en_2327_iberdrola-renewables.php
- Zhang, H., Li, L., Cao, J., Zhao, M., & Wu, Q. (2011). Comparison of Renewable Energy Policy Evolution Among the BRICs. *Renewable and Sustainable Energy Reviews*, 15(9), 4904-4909.

Appendices

Appendix A: Specialists as coordinated by the Cámara de Industrias Interview Questions. Green Jobs and Training Programs in Costa Rica

The purpose of this interview is to determine the current status of green sector development, jobs, skills, and training programs pertaining to the subject, policies that promoted those jobs to the forefront of a specific market, as well as the drivers leading towards a green economy. With the completion of this interview, the participants' responses and names will remain confidential and will not be released without their permission. All data will be handled carefully to ensure privacy.

Specialist 1: Wendy Alfaro. Consultant in Sustainable Development for OIT

1. May we reference you by name in our paper?
2. What formal title may we address you by in our paper?
3. What are you working on in CICR? What did your research focus on?
4. How do you define green jobs? How do you define green skills?
5. What skills do workers need to be considered for green jobs?
6. What has Costa Rica done until now in reference to green jobs?
 - a. Do you know of any statistics of green jobs in Costa Rica?
 - b. Are there any policies enacted in Costa Rica to promote green jobs?
7. In what specific sectors does Costa Rica need green jobs?
8. What is driving the need for green jobs?
9. How do you think more green jobs can be generated?
10. What strategies could be implemented by companies and/or Cámara de Industrias to generate green jobs?
11. What would motivate companies to want green jobs and green workers?
 - a. What information would convince them to go green?
 - b. What obstacles are limiting companies from generating green jobs?
12. In what industries do you see green jobs appearing in the next 5 years?
13. What skills do workers have in green jobs in Costa Rica?
14. What skills do workers need to develop for emerging green sectors?

15. Do you have any recommendations for questions that should be asked to the university and company contacts?
16. How did you and Bernard choose the companies that will be interviewed?
 - a. What specific sectors would you prioritize?
 - b. What criteria would you use to rank these sectors?

Specialist 2: José Salas. Human Resources for CICR

1. May we reference you in our paper?
2. What are you working on in CICR? What is your position?
3. What companies do you recommend we interview for our project about green jobs? We are looking for about five small and medium size enterprises to interview.
4. We are going to do interviews with some big companies as well such as Holcim, Dos Pinos, Intel, Bridgestone and Dole. What do you think of these companies?
 - a. Once you have the contacts with these companies may you provide us with their contact information?
 - b. Is it possible to do a focus group within these companies?
5. How do you define green jobs? How do you define green skills?
6. What has Costa Rica done until now in reference to green jobs?
 - a. Do you know of any statistics of green jobs in Costa Rica?
 - b. Are there any policies enacted in Costa Rica to promote green jobs?
7. In what specific sectors are do you think green jobs are needed?
8. In what industries, do you see green jobs appearing?
9. What is driving the need for green jobs?
10. How do you think more green jobs can be generated?
11. What strategies could be implemented by companies and/or Cámara de Industrias to generate green jobs?
12. What would motivate companies to want green jobs and green workers?
 - a. What information would convince them to go green?
 - b. What obstacles are limiting companies from generating green jobs?
13. What skills do workers have in green jobs in Costa Rica?
14. What skills do workers need to develop for emerging green sectors?

15. Do you have any recommendations on what questions we should ask companies once we interview them?

Appendix B: University Interview Questions. Training Programs for Green Jobs

The purpose of this interview is to determine the current status of green sector development, jobs, skills, and training programs universities have designed to fulfill the influx of jobs in the green economy, as well as to gain their perspective on the drivers leading towards a green economy. With the completion of this interview, the participants' responses and names will remain confidential and will not be released without their permission. All data will be handled carefully to ensure privacy.

Specialist 1: University A.

1. This information will be kept anonymous. May we please record this interview?
2. How much time do we have for this interview? We have approximately 20 questions.
3. What is your position at University A?
4. How do you define green jobs and green skills?
5. What is driving the need for green jobs?
6. Do you know of the environmental laws and policies in Costa Rica that the government or the CICR has implemented to promote green jobs?
7. Do you know what policies companies implement to promote green jobs?
 - a. Would you recommend any policies for companies to implement to help promote green jobs?
8. What skills do students need to develop for emerging green sectors?
9. Do you know how the university knows which courses and training programs to offer students to eventually employ them in green jobs?
 - a. What kind of training programs does University A offer for green jobs and skills?
 - b. What green skills are taught at the university?
 - c. What curricula and majors does University A offer for future employment in green sectors?
10. What is your opinion of University A's motivation for teaching green skills?
 - a. Do you know how the university incorporates green skills into the curriculum?
 - b. Do you think that the University A is responding to industry demand?
 - c. Where do you see development in the next 5 years of your university to accommodate the increase of green jobs?

11. Does the University A do any tracking of its students to see where they work after graduation?
 - a. What general area do students go to work in green jobs after graduating?
 - b. What specific sectors employ the greatest number of University A students?
12. In what industries do you see green jobs appearing in the next 5 years?
13. Does your university interact with any companies regarding green training?
 - a. Do you expect to interact with companies regarding green training in the future?
14. What are the main barriers for the development of green jobs?
15. Do you have any recommendations to facilitate the generation of green jobs through the development of training programs?
 - a. Do you have recommendations of policies for the CICR to enact?
16. Do you think teaching green skills will satisfy the demand for green jobs by providing a more qualified work force?
17. Are there any co-ops where students work with professionals in the field?
 - a. Is there a study abroad program regarding green skills and training?
18. Does the university hire professors in environmental studies from abroad?
 - a. Do you know if most of the University A professors are from Costa Rica?
 - b. Do you know if professors in the University A from Costa Rica have studied abroad for their education? For example, US, Europe or Asia?
19. Do you or the university have any documents related to this topic that you would like to share?
20. Do you have any contacts we should speak to further regarding this topic?

Specialist 2: University B. Human Resources

1. May we reference you in our paper?
2. How much time do we have for this interview? We have approximately 20 questions.
3. What is your position at University B?
4. How does the university define green jobs and green skills?
5. What skills do workers need to develop for emerging green sectors?
6. What kind of training programs does University B offer for green jobs and skills?

- a. What green skills are taught at the university?
7. Why are you teaching green skills?
 - a. How is University B responding to industry demand?
8. In what specific sectors do you think green jobs are needed in Costa Rica?
9. How can more green jobs be created?
10. What is driving the need for green jobs?
11. How did the university know which courses and training programs to offer students to eventually employ them in green jobs?
12. What curricula and majors does the University offer for future employment in green sectors?
13. Does University B do any tracking of its students to see where they work after graduation?
 - a. What general area do students go to work in green jobs after graduating from University B?
 - b. What specific sectors employ the greatest number of University B students?
14. Where were the professors at University B educated?
 - a. For example, were any of them educated outside of Costa Rica?
15. Are there any co-ops where students work with professionals in their fields?
16. Does your university interact with any companies regarding green training?
 - a. Do you expect to interact with companies regarding green training in the future?
17. In what industries do you see green jobs appearing in the next 5 years?
18. Do you think teaching green skills will satisfy the demand for green jobs by providing a more qualified work force?
19. What do you think the main barriers to the development of green jobs are?
20. Do you or the university have any documents related to this topic?
21. Do you have any contacts we should speak to further regarding this topic?

Apéndice B: Preguntas University Interview Questions. Training Programs for Green Jobs

Con esta entrevista, esperamos determinar el estatus pendiente sobre el desarrollo, empleos, habilidades, y programas de entrenamientos verdes. Universidades están diseñadas a apoyar el aumento de trabajos en la economía verde, y también obtener sus perspectivas sobre lo que impulsa la economía en ser “verde.” Con la compleción de esta entrevista, las respuestas y nombres de los participantes serian confidencial y no será divulgada sin permiso. Toda esta información seria manejado con cuidado para asegurar la privacidad. Agradecemos usted dedicar este tiempo para completar esta entrevista.

Especialista 1: Universidad A. Abogado en el Ambiente/ Consultor ambiental

1. Esta información se mantendrá en el anonimato. ¿Podemos grabar esta entrevista por favor?
2. ¿Cuánto tiempo tenemos para esta entrevista? Tenemos aproximadamente 20 preguntas.
3. ¿Cuál es su posición en Universidad A? ¿Cuáles son tus responsabilidades allí?
4. ¿Como usted defina trabajos y habilidades verdes?
5. ¿Qué piensa que está impulsando la necesidad de empleos verdes?
6. ¿Usted sabe de leyes ambientales y políticas en Costa Rica que el gobierno o el CICR ha implementado a promover empleos verdes?
7. ¿Usted sabe qué políticas implementan compañías para promover empleos verdes?
 - a. ¿Puede recomendar políticas que empresas pudieran implementar en ayudar promover empleos verdes?
8. ¿Qué habilidades necesitan estudiantes desarrollar para nuevos sectores verdes?
9. ¿Sabe cómo la Universidad escoge cuales cursos y programas de entrenamiento ofrecer a los estudiantes para emplearlos en empleos verdes?
 - a. ¿Cuales programas de entrenamiento tiene Universidad A para ofrecer trabajos y habilidades verdes?
 - b. ¿Qué habilidades verdes enseñan en la Universidad?
 - c. ¿Cual matricula y especializaciones ofrece Universidad A para el empleo en sectores verdes en el futuro?
10. ¿Qué opinas de la motivación de Universidad A para enseñar habilidades verdes?

- a. ¿Sabe cómo la universidad incorporara habilidades verdes en la matricula?
 - b. ¿Piensa que la Universidad A está respondiendo a la demanda de industria?
 - c. ¿Dentro los próximos 5 años, donde ves un desarrollo de tu Universidad para acomodar el aumento de empleos verdes?
11. ¿La Universidad de Costa Rica persigue sus estudiantes para ver donde trabajan después de graduarse?
- a. ¿En cuál área general van los estudiantes para trabajar en empleos verdes después de graduarse?
 - b. ¿Cuales sectores específicos emplean la mayoría de estudiantes de Universidad A?
12. ¿En cuales industrias ves trabajos verdes apareciendo dentro los próximos 5 años?
13. ¿ Su universidad tiene relaciones con empresas sobre programas de formación verdes?
- a. ¿Espera a tener relaciones con empresas sobre programas de formación verdes en el futuro?
14. ¿Cuáles son los mayores obstáculos para el desarrollo de empleos verdes?
15. ¿Tiene recomendaciones para facilitar la generación de empleos verdes con el desarrollo de programas de entrenamiento?
- a. ¿Tiene recomendaciones en cuales políticas la CICR podría promulgar?
16. ¿Piensa que enseñando habilidades verdes satisficiera el demanda para empleos verdes en dando una labor más calificada?
17. ¿Hay programas cooperativas donde estudiantes pueden trabajar con profesionales en empleos verdes antes de graduarse de la universidad?
- a. ¿Hay un programa de estudiantil extranjero sobre habilidades y entrenamientos verdes?
18. ¿La universidad emplea profesores en los estudios ambientales de otros países?
- a. Sabe si los profesores de Universidad A de Costa Rica se educaron en Costa Rica?
 - b. Sabe si los profesores en Universidad A no de Costa Rica se educaron en países extranjeros para su especializaciones? Por ejemplo ¿E.E.U.U., Europa o Asia?
19. ¿Usted o la Universidad tiene documentos relatado a este tema?
20. ¿Tiene contactos en cuales podemos hablar con sobre esta tema?

Especialista 2: Universidad B. Recursos Humanos

1. ¿Podemos hacer referencia a usted en nuestro documento?
2. ¿Cuánto tiempo tenemos para esta entrevista? Tenemos aproximadamente 20 preguntas.
3. ¿Qué es su posición en la Universidad B?
4. ¿Cómo es que la universidad defina trabajos y habilidades verdes?
5. ¿Qué habilidades necesitan trabajadores para tener éxito en sectores verdes?
6. ¿Qué programas de entrenamiento ofrece la universidad sobre empleos verdes?
 - a. ¿Qué habilidades verdes enseñan en la Universidad?
7. ¿Por qué es importante enseñar habilidades verdes?
 - a. ¿Cómo responde la universidad a la demanda de la industria?
8. ¿En cuales sectores específicos se necesita empleos verdes en Costa Rica?
9. ¿Cómo se puede generar más empleos verdes?
10. ¿Qué está impulsando la necesidad de empleos verdes?
11. ¿Qué programas y cursos ofrece la universidad a los estudiantes para prepararlos para empleos verdes? ¿Cómo deciden cuales programas ofrecen?
12. ¿Qué currículo y especializaciones ofrece la Universidad a los estudiantes para prepararlos para empleos verdes?
13. ¿La Universidad B persigue sus estudiantes para ver donde trabajan después de graduarse?
 - a. ¿En cuál área general van los estudiantes para trabajar en empleos verdes después de graduarse?
 - b. ¿Cuales sectores específicos emplean la mayoría de estudiantes de Universidad B?
14. Donde fueron educados los profesores en los estudios ambientales? ¿E.E.U.U., Europa o Asia?
 - a. ¿Por ejemplo, estuvieron educados fuera de Costa Rica?
15. ¿Hay programas cooperativas donde estudiantes pueden trabajar con profesionales in empleos verdes antes de graduarse de la universidad?
16. ¿Su universidad tiene relaciones con empresas sobre programas de formación verdes?

- a. ¿Espera a tener relaciones con empresas sobre programas de formación verdes en el futuro?
17. En cuales industrias ves trabajos verdes a aparecer dentro de los próximos 5 años?
18. Qué piensa usted son los obstáculos principales para el desarrollo de empleos verdes?
19. ¿Piensas que enseñando habilidades verdes satisficiera el demanda para empleos verdes en dando una labor más calificada?
20. ¿Usted o la Universidad tienen documentos relatado a este tema?
21. ¿Tiene contactos en cuales podemos hablar con sobre esta tema?

Appendix C: Company Interview Questions: Implementation of Training and Green Jobs

This interview concerns the implementation of green jobs and relevant training within companies in Costa Rica. With the completion of this interview, the participants' responses and names will remain confidential and will not be released without their permission. All data will be handled carefully to ensure privacy.

1. This information will be kept anonymous. May we please record this interview?
2. How much time do we have for this interview? We have approximately 25 questions.
3. Could you tell us your name and discuss your position within the company as well as your level of education? Where did you study?
4. What industrial sector is your company a part of?
 - a. What does your company specialize in, in terms of products or services?
 - b. How many years has your company been established?
5. How many employees does your company have in Costa Rica?
6. In your own words, please define green.
 - a. Define green jobs.
 - b. Define skills for green jobs.
7. How are green jobs distributed in your company (i.e. engineers, technicians, administrative positions)? What green technical skills do you require your workers to have? Please name 2-3 for each position.
 - a. Engineers
 - b. Managers
 - c. Technicians
 - d. Laborers
8. Does your company have green training programs? What has your company done to train workers in green practices?
 - a. Describe any green training programs. Are they successful and effective?
 - i. If not, what problems do they have and what are they lacking?
 - b. Describe green training programs you would like to have your workers go through.

- c. Do you conduct your own green training?
 - i. If you do not conduct your own green training, who do you outsource it to?
 - d. Do you have any connection with local universities for green training?
9. If your company does not have green training programs, does your company have other training programs? What has your company done to train workers?
- a. Describe any training programs. Are they successful and effective?
 - i. If not, what problems do they have and what are they lacking?
 - b. Describe training programs you would like to have your workers go through.
 - c. Do you conduct your own training?
 - i. If you do not conduct your own training, who do you outsource it to?
 - d. Do you have any connection with local universities for training?
10. How many green training programs does your company have per year? How many total training programs does your company have per year?
11. Please list two skills your workers lack in the following areas?
- a. Renewable energy
 - b. Energy efficiency
 - c. Carbon neutrality
12. Are your workers a majority of highly skilled workers or low skilled workers? What levels of education do you require your workers to have?
13. What is your link to the Cámara?
14. What do you think the CICR can do to help the company generate green jobs or prepare workers for green jobs? What has it done already? Was it successful?
15. How do you find your workers?
- a. Do you work jointly with universities or attend job fairs?
 - b. Does your company offer internships to students?
16. Do you see any advantages in green job training; would this give your company a competitive edge?
17. Do you think your company will generate green jobs in the next five years? If so, what types of jobs would they be?
18. Is there demand from your clients to be green?

19. Do you have any recommendations as to changes that can be made within your company regarding green jobs and training programs?
20. What has your company done to be green? Are there any green policies or standards?
 - a. Has your company established any policy for the reduction of carbon emissions?
 - b. Has your company established any policy for recycling or waste management? If there are no standards in place, how does your company remove waste and recyclables?
 - c. What factors have motivated the implementation of green initiatives in your company?
 - d. What obstacles have impeded your company from being green?
21. What improvements has your company made to increase energy efficiency or energy savings? What improvements can your company make to increase energy efficiency or energy savings in the future?
 - a. What difficulties exist for the implementation of strategies in this area?
 - b. What employee/position in your company is responsible for paying energy bills? Does this employee utilize any strategies to lower energy costs?
22. What improvement have you made or are you making to increase energy efficiency or energy savings? What improvements can be made in your company in the future?
 - a. What difficulties are you encountering in implementing strategies in this area?
23. Has your company incorporated the use of renewable energy into its processes?
 - a. How can your company do so in the future?
 - b. What difficulties are you encountering that limit your use or production of renewable energy? For example, education, cost, awareness, resources.
24. What is your definition of sustainability? What can be done to make a contribution to sustainability in your company?

Apéndice C: Preguntas de Entrevista para Empresas: Implementación de Entrenamientos y Empleos Verdes

Esta entrevista se refiere a empleos verdes y programas de formación en las empresas en Costa Rica. Con la realización de esta entrevista, las respuestas de los participantes y los nombres se mantendrán confidenciales y no serán divulgadas sin su permiso. Todos los datos serán utilizados con cuidado para asegurar la privacidad.

1. Esta información se mantendrá en el anonimato. ¿Podemos grabar esta entrevista por favor?
2. ¿Cuánto tiempo tenemos para esta entrevista? Tenemos aproximadamente 25 preguntas.
3. ¿Podría decirnos su nombre y hablar de su posición dentro de la empresa y nivel de educación? ¿Donde estudiaste?
4. ¿De qué parte del sector industrial es su empresa?
 - a. ¿En qué se especializa esta empresa en términos de productos o servicios?
 - b. ¿Cuántos años ha sido establecida su empresa?
5. ¿Cuántos empleados tiene esta empresa en Costa Rica?
6. ¿Puede darnos su definición de verde?
 - a. Defina empleos verdes.
 - b. Defina habilidades para empleos verdes.
7. ¿Cómo se distribuyen los empleos verdes en esta empresa (por ejemplo, ingenieros, técnicos, posiciones administrativas)? ¿Qué habilidades técnicas y verdes requieren ustedes que sus trabajadores tengan? Por favor dé 2-3 para cada posición.
 - a. Ingenieros .
 - b. Gerentes
 - c. Técnicos
 - d. Obreros
8. ¿Qué ha hecho la empresa para entrenar a los trabajadores en prácticas verdes? ¿Tiene esta empresa programas de formación verdes?
 - a. Describa a los programas de formación verdes. ¿Son exitosos y efectivos?
 1. ¿Si no, que problemas o faltas tienen?

- b. Describa a los programas de formación verdes que se gustaría tener para sus trabajadores.
 - c. ¿Esta empresa realiza sus propios programas de formación verdes?
 - 1. Si no realizan sus propias programas de formación verde, ¿A quién subcontratar a?
 - d. ¿Tiene algunas relaciones con las universidades locales para la formación verde?
9. ¿Si no tiene programas de formación verdes, que ha hecho esta empresa para entrenar sus empleados? ¿Tiene esta empresa otros programas de formación?
- a. Describa a los programas de formación, ¿Son exitosos y efectivos?
 - 1. ¿Si no, que problemas o faltas tienen?
 - b. Describa a los programas de formación que se gustaría tener para sus trabajadores.
 - c. ¿Esta empresa realiza sus propios programas de formación?
 - 1. Si no realizan sus propias programas de formación, ¿A quién subcontratar a?
 - d. ¿Tiene algunas relaciones con las universidades locales para la formación?
10. Cuántos programas de formación verdes tienen por año? ¿Cuántos programas de formación tienen por año en total?
11. Díganos dos habilidades que les faltan sus trabajadores en las siguientes áreas:
- a. Energía renovable
 - b. Eficiencia energética
 - c. Neutralidad de carbono
12. ¿Son sus trabajadores una mayoría de trabajadores altamente calificados, oficiales, o trabajadores poco calificados, braceros? ¿Requieren que sus trabajadores tienen que niveles de educación?
13. ¿Que es su vincula con la Camara?
14. ¿Qué cree usted que el CICR puede hacer para ayudar a la empresa generar empleos verdes o preparar a los trabajadores para empleos verdes? ¿Qué ha hecho en el pasado? ¿Fue exitoso?
15. ¿Cómo encuentran empleados?
- a. ¿Trabajan conjuntamente con las universidades o asisten a ferias de empleo?

- b. ¿Esta empresa ofrece prácticas en empresa a los estudiantes?
16. ¿Cree que hay alguna ventaja en la implementación de programas de formación para empleos verdes? ¿Estos programas le darían a esta empresa una ventaja competitiva?
17. ¿Cree que esta empresa va a generar empleos verdes en los próximos cinco años? Si es así, ¿qué tipos de puestos de trabajo serían?
18. ¿Hay demanda de sus clientes para ser una empresa verde?
19. ¿Tiene alguna recomendación acerca de cambios que pueden ser implementados dentro de esta empresa con respecto a los empleos verdes y programas de formación?
20. ¿Qué ha hecho esta empresa para ser verde? ¿Hay algunas normas?
- ¿Ha establecido esta empresa alguna norma para la reducción de las emisiones de carbono?
 - ¿Ha establecido esta empresa alguna norma para el reciclaje o la gestión de residuos? ¿Si no hay normas establecidas, cómo elimina esta empresa los residuos y materiales reciclables?
 - ¿Qué factores han motivado la implementación de iniciativas verdes en esta empresa?
 - ¿Qué obstáculos han impedido esta empresa a ser verde?
21. ¿Qué mejoras ha hecho esta empresa para aumentar la eficiencia energética o el ahorro de energía? ¿Qué mejoras se pueden hacer en esta empresa para aumentar la eficiencia energética o el ahorro de energía en el futuro?
- ¿Qué dificultades existen en la implementación de estrategias en esta área?
 - ¿Qué empleado o posición en su empresa es responsable de pagar las facturas de energía? ¿Este empleado utilizar cualquier estrategia para bajar los costos de energía?
22. ¿Qué ha hecho esta empresa para aumentar la eficiencia de energía o ahorros de energía? ¿Cuáles mejoras puede ser hecho en tu empresa en el futuro?
- ¿Cuáles dificultades existen en la implementación de estrategias en esta área?
23. ¿Cómo incorpora esta empresa el uso de las energías renovables en sus procesos? ¿Cómo pueden incorporarlas en el futuro?
- ¿Qué dificultades limitan el uso o la producción de energía renovable en esta empresa? Por ejemplo, la educación, el costo, el conocimiento, los recursos.

24. ¿Cuál es su definición la sostenibilidad? ¿Qué puede ser hecho para contribuir a la sostenibilidad en esta empresa?

Appendix D: Informal Meeting Questions

Set up: One group member will moderate the focus group while the three other group members will act as secretaries. The list of recommendations developed will be provided to the participants of the focus group (members of the CICR) prior to the focus group. We will also provide hard copies of our recommendations during the focus group for the participants to refer to. Confidentiality of all participants will be maintained by the interviewers and participants' names will not be released. All data will be handled carefully to ensure privacy.

1. After reviewing our list of recommendations, which ones stand out in terms of:
 - a. Feasibility of implementation?
 - b. Likelihood of success and significant impact (i.e. Will recommendations create a positive change in regards to green training/jobs)?
 - i. Why or why not do you think these recommendations will make a significant impact?
2. After reviewing our list of recommendations, which ones appear:
 - a. Impractical for implementation in Costa Rica?
 - b. Unlikely to be successful?
 - c. Too costly?
3. Discuss strengths of our recommendations:
 - a. Do you have any suggestions that could add to the strength of our recommendations?
 - b. Are there any other opinions or advice you would like to share in relation the list of recommendations?

Appendix E: Matrix Showing Information on China, Russia, Mexico, and Brazil for a Comparative Analysis with Costa Rica.

In Chapter 2, we reviewed green sector development and job creation and training in China, Russia, Mexico and Brazil. Here, information on these four countries is presented in a matrix (Table 34) with a comparison column for Costa Rica. The matrix contains general demographic information including population, size and government, and also carbon emissions ranking, main renewable resources, international collaboration, government investment, and training programs and green jobs. The matrix also includes general regard for the environment as demonstrated by policies and their effectiveness in each country and more detail on government policies enacted in each country can be found in Section 2.4. The matrix includes a mix of data and our educated opinions.

The demographic information in the first four columns is from the Central Intelligence Agency World Factbook (Central Intelligence Agency, 2012a; Central Intelligence Agency, 2012b; Central Intelligence Agency, 2012c; Central Intelligence Agency, 2012e). Comparing the four case study nations to Costa Rica was challenging as Costa Rica differs greatly from these countries in population and size by area. Costa Rica is far smaller than the case study nations in both geography and in population. These two factors are crucial because population size determines how large the labor force potential is, while the geographic area shows how much land is available for renewable resources. Therefore, these countries were used as a background not because of physical similarity to Costa Rica, but because they are developing nations like Costa Rica, implementing new green initiatives. The CICR is researching other countries to learn from their green sector development and apply similar strategies to create jobs in Costa Rica. In particular, the nations of China, Russia, Mexico and Brazil can provide Costa Rica with informative case studies of developing countries advancing economically while promoting sustainability and green job growth. What sets China, Russia and Brazil apart from other nations is their recent remarkable and rapid economic growth.

Another factor that we considered when comparing the countries to Costa Rica was the form of government. The governments of the five countries are communist, federal (federation), federal republic and democratic republic. Communism is a system of government where the state controls the economy and one party has power. A federal government is a system in which the sovereign power is divided between a central authority and several constituent regions and the

government has power directly over individuals and the regions. A federal republic is a state where the central government's powers are restricted and constituent regions maintain an extent of self-government. A democratic republic is a state in which citizens have supreme power and vote for officers and representatives (Central Intelligence Agency, 2012f). China's communist government sets it apart from Costa Rica and the other three nations we used for comparison. For example, China's government has greater power to enact and enforce policies that are mandatory, and therefore some sectors of the Chinese government may have grown because of strict government controls. On the other hand, in Costa Rica, the same policy may not work because it cannot be enforced by a totalitarian government. Various governmental policies and laws for each country are discussed further in Section 2.4. Two of the countries also had sources of government funding to support green initiatives.

Our assessment of "regard for the environment" is based on our opinions after researching the countries extensively. The carbon emissions rankings are from a table in the Carbon Dioxide Information Analysis Center (2009), and reflect total carbon production for each nation, not per capita production. Significant renewable resources listed in the matrix are from various sources and are listed and discussed in more detail in Section 2.4. Information in the rows of government investment & funding for green initiatives, international collaboration & international investment, education & training programs, goals, green jobs & development and challenges are all directly from our literature review and more information on each of these can be found in Chapter 2. For example Mexico's history of political turmoil has impeded its ability to successfully implement policies. Other problems were lack of research and development and new technologies, lack of a skilled workforce, and lack of funding for green initiatives. After considering all of these factors in the matrix below, we determined the most important to be government intervention and aid, international collaboration, and restructuring education programs. More detail about each of these for each respective country can be examined in Section 2.4. We then took these factors into consideration when making recommendations to the CICR on how to create green jobs and training programs. These recommendations, based partially on these four case studies, are presented in Chapter 5: Recommendations.

Table 34: Matrix Showing Information on China, Russia, Mexico, and Brazil for a Comparative Analysis with Costa Rica.

Country	China	Russia	Mexico	Brazil	Costa Rica
Population Ranking (With 1 Being Highest)	-1 st (1,343,239,923)	-9 th (142,517,670)	-11 th (114,975,406)	-5 th (199,321,413)	-121 st (4,636,348)
Size (With 1 Being Highest)	-4 th	-1 st	-14 th	-5 th	-130 th
Government	-communist state	-federation	-federal republic	-federal republic	-democratic republic
Regard for environment	-striving to reform policies to benefit environment but still many problems and policies are not working	-little regard until recently when policies have been enacted, but have not had a large affect on country	-political turmoil has impeded its ability to focus on expanding its renewable energy sectors	-high regard, enacting many effective environmental policies	-striving for carbon neutrality by 2021 and high regard for environment
Carbon Emissions Ranking (1 = highest carbon emissions)	-1st	-4th	-13th	-17th	-100th
Significant Renewable Resources	-photovoltaic industry (produces 30% of panels in world)	-hydroelectric	-hydroelectric	-biofuels, hydroelectric, wind, biomass, solar	-hydroelectric
Government Investment & Funding for Green Initiatives	-reduced taxes and subsidies - feed-in tariff-costs are shared -largest privately funded research and development of solar energy production	-no data available	-no data available	-feed-in tariffs and bidding for renewables -My House, My Life program	-no data available

International collaboration & International investment	<ul style="list-style-type: none"> -university exchange program -US and European industrial partners 	<ul style="list-style-type: none"> -Rusnano partnered with a Swiss engineering firm -partnered with U.S. - Smart Grid Project 	<ul style="list-style-type: none"> -company from Spain invested in wind farms -Arima EcoEnergy (Taiwan) -SolFocus (U.S.) 	<ul style="list-style-type: none"> -no data available 	<ul style="list-style-type: none"> -GIZ
Education & Training Programs	<ul style="list-style-type: none"> -limited development for training in renewable technology -Shenyang University- model for environmental practices and a center for green education 	<ul style="list-style-type: none"> -Russia Green Building Council- training and certification program -Climate Doctrine= training of highly skilled research staff 	<ul style="list-style-type: none"> -CFE and other private organizations invested in education -Universidad CFE - training programs 	<ul style="list-style-type: none"> -environmental education in elementary schools -environmental engineering programs -private training institutions -green rooms for environmental training -program to restructure workforce -vocational training programs 	<ul style="list-style-type: none"> -CICR training programs -company training programs
Goals	<ul style="list-style-type: none"> -2020-decrease emissions by 40-45% and increase non-fossil fuel primary energy consumption by 15% 	<ul style="list-style-type: none"> -1% of electricity be generated by renewable resources by 2020 	<ul style="list-style-type: none"> -no data available 	<ul style="list-style-type: none"> -40% reduction in greenhouse gas emission levels -reduce deforestation 	<ul style="list-style-type: none"> -carbon neutrality by 2021
Green jobs & development	<ul style="list-style-type: none"> -restructured energy management system 	<ul style="list-style-type: none"> -green jobs in wind energy sector 	<ul style="list-style-type: none"> -no data available 	<ul style="list-style-type: none"> -created jobs through the ethanol production industry (alcohol powered vehicles) 	<ul style="list-style-type: none"> -growth of green jobs is higher than growth of total employment from 2001-2009

Challenges	<ul style="list-style-type: none"> -limited research and development -fossil fuel use in production of photovoltaic panels -education system lacks structural development 	<ul style="list-style-type: none"> -equipment is obsolete and needs modernization -lacks workers with managerial, financial, legal, market transaction skills to advertise and sell products 	<ul style="list-style-type: none"> -loans defaulted→debt -current supply of workers is limited -current training for green jobs is limited 	<ul style="list-style-type: none"> -carbon impact of biofuel production=source of controversy -deforestation is a major contributor to greenhouse gas emissions 	<ul style="list-style-type: none"> -transportation sector -gap between formal education and skills and training needed in industry -excessive bureaucracy
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Appendix F: Company Interview Transcripts

The questions underlined are follow-up questions that were improvised in order to obtain all of the information necessary for conclusive results. Questions not underlined were either part of the original question or pertaining to the question.

Company A

1. Esta información se mantendrá en el anonimato. ¿Podemos grabar esta entrevista por favor?

Sí

2. ¿Cuánto tiempo tenemos para esta entrevista? Tenemos aproximadamente 20 preguntas.
Okay, yo les puedo dedicar hora y media. Yo creo que sí, solo que hablo mucho.
3. ¿Podría decirnos su nombre y hablar de su posición dentro de la empresa?

Esta es una empresa de familia- es de mi papa y trabajamos tres hijos con él. Cuando empecé, empecé haciendo contestando teléfono, pagándolos a los empleados, ahora pues la empresa ha crecido bastante. Somos 96 empleados. Yo tengo un cargo de gerencia financiera y gerencia de cursos humanos. Pero, al ser de familia casi que todos hacemos de todo. En este lugar que estamos, yo también hago la supervisión de la empresa que está aquí, que somos 5 empresas. Pero también hay un montón de proyectos que tienen que ver con esto por lo que estamos aquí em, como yo soy la quien me entero en que lo que sucede con todos los productos que nos quedan. Por eso José nos remitió a mí.

4. ¿De qué parte del sector industrial es su empresa?
 - a. ¿En qué se especializa esta empresa en términos de productos o servicios?
Okay, nosotros somos del sector manufacturero. Somos una empresa que fabrica muebles de oficina en metal y madera. Trabajamos en tubo, la lamina de hierro, em la formica, el plywood. Y ahora casi todas las sillas también estamos importando de china.
5. ¿Cuántos empleados tiene esta empresa en Costa Rica?
6. ¿Puede darnos su definición de verde?
 - a. Defina empleos verdes.

Okay, em, bueno yo pienso que una empresa verde es una que está tratando de usar, o sea de usar solamente los recursos primero verdad, y no crear desperdicio. Es que el desperdicio que se crea puede hacer reutilizado.

b. Defina habilidades para empleos verdes.

Bueno eso está más difícil porque realmente pienso que lo primero que tiene que haber es una conciencia en las personas de querer cuidar los recursos. Y como recursos, hablo del papel, de la electricidad, de bueno. Como nosotros que trabajamos con espuma verdad, que se recortan piezas en espuma que todas la piezas, que se pueden hacer la mayor cantidad de una lamina que no haya tanto desperdicio ¿verdad? Esa conciencia.

¿Tienen en esta empresa empleos verdes?

O sea como empresa en ningún momento tenemos esa idea. Sea realmente nunca hemos recibido ningún capacitación, ni nadie ha dicho “vamos hacer una empresa verde.” No. Realmente, todo nace dentro de la idea yo creo que anda en que si uno lee en los periódicos que hay que cuidar los recursos, que hay que desperdiciar lo menos posible, que el agua que estas ahorrando, que en las escuelas los hijos de uno em, el reciclaje verdad reutilice, reciclen, reúsan. No hay ningún puesto aquí. Mucho nace también de lo que nos sobra. Lo vendemos y eso es lo que hacemos que hacemos un fondo para que después usarlos dentro los mismos empleados. Em, he ido, yo a motivado que los empleos traigan sus desperdicios de la casa y los hacemos aquí un grupo más grande y tenemos lugares para llevarlos pero que haya alguien con este puesto aquí- nadie.

7. ¿Cómo se distribuyen los empleos verdes en esta empresa (por ejemplo, ingenieros, técnicos, posiciones administrativas)? ¿Qué habilidades técnicas y verdes requieren ustedes que sus trabajadores tengan? Por favor dé 2-3 para cada posición.
 - a. Ingenieros
 - b. Gerentes
 - c. Técnicos
 - d. Obreros
8. ¿Qué ha hecho la empresa para entrenar a los trabajadores en prácticas verdes? ¿Esta empresa realiza sus propios programas de formación?

a. Describa a los programas de formación.

Sobre verde nada.

Pero, no verdes.

Ah. Bueno esta empresa apoya al trabajador que quiere estudiar. Entonces el que estudia, nosotros los ayudamos para que pueda pagar su mensualidad a la escuela.

Em, no es un ligado, no todos están bajo de esa sistema. De vez en cuando en congenio con el INA, conseguimos cursos de ingles o de computadoras, pero la gente a veces es poco interesada en hacer eso. Empiezan 10 y al final terminan solo 2 o 3 nada más. No hay mucha torti, la mayoría del personal no es administrativo sino que es de fabrico y es de otro pensamiento ¿verdad?

¿Pero no tienes nada de ideas verdes?

No. Nada.

b. Describa a los programas de formación que se gustaría tener para sus trabajadores.

9. Si no realizan sus propias programas de formación verde, ¿A quién subcontratar a?

a. ¿Tiene algunas relaciones con las universidades locales para la formación verde?

10. ¿Cuántos programas de formación verdes tienen por año? ¿Cuántos programas de formación tienen por año en total?

11. ¿Cuánto dinero gastan en programas de formación verdes por año? ¿Cuánto dinero gastan en programas de formación por año en total?

12. Díganos dos habilidades que les faltan sus trabajadores en las siguientes áreas:

a. Energía renovable

b. Eficiencia energética

Okay. El empleado tiene muy poca conciencia de energía. Le voy a poner un ejemplo. Ahorita yo tengo el problema de que como todo urge vienen una persona y compran una silla. Y urgen, lo quieren pronto entonces agarran las sillas, se pintan y se meten en un horno y se cocinan. Lo ideal es que el horno este lleno, pero a veces meten 4 sillas, cierran el horno y prenden. Es un desperdicio. ¿Verdad? Ellos no tienen esa conciencia porque o sea no hay una identidad de cuidar los recursos del dueño. Empezando por allí porque como no los pagan ellos, no les importan. Esa carencia de solidaridad que es lo primero. Y después la falta de conocimiento

¿verdad? que no entienden. Sea que no ven que en el desperdicio de energía, ahora no hay problema pero después la falta de ello de capacitaciones sobre las clases de recursos naturales ¿verdad? Que o sea mucha gente no relaciona la electricidad con recursos naturales. No hacen estos y no les preocupan.

¿Entonces creas que hay una falta de educación en la empresa?

Sí

c. Neutralidad de carbono

Eh, no nosotros no tenemos ninguna política con eso.

13. ¿Son sus trabajadores una mayoría de trabajadores altamente calificados, oficiales, o trabajadores poco calificados, braceros? ¿Requieren que sus trabajadores tienen que niveles de educación?

Poco calificados.

¿Para entrar? No. Muchos entran sin tener ningún como ayudantes- aprenden el oficio aquí adentro.

14. ¿Qué cree usted que el CICR puede hacer para ayudar a la empresa generar empleos verdes o preparar a los trabajadores para empleos verdes?

Bueno yo tengo contacto con la Cámara porque yo ha visto muchos. Como recursos humanos, yo voy mucho a los recursos que ellos dan. Y me invitan y trato de participar, pero se queda con migo. Yo casi nunca llevo a nadie ¿verdad? Todo eso cuesta dinero para la empresa. A veces no destinan los fondos. Lo primero que la cámara tiene que hacer es la conciencia en las cabezas de empresas para que se cree la necesidad de explicarles a todos. Yo trato, la motivación primero es que a los nosotros reciclar todos y venderlos. Yo los motivos que todo ese dinero es para los empleados. Sea que no me lo dejo yo como dueña si no que ese dinero lo voy llenando hasta en un librito contable y al final de año compro todos los regalos con la casa de allí y los refund entre los empleados. ¿Verdad? Entonces esa es la primera motivación que doy a ellos. Y después a la parte eso les empiezo a decir sobre la conciencia, del desperdicio pero eso, yo pienso que la cámara, lo primero que la tiene que hacer es a las cabezas de las empresas y convencer de pasarlos al trabajo. Hacia abajo van a sus jefes y después los operarios.

15. ¿Cómo encuentran empleados? ¿Cómo encuentran empleados? ¿Que calificaciones?

De todas maneras, a veces en facebook, una asistente bueno. Pero muchos veces es entre los mismos empleados recomiendan “mira tengo una señora que necesita trabajo” entonces pues yo guardo esos documento y en el momento que necesito una señora “ha, esa señora me sirve.” Tengo un trato de que no sean familia. Trato que no estén un hermano y hermana trabajando juntos para no tener problemas. Yo tengo, no los conté pero yo tengo casi 30 años en trabajar aquí entonces lo he visto todo. ¿Verdad porque ahora esto es muy lindo, había calor, no había computadora, entienden? Entonces el empleado trabajaba muy cerca de mí. Yo a los empleados a veces no les atiendo, si no que les atiendan la recepcionista. ¿Verdad? Se va uno alejando, entonces vi muchas cosas. Pero ahora que rentamos un soldador, el jefe conocía uno, yo vengo a la entrevista y si me parece bien, lo acepto y si no lo desecho. Pero casi siempre es por recomendación. No he tenido que buscar bolsa de empleo nunca.

¿Qué calificaciones tiene que tener sus empleados?

Sea digamos, si en este momento, yo necesito un contador tiene que tener conocimientos. Pero si alguien tiene que soldar, tiene que saber soldar. Pero si lo que necesito es un ayudante casi que cualquiera entra. Ahora porque la empresa ha crecido en procedimientos también. Antes la recepcionista antes fue cualquiera que estaba contestando el teléfono. Como vamos poniendo grande, uno va poniendo más requisitos pero aun todavía no hay requisitos después de las escuelas, para entrar con solo la experiencia es suficiente, no necesito titulo de que saben soldar o para ser chofer se falta licencia para car. Realmente, para entrar al armar sillas no necesito que tengan un titulo del INA, nuestra escuela técnica aquí que hay. Si con solo experiencia con haber trabajado en otro lugar.

¿Entonces no necesitan estudios?

No. Especializados no. Solo la experiencia.

a. ¿Trabajan conjuntamente con las universidades o ha asistido a ferias de empleo?

No

b. ¿Esta empresa ofrece prácticas en empresa a los estudiantes?

Hemos tenido estudiantes haciendo prácticas aquí. No es muy regular. Todos los anos no, pero si hemos tenido. Hace de pocito acabo de tener una muchacha de la UNA haciendo un trabajo donde yo le permití que entrara y tomar fotos del proceso.

En eso, casi que por amistad. Si conozco a alguien entonces yo permito que esa persona venga y que conozca lo que hacemos.

Pero se necesitan, ¿ustedes no procuran a alguien para hacer?

No porque los personales son muy estables- nosotros no estamos quitando empleados, si no tratamos de manejar un número de empleados bien solido. Em, hay los picos de producción, o sea como para diciembre no tenemos mucho producción pero es porque trabajamos menos días. Este año vamos a trabajar hasta el 18 entonces todo lo que hay para sacar el diciembre hay que sacarlo antes del 18. No hasta el 31. Y entonces allí sentimos picos pero si metemos a alguien, normalmente se queda hasta el resto del año y allí sigue.

16. ¿Cree que hay alguna ventaja en la implementación de programas de formación para empleos verdes? ¿Estos programas le darían a esta empresa una ventaja competitiva? No si creo realmente en la necesidad de volvernos sostenibles, de que todas las empresas deban un granito de arena para no dañar el ambiente. Es necesario que haya una conciencia.

Ya hay dentro de las, nosotros no tenemos como un título que dice que somos una empresa verde pero cuando nos pidan digamos que si nosotros estamos orientados, contamos lo que diga yo que dentro. Hay empresas que nos solicitan que son empresas verdes, y nosotros decimos que no estamos certificados pero sea hacemos estos y estos procesamientos para reciclaje, lo que se imprime se guarda y se vuelve, y para ciertas cosas volvemos imprimir hacia atrás que es papelería. Muchos, yo mi papelería lo que hago lo hago en mi libretita para estar haciendo notas. Y ya después cuando eso no sirve, vamos guardando para mandarlo el reciclaje el papel que ya esta usado por los dos lados. Entonces, es eso las empresas que nos solicitan de que nos piden que nosotros seamos, que los vendeanos, eso lo toman en cuenta. Que los sobros de hierro que nosotros vendemos a lugares donde reciban el hierro, y ellos reciclan ese hierro. Em, todas la piezas plásticas que nos sobra también los mandamos al reciclaje. Ahora hay un lugar aquí que todos los recipientes plásticos los están comprando, entonces nos dedicamos. No solo de aquí si no que yo colaborados traigan de la casa y entonces que no se botan en la basura convencional si no que se bote. Se echa aquí para el reciclaje.

No tenemos algo como de empleos verdes pero estamos haciendo cositas que nos califican, son pasitos que damos que se ve que estamos apoyando el medio ambiente.

Are there companies that want you to go green?

Si principalmente las como una empresa de papel toalla que nos pregunta que si somos verdes.

¿Entonces hay demanda para ser verde?

Sí

¿Y ustedes van a ser cosas para ser más verdes?

O sea, nosotros no hacíamos esos pensando en la empresa de papel toalla pero cuando esa empresa nos pregunto y bueno no somos verdes per hacemos esto y esto. También deseamos ciertos ácidos y ciertos aceites que hay que disponer de ellos correctamente. No los tiramos a la basura o a la pinta o así. Entonces esas cosas nos toman en cuenta cuando nos preguntas si somos verdes.

17. ¿Qué ha hecho esta empresa para ser verde?

- a. ¿Ha establecido esta empresa alguna norma para la reducción de las emisiones de carbono?
- b. ¿Ha establecido esta empresa alguna norma para el reciclaje o la gestión de residuos?
- c. ¿Qué factores han motivado la implementación de iniciativas verdes en esta empresa?
- d. ¿Qué obstáculos han impedido esta empresa a ser verde?

18. ¿Cree que esta empresa va a generar empleos verdes en los próximos cinco años? Si es así, ¿qué tipos de puestos de trabajo serían?

¿A personas? ¿O sector?

Sí, yo pienso que lo primero que podríamos empezar como empresas hacer, es que cuando es de familia, y todos los hijos opinábamos, entonces hay un hermano que dice “no gastemos en eso, mejor dejémonos esa plata.” Eso pasa. A como hemos publicidad y dice “no gastemos en publicidad.” Yo lo que pienso primero que- si la CICR empieza sacar temas con esto, yo estaría dispuesta a ir y aprender verdad y después viene uno y se le vende a la junta directiva y se van creando departamentos. Y allí puede ser que crecen departamentos sostenibles. Y volvernos sostenibles.

Bueno sería, usted ya vio que yo soy la gerente financiera y también la gerente de cursos humanos. Entonces aquí en el departamento de recursos no hay nadie, solo yo. Y somos 90 empleados. Posiblemente gustaría ser departamento también. O sea posiblemente sea una persona que encargue de supervisar de que se desechan los materiales correctamente. No creo todavía que hayan grandes departamentos si no de una sola persona. Entonces que esta compañía que tiene es una persona sola nada más.

19. ¿Tiene alguna recomendación acerca de cambios que pueden ser implementados dentro de esta empresa con respecto a los empleos verdes y programas de formación?
- ¿La empresa mía? Bueno, lo que haría es capacitar a todos el personal en entender que cada cosa que uno debe hacer para reciclar, para ahorrar, sea que no solo va en contra de la empresa si no que va en contra de todo. Entonces ese tipo de capacitación de volver a la gente consiente, de aunque los periódicos, la televisión estaba haciendo mucha campaña en eso pienso que la gente piensa eso. Eso no me va pasar a mi ¿verdad? O sea, no es con migo, no es yo que tengo que hacer nada, somos todos que tenemos que hacer algo.
20. ¿Qué mejoras ha hecho esta empresa para aumentar la eficiencia energética o el ahorro de energía? ¿Qué mejoras se pueden hacer en esta empresa para aumentar la eficiencia energética o el ahorro de energía en el futuro?
- a. ¿Qué dificultades existen en la implementación de estrategias en esta área?
- Em, bueno lo principal es el económico- que las empresas están orientados en ganar. Casi nunca están orientados en. Hace poquito acabo de estar yo en una conferencia con el gerente de recursos humanos de maseca en México- yo soy muy sentimental y en la parte de recursos humanos, el hablaba de que todos que ellos hacen para sus empleados. O sea, emocionalmente pensé como me gustaría que eso lo pudiera hacerlo uno a todas sus fábricas. Pero ese ambición de solo querer ganar cuesta que uno vaya haciendo es pazo para.
- O sea eso es la orientación- los explico porque yo llevo esta parte que yo reciclo y les doy a los empleados- mis hermano no quiere que se les doy a los empleados. El quiere que se nos quede a nosotros. Y entonces yo lo que le digo es que eso ya no era para nosotros. Eso en otro momento, en los anos preados, eso se botaba. Eso lo que hace es premiar los empleos de que estamos reciclando. Entonces si con eso, no

quieren compartir. A veces cuesta, que se comparten, lo que los quiero explicar es que si eso lo que no sale de la bolsa de nosotros cuesta compartirlos ahora cuando hay que sacar de nuestra bolsa es donde a esa parte directivas cuestan.

Eso es la dificultad, de que la gente que para todo esto tienen que para todo esto tiene que invertir y es difícil, principalmente en época crisis. Estamos viendo crisis mundial, lo primero que la gente recorta es ese tipo de proyectos, todos los de ayuda, todos de solidaridad, todas las de becas, todo eso se recorta en el ese tiempo porque el jefe no están dispuesto a perder lo que ganan. Pero aquí todavía no hemos hecho esto. Nosotros seguimos ayudando los que están estudiando, y con lo del reciclaje como les conté, eso sigue haciendo parte de los empleados, ahí vamos, poquito pero ahí vamos.

21. ¿Cómo incorpora esta empresa el uso de las energías renovables en sus procesos?

Okay, las energías renovables son ¿Agua? ¿Cuáles son las energías renovables?

Hidroeléctrica, solar, etc.

Okay. Bueno por reciclaje, realmente la energía... les conté que no estamos siendo eficientes porque los empleados, sin que nos demos cuenta, eso pasa en la fábrica. Falta supervisión o sea la falta de supervisión que yo doy allí hace que allí sea desperdicio.

Entonces, yo tengo que dar más atención.

No tenemos.

22. ¿Cómo pueden incorporarlas en el futuro?

a. ¿Qué dificultades limitan el uso o la producción de energía renovable en esta empresa? Por ejemplo, la educación, el costo, el conocimiento, los recursos.

23. ¿Cuál es su definición la sostenibilidad? ¿Qué puede ser hecho para contribuir a la sostenibilidad en esta empresa?

Eh, o sea la capacidad de seguir haciendo un proceso que una vez que termine no empieces deshacer. Vamos a ver si yo explica. Si yo gaste o si yo uso cierta cantidad de aceite en el proceso de armar una silla, con el aceite que me queda que antes se desechaba y se hacia una nueva, yo a volver hacer un nuevo proceso con una nueva silla, yo puedo usar parte de lo que quedo.

Yo pienso que crear ese puesto de – es mas no es ni crear, si no que algunas de estas personas que estamos aquí tengamos no solo la conciencia porque yo tengo la

conciencia, pero no tenemos el estudio o la recomendación. Con capacitación, yo creo que uno podría hacer mucho más ¿verdad?

Pienso como, ¿en apagar las luces?

Sí, creando políticas nuevas dentro de luz y puridad. Al medio día, aquí no porque aquí seguimos trabajando pero al medio día, la fábrica que salen a almorzar apagan las luces ¿verdad? Ellos desde hace muchos años estamos haciendo eso.

Nosotros tratamos- que cuando vienen los técnicos, las piezas de metales se lavan con un ácido— y dicen que esto dura un máximo de 80 piezas. Entonces nosotros usamos ese máximo. Le damos una vida al producto lo más que podamos y no antes no lo desechamos antes porque ahí es donde se pierda. Entonces tratamos de dar la vida lo máxima a cada de esos líquidos que hay que desechar. Que son dañitos para el medio ambiente. Los aceites y todo eso, el que lo desechemos lo causa daño. Pienso que es la conciencia, capacitación, política, que con poquito, realmente no pienso que no se necesitan grandes grupos para hacer eso. Creo con una persona que puede compartir eso con un grupo se puede hacer bastante.

¿Hay una persona con educación?

Sí, yo horita conozco una muchacha de la municipalidad de San José, que ella tiene una campaña de reciclaje inmensa. Sea, hay personas en la municipalidad que están tratando de hacer conciencia, y es amigo de cuando fue chiquito.

¿Preguntas?

¿Puede elaborar sobre su vínculo con la CICR?

¿El vínculo? Nosotros estamos asociados con la Cámara de Industrias y una se asocia con la cámara para estar recibiendo todas las informaciones que pasan al nivel del gobierno que tiene que ver con toda las industrias entonces ellos nos están informando a nosotros y como soy en la parte de curso humanos, voy mucho a cursos entonces voy a cursos, y al ir, la cámara abre puertas de ayuda para que todo una necesita y me ayudan. Y sigue un vehículo, Por eso José en contacto a mí, porque él sabe que a mí me gusta colaborar mucho.

Preferías si antes de empezar las clases con la Cámara, ¿que ya estarían abiertas la puertas en ayudar o prefieres más que empieza las clase y encontrara las puertas abiertas así?

Pienso que las puertas están abiertas pero que uno no sabe que existe, pero como yo hablo tanto, yo le cuento a todo el mundo que la Cámara ayuda si uno está afiliado con la Cámara, yo les

digo, buscan buscar. Porque de allí, todos los profesionales que hay, me imagina que vas a ver un profesional de repente que esta con renovación eléctrica. Un congreso hubo de energía pero no fui porque pensé que eso no tenía nada que hacer con migo. Sea, eso es lo que le pasa a uno. Pienso que la Cámara no dice. Verdad, porque yo no sabía. También es que uno no saca el tiempo a ir y acercarse, porque le invitan a uno a mil cosas, no solo que tenga que pagar pero si no invitado y uno a veces no va. Entonces es también a veces no es la gente que no, no participan porque no tienen el tiempo. La gente es lo que dicen.

¿Su empresa usa materiales recicladas en sus muebles o no?

Bueno, acabamos de comprar un lote de patas que o sea no son reciclados en el proceso pero fueron usados. Entonces nosotros los compramos para stock de repuesto. Cuando los queremos dar, y normalmente y si una silla se daña, siempre quedan un montón de repartes. Si se quebré una asiento, siempre hay respaldo que puede usarse en una reparación y siempre que usamos algo viejo una reparación, no la cobramos. Si tenemos una silla vieja que se compro de nosotros y necesitan arreglos, no tienen que comprar algo.

¿Quería saber si había un policy?

¿Una política? No. O sea escrito no tenemos nada. Es nada más de corazón, de conciencia nada más.

¿Ustedes tienen ingenieros?

No, nosotros tenemos personal operarios- que ninguno es... El único ingeniero eléctrico que tenemos es el jefe de bodegas. Entonces no está contratado como ingeniero eléctrico sino como uno de los jefes de las bodegas. Pero esta en administrativos y operativos. Los administrativos somos todos que trabajan en la ventas, en la contabilidad, en los recursos humanos, y los operativos son todos que tienen que fabricar o armar o cargar.

¿Pero no hay nada de especializados?

Sea que el soldador tiene que saber soldar. Los que trabajan en madera, sus experiencia es en madera pero no tienen títulos que les dan la garantía en los que hacen, solo la experiencia.

¿No hay como research and development para los procesos ser más eficientes?

No. Tengo que terminar de estudiar yo que es ingeniero industrial. Sea que nosotros no tenemos un ingeniero industrial. Les voy a contar sobre esta empresa. Mi papa no saco su sexto grado- y el empezó a trabajar desde muy jovencito y era empleado de una fabrica como este y un día cerro. Después de muchos años de trabajar el fue aprendiendo sin título, fue aprendiendo a cortar

madera, cortar tubo, luego a ser jefe de producción y cuando cerró la empresa, él empezó hacer sillas y a venderlas y fuimos creciendo. Y fueron 30 años, mucho tiempo, pero es que no nos dimos cuenta en qué momento crecimos. No fue que un día éramos 5 y al otro 90. No, seguimos creciendo, pero no lo sentíamos porque estábamos metidos en el trabajo.

Entonces mi papa como hasta 4 años es que tenemos un contador aquí, pero antes el contador era de San José. No tenía esa parte administrativa y conocimiento para involucrarlo aquí. Y juntamente nos metimos nosotros pues empezamos a ordenarnos un poquito aparte. Yo en financiero, yo no soy de finanzas, y horita tengo una administración de empresas, pero no tengo nada en finanzas. Aquí he ido aprendiendo- lo que la gente administrativa es como mi hermana quien es maestra. Claro, ella es súper ordenada que es lo más importante en administración. Y mi hermano está metido en ventas. Y solito aprendió importar de China y hacer negocios con los chinos, y los estados unidos a veces traemos cosas, y de Brasil y hemos ido igual.

¡Muchas gracias!

Con mucho gusto.

Company B

1. Esta información se mantendrá en el anonimato. ¿Podemos grabar esta entrevista por favor?

Sí

2. ¿Cuánto tiempo tenemos para esta entrevista? Tenemos aproximadamente 25 preguntas.
No hay problema

3. ¿Podría decirnos su nombre y hablar de su posición dentro de la empresa y su nivel de educación? ¿Donde estudiaste?

Yo soy, pues yo estudie derecha, soy abogada y saque una maestrea en administración, con eso es fácil ser mercadeo. Yo me encargo en la mercadeo de la empresa y sea es un family business de mi papa, soy la hija entonces es mejor, bueno ya llevo 4 años con ellos pero es ahora que tengo un puesto formal.

Estudie en la University A derecho y estudie en la UPC en Barcelona, España.

4. ¿De qué parte del sector industrial es su empresa?

Somos una empresa de servicios que da servicio a todo los sectores productivos de la economía. Pero la principal es la industria. Digamos la manufactura o la producción y sea de alimentos no sé, bloques de todo que uno se puede imaginar porque nosotros que hacemos es damos edificios de levante y manejo de carga. Sea todo de handling y lifting de la mercadería y la maquinaria pesada y lo que hacemos es tratar de sacarlos de los containers, tablear los a lugares, acomodarlas, y dejarlas lista. Es todo como un assembly, diríamos ustedes.

- a. ¿En qué se especializa esta empresa en términos de productos o servicios?

5. ¿Cuántos empleados tiene esta empresa en Costa Rica?

En este momento somos 27 aquí en costa rica

6. ¿Puede darnos su definición de verde?

Yo lo asociaría con prácticas que sean amigables con medio ambiente. De cómo tener algo proactivo que tenga poco impacto en lo que sea el medio ambiente.

- a. Defina empleos verdes.

Yo me imagino que son, si tal vez nunca ha oído el término así, son empleos que están enfocados en lograr esas prácticas en las correctas ambientales del sector.

- b. Defina habilidades para empleos verdes.

Pues ya seria todo que sea la educación y preparación que trata de eso

7. ¿Crees que hay empleos verdes en esta empresa (por ejemplo, ingenieros, técnicos, posiciones administrativas)?

Por lo menos, practicas verdes hay, pero tal vez no tenemos gente capacitada y orientada en eso. Si lo trabajamos por necesidad pero necesario pero tal vez no tenemos puestos dedicados a eso.

8. ¿Qué habilidades técnicas y verdes requieren ustedes que sus trabajadores tengan? Por favor dé 2-3 para cada posición.

- a. Ingenieros
- b. Gerentes
- c. Técnicos
- d. Obreros

9. ¿Qué ha hecho la empresa para entrenar a los trabajadores en prácticas verdes? ¿Tiene esta empresa programas de formación verdes?

Correcto, nosotros tenemos, sea son varias formas de que existen para poder accezar a las capacitaciones trimestrales que tenemos en la empresa que son de temas varios que se manejan. Básicamente, seguridad de capcionad, también como talleres, como workshops para tener un mejor trabajo en equipo y están todos las capitaciones externas que son de, que van de programa de computo hasta seminarios en medio ambientales o seminarios para mercadeó, para de ventas, etc. Y también tenemos un programa que obtura becas de estudio para gente dentro de la organización. Entonces si alguien quiere estudiar, nada mas piden permiso a la gerencia y se le otorga mes a mes a mes para que pague los estudios.

- a. Describa a los programas de formación, verdes o no. ¿Son exitosos y efectivos? ¿Si no, que problemas o faltas tienen?

Como tal, no. Pero si hemos asistido seminarios. Pero no hay una capacitación solo para eso.

- b. Describa a los programas de formación que se gustaría tener para sus trabajadores.

Aparte los que ya tenemos, si, tal vez sería importante todo la parte del medio ambiental. Sea, como le dije a tal, tenemos una estructura básica bueno lo que

sea para mitigar el impacto al medio ambiental, pero no tenemos un estructura formal que subiente a eso. Entonces sería interesante tenerla. Y tal vez, que se yo, mas capacitaciones profesionales para cada sector de la empresa, uno para cada puesto.

c. ¿Esta empresa realiza sus propios programas de formación?

Bueno tenemos, como les dije externos los íntegros que son trimestrales y son brindados por cada persona encargada por ejemplo seguridad ocupacional, la origen de los inspectores de proyecto que están capacitados en el área entonces se reúnen a todos los colaboradores y esos y van hiendo les imparten las lecciones y se les dan un certificado pero también tenemos las externas que se mandan a los colaboradores a otro lado para que se instruyen sobre esas cosas.

10. Si no realizan sus propias programas de formación verde, ¿A quién subcontratar a?

Hay empresas o diga clientes que nos obligan a tener ciertas certificaciones de cómo manipular carga y entonces ellos mismos nos piden que mandemos operadores a esas empresas. Como en el programa que se llama SISFA que dan todos los programas de seguridad de una empresa que se llama la empresa de papel toalla y entonces ellos nos obligan a mandarlos. Entones básicamente serian esos cursos y también por ejemplo hemos participado en un curso de la cámara de industria, de la Cámara de comercio, y otras cámaras.

a. ¿Tiene algunas relaciones con las universidades locales para la formación verde?

No.

11. ¿Cuántos programas de formación verdes tienen por año? ¿Tienen prácticas para los estudiantes?

Estamos abiertos a esto pero no hemos tenido un intern nunca. Sea nunca ha llegamos a eso porque tal vez no lo hemos publicado pero no si se nos ofrecía participar en un programa oficial los haríamos efectivamente.

¿Cuántos programas de formación tienen por año en total?

Son 4 trimestrales por año- que esos son los normales. Y ahí realmente todos las que se salen de lo común que ya depende del capaz de la necesidad que tiene cada profesional. Por ejemplo, si alguien necesita aprender más de computación, pues se le manda. Pero si hay 4 anuales de fijo.

¿Y ningunas son verdes?

No, o no sea como tal. Se toca por ejemplo los otros son certificados en hizo morbillo. Entonces por ejemplo, dentro de esos procesos tenemos manuales procedimientos ambientales entonces si sí he capacitado en eso. Pero, como de parte más grande, no como tal.

12. ¿Cuánto dinero gastan en programas de formación verdes por año? ¿Cuánto dinero gastan en programas de formación por año en total?

13. Díganos dos habilidades que les faltan sus trabajadores en las siguientes áreas:

- a. Energía renovable
- b. Eficiencia energética
- c. Neutralidad de carbono

Sí- Nosotros hemos tratado de implementar ciertas cosas que me piden nuestro medio ambiental. Pero, nos gustaría tener una flotilla entera equipo pesado. Por ejemplo fuera de gas o electric y no tanto de diesel. Entonces en este sentido, todavía nuestro flotilla no está allí y como nosotros somos una empresa pequeña entonces no tenemos gastos exagerados en energía y todo eso pero si, si tenemos que hacer el cambio de un tipo de combustible a otro en nuestro flotilla. Eso sería una de las ideas buenas.

14. ¿Son sus trabajadores una mayoría de trabajadores altamente calificados, oficiales, o trabajadores poco calificados, braceros? ¿Requieren que sus trabajadores tienen que niveles de educación?

La mayoría es poco calificada en el sentido que no tiene educación formal. Son los choferes de los equipos pesados como los forklifts, los cranes, todo eso. Pero digamos, los personajes administrativas está altamente capacitada. Todos tienen estudios universitarios y algunos hasta maestría. Pero digamos, el resto, que serian como 17 de 27, por los menos son calificados.

15. ¿Que es su vincula con la Cámara?

Nosotros somos afiliados de la Cámara sea, pagamos anualmente porque nos gusta estar al tantee. Nos gusta participar en todo lo que sea beneficioso para la industria. Sea nos interesa la productividad de este país y por eso somos miembros activos de la Cámara de

Industrias y el de Comercios. Y a los asistido sus seminarios, a los asistido sus capacitaciones también.

16. ¿Qué cree usted que el CICR puede hacer para ayudar a la empresa generar empleos verdes o preparar a los trabajadores para empleos verdes?

Bueno, sería interesante es que ellos se estructuran una programa de educación de cómo tal. No sé si lo tienen, no estoy por lo menos enterada. Pero si sería bueno, y lo empiezan a promocionar y definitivamente la gente pues sería... Pues sería interesante como una especie de certificaciones que se puedan contar así, oficiales, y entonces cuando uno manda a sus colaboradores que cumplan el programa que como es una de trascendencia, que les dan puntos extras a la empresa. Porque hoy todos quieren ser bien en el medio ambiente pero es también espigar. Entonces es importante que tal vez hicieran programas en eso.

¿Qué ha hecho en el pasado? ¿Fue exitoso?

Sinceramente no.

17. ¿Cómo encuentran empleados?

Usualmente, nuestro campo, para encontrar operadores de maquinaria es super fácil- la gente nos buscan. Solamente nuestra empresa, se fundó en 1900 que antes era como con carretas y huellas era super rustico y después se llegó una flota de camiones entonces especializo en esto. El nombre si tiene, entonces la gente lo conoce. Sea es pequeño, pero la gente si lo conocen. Todos los operadores normalmente llegan a nosotros. Pero si tengo mucho contacto con la Cámara de Industrias para lo que es perfil administrativo. Ellos si me consiguen los curriculum y me lo mandan. Ellos si son mejor en eso. Por ejemplo, José Salas, yo hablo con el mucho y me ha ayudado mucho- de hecho ahora tenemos una persona para entrevistarse para los recursos humanos que fue facilitado por la Cámara de industrias.

- a. ¿Trabajan conjuntamente con las universidades o asisten a ferias de empleo?

Con las universidades, no trabajamos conjuntamente con ellos. Hemos trabajado para ellas para proyectos pero no conjuntamente con ellos. Tal vez en el pasado se haya hecho pero no – solamente usualmente es por preferencia, la cámara de industrias, o llegan a nosotros pero no vamos a reclutar activamente.

- b. ¿Esta empresa ofrece prácticas en empresa a los estudiantes?

18. ¿Cree que hay alguna ventaja en la implementación de programas de formación para empleos verdes?

Por supuesto. Es que para nosotros no es solo para mitigar el impacto al medio ambiental si no para también para ser las empresas más eficientes. Claro que me parece más ventoso.

¿Estos programas le darían a esta empresa una ventaja competitiva?

Exacto. Cuando implementas prácticas sanas ambientales, empiezas recortar gastos por todos los lados y eso lo hace más competitiva. Por ejemplo, si yo pongo una directriz que no se va gastar tanto papel, automáticamente menos gastos para la compañía y eso lo puedo invertir en equipo y otras cosas que nos hace más competitiva.

19. ¿Cree que esta empresa va a generar empleos verdes en los próximos cinco años?

Pues, eso sería la idea. Un momentico- aquí esta Mauricio que ahora va estar en la entrevista. Incluso hemos pensado en certificarnos en ese 14000 pero en este momento pues no ha sido la privacidad, pero si nos gustaría tener alguien que supiera más del tema. Y poder preparar más a la gente sobre estos asuntos verdes para ser más competitiva.

Si es así, ¿qué tipos de puestos de trabajo serían?

Yo lo haría en la parte de mantenimiento, tal vez en equipos para que propongan ideas y en ahorro en ese sentido. Y bueno, un gestor de calidad que vea este tema de medio ambiente.

20. ¿Tiene alguna recomendación acerca de cambios que pueden ser implementados dentro de esta empresa con respecto a los empleos verdes y programas de formación?

Como nunca se ha orientado a eso, pues la recomendación sería hacerlo. Entonces es básicamente implementar estos empleos verdes. Sea que ya sea parte de la orientación.

21. ¿Hay demanda de sus clientes para ser una empresa verde?

22. ¿Qué ha hecho esta empresa para ser verde? ¿Hay algunas normas?

Es que con como son muchas fuentes. La cámara, la administración extranjera o internacional y los sistemas de calidad, todos señalan estos puntos.

a. ¿Ha establecido esta empresa alguna norma para la reducción de las emisiones de carbono?

Pues plan formal no hay. En nuestro caso sería tener más de esos equipos porque no todas la trafultillas están transformadas de diesel o gas a eléctrico. Si tenemos esto implementado si no por el tema ambiental si no por también el reducción de costos. Se han implementado un montón amidades que trabajan con gas y también por ejemplo los accesorios especiales como mecánicos hidrolicos y de aire que no contaminan y ayudan manejar la carga. Por ejemplo, como en los hydrolic rollers en quiere decir que tenemos que utilizar menos equipos que contamina y podemos usarlo con esto que está totalmente limpio. Pero con política o electriz central no, pero si hemos hechos cositas pequeños.

b. ¿Ha establecido esta empresa alguna norma para el reciclaje o la gestión de residuos?

Si. Correcto, tenemos, dentro de uno de un manual de procedimiento tenemos un procedimiento ambiental que sería mejor saber desechar nuestras los como llantas, aceites- contratamos empresas para que vengan a recogerlas. Por ejemplo, nuestra llanta que desechemos, hay una empresa que viene y se encarga de venir hasta aquí y llevarse todas las llantas y el aceite. Pero en la fiesta al final del ano a los mercados, lo que sea, todo se vehicula en cómo hacerse para reciclar. Y después dejamos de imprimir tanto ¿verdad? Estamos manejando mas toda la comunicación interna por email. Y tenemos una nube que esta el sistema de facturación todo de la fabricación, todo puede estar viendo el sistema que está imprimiendo cosas. Y bueno tenemos plaquitas así como esa. Todo esto está dentro del procedimiento de la imagen y del medio ambiente para reducir todo el partimiento.

c. ¿Qué factores han motivado la implementación de iniciativas verdes en esta empresa?

d. ¿Qué obstáculos han impedido esta empresa a ser verde?

El tema de flotilla usualmente los de gas y diesel son los más costosas entonces por eso no hemos podido cambiar todos nuestros unidades a una energía más limpia porque sigue siendo más rentada en comprar diesel. Digamos si por supuesto entonces he sido como el tema numero uno. Por lo demás hemos sido

cosas poco por poco haciendo el cambio. Sí, pero eso costo de tecnología es súper alto.

23. ¿Qué mejoras ha hecho esta empresa para aumentar la eficiencia energética o el ahorro de energía? ¿Qué mejoras se pueden hacer en esta empresa para aumentar la eficiencia energética o el ahorro de energía en el futuro?

Eh, cosas en nos hayan ayudado reducir costos y aunque parezca extraña mi respuesta, la crisis nos obligo recortar costos. Entonces por ejemplo, hemos sido enfáticos en que la gente usa exactamente lo necesario. Por ejemplo, ahora se está controlando mucho mas el mantenimiento de las compras entonces la gente boletas y llevan control en que lo que se está gastando y ya no se reparta dinero para comprar gasolina, aceites filtros, ni que- todo está regulado. Se capacita constantemente la gente en apagar las luces, que cierren el tubo de agua, de que no usan tanto papel para secarse las manos, etc. Básicamente la política ha sido eso, ser enfático sobre el ahorro porque es un ahorro para todos- para la empresa y para el mundo.

- a. ¿Qué dificultades existen en la implementación de estrategias en esta área?

24. ¿Cómo incorpora esta empresa el uso de las energías renovables en sus procesos?

Ahora en este momento de energías renovables y no, tampoco aplica.

¿Cómo pueden incorporarlas en el futuro?

Em, eso es un tema complicado. Y en como incorporarlas. Tal vez, el paso numero uno seria estructural todo lo que se, la parte verde dentro de una empresa y para empezar a capacitar y tener más gente capacitados sobre el tema para tener más ideas y desarrollar más proyectos que incorporan estas tecnologías porque en este momento, pues las empresas no tienen algo definido. Si tendrían que empezarse con por tener gente capacitado sobre del tema.

- a. ¿Qué dificultades limitan el uso o la producción de energía renovable en esta empresa? Por ejemplo, la educación, el costo, el conocimiento, los recursos.

25. ¿Cuál es su definición la sostenibilidad?

Es poder digamos seguir en giro e tol de la empresa, reduciendo al máximo el impacto para preservar los recursos para naciones en el futuro. Como haber una balacea.

¿Qué puede ser hecho para contribuir a la sostenibilidad en esta empresa?

Todo lo mencionado pasados, en incorporar más empleos verdes, en conseguir, pues ha cambiado un poco la flotilla la tecnología limpias y áreas renovables, a cortar gastos para poder hacer las inversiones, como son mayores, pienso que esto sería una buena idea.

¿Tienen más preguntas?

Mencionaste que la empresa está desde los 1900. ¿Ustedes no quieren expandir para hacer la empresa más grande?

Pues la empresa ha cambiado, pues ya esta sería la cuarta generación. Son tres generaciones digamos, que hagan implementando cuestiones, por ejemplos, antes era muy rudimentario y después fueron incorporando flotillas de camiones y todo. La empresa se hizo muy grande, y antes tenía una freightforward también tenía. Lo que paso, por dificultades, y cuestiones, la empresa cerró. Y volvió a comenzar ya especializada en esta rama. Con el manejo y levante de carga en el sector industriales. Entonces eso empezó en el '95. Entonces, si pues la empresa ha experimentado con la expansión o sea se ha puesto un poco más grande que era muy pequeña. Y ahora somos pequeño-mediano y acabamos de abrir oficinas en Panamá y allí tenemos como 5 empleados. Y la idea es que crezca más como hay mucho movimiento, mucho más mercado por lo que hacemos o por lo menos esos son nuestras predicciones y esperanza. Entonces eso es nuestra asalta. Entonces hemos abierto puntos de despacho por todo el país para mejorar el servicio. Por ejemplo, antes solo damos de San José. Después abrimos uno aquí, después otro en San José, después otro en Coyol, Heredia y ahora tenemos en Cartago también y en Panamá. Pues si se está experimentando con el crecimiento. Sea eso es la idea.

¿Entonces hay 27 empleados? ¿Eso es en esta empresa o en esta y en los que están colocados por Costa Rica?

Los 27 están por todos en Costa Rica. Si porque lo que tenemos díganos, no tenemos oficinas formales si no esta es como la oficina central y ese punto son donde están los choferes con su equipo y de allí salen para el torcimiento. Es para cuestión de aproximado. Entonces somos 27 aquí más 4 o 5 más en Panamá y buenos esperamos que eso se duplique tal vez antes que se termina el semestre.

¿Quien piensa que maneja el impulso en ser verde? ¿Las compañías pidiéndote que quieran algo verde o por como el público lo está pidiendo?

Eso es una combinación. Porque es como un trend porque haya necesidad que la gente cambia como todo el mundo está descubriendo. Sea eso mismo ha hecho que todo el mundo se ha puesto

de acuerdo para mejorar esas prácticas. Entonces sí, muchas empresas como ya como están certificadas y tienen que respaldar esta certificación piden que los equipo de uno entonces si se hace uno más limpio. O piden un montón de certificaciones a su proveedor. Entonces, si eso promueve. También es que hay conciencia últimamente uno vea. También como si la empresa hace 5 o 10 años nunca se preocuparon nunca de esto pero ya si, son problemas de todo. Entonces son varias cosas, son organizaciones internacionales, es el publico general, y son las empresas que son nuestras clientes también porque tienen sus las practicas grandes perdón los grandes. Entonces son las tres cosas que van promoviendo a eso. Además, la competitividad por supuesto, si esas prácticas aunque haya una inversión inicial fuerte sobre recortar costos hacia el futuro para dar un plazo uno va querer hacerlo también. Entonces por supuesto, todos son importantes.

¿Has asistido programas sobre el tema verde de la Cámara?

La Cámara, no nunca. Más bien me invitaron hace poco a uno que está haciendo una compañía privada, unos expositores y al final del mes voy a ir. Como es el último miércoles de este mes voy a ir formal, pero no, no es de la Cámara.

¿Y por qué no has asistido programas verdes de la Cámara?

Básicamente por falta de publicidad – porque la verdad, a mi me ha llegado nada. No estaba tan involucrada pero no pues ni me ha llegado un mailing, ni un brochure, ni o sean tal vez he dedicado a promover esos cursos. Y también puede ser las prioridades de una empresa que no siempre las ambientales es lo del primero entonces tal vez hay capacitaciones que les interesan primero antes para mejorar para algo de eficiencia y eso va de secundario. Entonces no estoy diciendo que eso se hace con los otros pero la falta en cómo han publicitado y otras prioridades hacen uno entonces que no lo toma de primero. Pero, si, de la Cámara no me ha llegado nada ambiental. Eso es un buen feedback para la Cámara, para qué ces ponen hacer la publicidad.

¿El precio en que la Cámara tiene sus programas es, buen adecuado?

Si, por ejemplo hace poco recibí un programa de computación y Excel, y el precio para lo que me enseñaron pensé que fue razonable. La realidad es que no son cosas exuberantes, diga no es un precio inalcanzable sea, sí es adecuado. No se los ambientales cuanto les cobraran pero en general no son tan costosos.

¿Cuánto dinero gastas de formación cada año?

¿De información general?

¿Un estimado?

\$3000 en general mas cursos. Yo diría entre 3000 y 5000 dólares. Es que si metemos la parte de becas, que les explique que si alguien quiere estudiar se le pago la carrera entera entonces sube mucho más la costa. Pero eso depende de los números de empleados que quieren estudiar. Entonces si como en un año podemos tener como tres personas educadas y un año puede ser que no hay nadie. Eso depende en la demanda, pero pues incluso, podría poner un programa de \$3000 o 5000 a los anuales fijos y si de allí, algo arriba si alguien quiere estudiar una carrera formal.

¿Cómo se distribuyen los trabajadores en las empresas? ¿Ingenieros o administrativos...?

Básicamente son dos grandes áreas. Sería el área administrativa y el área de operaciones, que son todos los choferes, y mecánicos y espectador de proyecto. Ahora, hay gente que están capacitados digamos de los dos lados. La persona administrativa que alguien factura dentro de personal administrativa entonces esta el jefe de fracciones, de mercadeo, de ventas, la gerencia general, gerencia financiero, el contador o el jefe de contabilidad, y después están el soporte técnica que se básicamente bueno, la persona que se encarga en otras cosas y esta también, pues abajo en las parte operativa estaría los espectador de proyecto, los jefes de manteamiento, de mecánica, y después los operadores. Más o menos así se distribuya la empresa.

Could you elaborate on your training programs?

We have 4 basic training programs.

We train people in several areas- it's not only one. We have people very educated on certain topics. How to give our service in and very secure way, for example. So we identify these people and they give the training themselves so it's kind of like a big conference where you have your drivers and they are all paying attention about this stuff on how not to have accidents or those kinds of things. And we have workshops on for team spirit and those are the trainings that are 4 times a year but the other trainings can be about many things for example marketing, computers, anything they need. We hire them from the outside but the ones we give, we give them ourselves because we believe that everyone has something that that they can teach and everyone is willing to learn. It's more about building the team spirit and learning at the same time. But it can be about many many things. For example, when we started certifying ourselves in diesel, we had these trainings about processes and how to execute them in our daily jobs. So you have many kinds of training with these 4 conferences.

And how many times are they?

4 times a year.

What we basically do is before the date comes, we identify which things need to be learned. And then we identify people who are going to teach and sometimes we bring people from the outside and that kind of thing. But I can say for most things, we train about processes, about quality standards, about how not to get injured and those kinds would be the... Any questions?

Just one. So you said that you do hire people from elsewhere? What are some of the?

Yeah, I was telling her that many of our clients ask for specific certifications and most of them are about handling and lifting of merchandise. So those clients are the ones who hired those companies CICFCA but we don't do direct hiring. But when the client ask us to train people, we send them to them. Actually, we are certifying like 5 or 6 of our drivers in the company of paper towels, which CICFSA us their supplier of these trainings and that's what we do. When a client needs this crane, we send our operator to them and they do the training.

Those big companies are always asking about special certifications. And when someone wants to study a career, we give them scholarships, so we give them a monthly sum so they can cover those expenses. They bring us the receipt and we pay. And you can study basically whatever you want of course, but we need to see if we can do it. We had our last accountant, she was studying, I think it was a CPA, like she was studying a formal career of accountancy, so we gave them that and whatever you need and it's open, they just have to come and ask.

Just to go over a couple of things, the obstacles this company faces in going green and the CICR, what the Cámara can do to promote companies to go green?

Sure, as I was telling you, the biggest, the hardest thing to make this company greener is the expenses that you have to cover to change the fleet from diesel for example to another kind of energy you know, gas or electricity. It's a big investment. So that's the hardest part for us. But the Cámara could structure programs, educational programs about these things because they are making you know to invest a lot of money and you know that's true, that's part of the education but the hardest part is buying equipment that is cleaner and more friendly with the environment.

And do you think that you lack employees that know about this equipment?

Yeah, we do lack because it's hard to find people that have that knowledge or at least they are working somewhere else. They don't know, they go to enterprises, they do research and that kind of stuff. Maybe the Cámara can help by doing some kind of program for these people so that

they can be placed for these normal enterprises. But, yeah of course- but maybe in the big companies you have lots of green employment but not in the medium and smaller companies, it's harder.

I was just wondering, you said that you studied in University A and in Barcelona. So we were wondering what you were studying?

In Costa Rica I studied law because we don't do pre-law here, you can just go right away after high school. And in Barcelona I got an MBA, Masters in Business Administration with a concentration in marketing.

Thank you very much!

Company C

1. Esta información se mantendrá en el anonimato. ¿Podemos grabar esta entrevista por favor?

2. ¿Cuánto tiempo tenemos para esta entrevista? Tenemos aproximadamente 25 preguntas.
Buen, no sé, como una hora.

3. ¿Podría decirnos su nombre y hablar de su posición dentro de la empresa y nivel de educación?

Soy gerente general, socio poblador y de gerente auto mecánico.

¿Y donde estudiaste?

En la universidad Fidelitas, en San José

4. ¿De qué parte del sector industrial es su empresa?

a. ¿En qué se especializa esta empresa en términos de productos o servicios?

Estamos en los- lo que nosotros hacemos es la fabricaciones de equipos y nos especializamos en dar servicios de empresas en manufactura a todo de Latinoamérica

5. ¿Cuántos empleados tiene esta empresa en Costa Rica?

Somos 15 personas

6. ¿Puede darnos su definición de verde?

De actuar de forma que no se impacta el medio ambiente

a. Defina empleos verdes.

Que no impacta el ambiente, sea que trabajan igual

b. Defina habilidades para empleos verdes.

¿Como de persona, de empresa?

De persona, trabajador.

Si mas que toma una conciencia ambiental porque al final lo que defina el empleo lo que sea verde o no son como los políticas de la empresa.

7. ¿Cómo se distribuyen los Cree que hay empleos verdes en esta empresa (por ejemplo, ingenieros, técnicos, posiciones administrativas)?

Definitivamente no. Como alguien dedicada no- no impacta el ambiente. No.

¿Cómo se distribuya los empleos en esta empresa?

a. Ingenieros. Tenemos 4 personas.

b. Gerentes Administración tenemos 1

c. Técnicos 9 son

d. Obreros

¿Qué habilidades técnicas y verdes requieren ustedes que sus trabajadores tengan? Por favor dé 2-3 para cada posición.

Okay, parte de la diseñamos, hay de electrónico técnica, computación, etc. Y en la parte de implementación, eh un técnico para la locación de partes, mantenimiento, para instalación.

8. ¿Qué ha hecho la empresa para entrenar a los trabajadores en prácticas verdes? ¿Tienes esta empresa programas de formación verdes?

Horita no, estamos en un receso. Estamos tratando de capacitar el personal. Todos están mirando un proceso para haciendo para mejorar- un proceso de mejoramiento donde vamos a probar una estrategia en la empresa y vamos a dividir las responsabilidades y precisamente que conocimientos técnicos, y que cursos deben llevar las personas para estar de ventas, de procedimientos, de vehículos, entonces estamos en un proceso con una empresa para hacer todo eso.

a. Describa a los programas de formación, verdes o no. ¿Son exitosos y efectivos?

¿Si no, que problemas o faltas tienen?

b. Describa a los programas de formación que se gustaría tener para sus trabajadores.

c. ¿Esta empresa realiza sus propios programas de formación?

9. Si no realizan sus propias programas de formación verde, ¿A quién subcontratar a?

a. ¿Tiene algunas relaciones con las universidades locales para la formación verde?

10. ¿Cuántos programas de formación verdes tienen por año? ¿Cuántos programas de formación tienen por año en total?

11. ¿Cuánto dinero gastan en programas de formación verdes por año? ¿Cuánto dinero gastan en programas de formación por año en total?

12. Díganos dos habilidades que les faltan sus trabajadores en las siguientes áreas:

a. Energía renovable

b. Eficiencia energética

c. Neutralidad de carbono

¿Habilidades que hagan falta?

Si

Todas.

13. ¿Son sus trabajadores una mayoría de trabajadores altamente calificados, oficiales, o trabajadores poco calificados, braceros? ¿Requieren que sus trabajadores tienen que niveles de educación?

¿Son bien calificados, pero para que exactamente? ¿Para el trabajo?

Si

¿Con concernió al medio ambiente?

Para el trabajo.

Sí, para el trabajo.

Es para poder averiguar si hay como una falta de entrenamiento o de enseñanza que la universidad no puede dar para que en vez- en como si están en el nivel de trabajo de ser empleo en la empresa y si no enseñan bastante, pare poder averiguar que hace la empresa para ayudarlos un poco más. Es por eso es la pregunta

Bueno, la universidad buenos, los colegios técnicos tienen un buen nivel y la empresa llega a complementar la experiencia para la industria. Entonces siento que la empresa, la experiencia complementa lo final de la universidad- como es algo más básico.

¿Y requieren que sus trabajadores tienen que nivel de educación?

Como en la parte de diseño, más que todo universitario. Porque hayan proyectos, investigan sobre productos, gestaciones, se atiendan con un cliente, tratan de analizar sus universidades. Y en la parte de los técnicos sepa el manejo de la finaría, estar bien formado que hacen proyectos, investigan sobre los técnicos, y que hay que hacer y cómo hacerlos.

¿Entonces ustedes buscan empleados en que son de la universidad y tienen la experiencia o solo los que tienen la experiencia de trabajar en fábricas pertenecidos a esta empresa?

Bueno tenemos de todos. Son los universitarios o no son. No es estrictamente la experiencia.

14. ¿Qué es su vincula con la Cámara?

Con la Cámara de Industrias- somos miembros y estamos en el proceso de capacitación de también de la mejora del proceso.

15. ¿Qué cree usted que el CICR puede hacer para ayudar a la empresa generar empleos verdes o preparar a los trabajadores para empleos verdes?

Yo diría como alguna capacitación en donde nos indican precisamente como manejar los desechos o ahorrar la energía, etc., algún programa para el ahorro energético y de todo. El conocimiento entonces otros y aprender cómo cuidar el ambiente. Más bien aprender cómo hacer eso.

¿Qué ha hecho en el pasado? ¿Fue exitoso?

Con la Cámara. Lo único que fue que yo escuchaba un seminario hace como 3 meses. Pero programas capacitaciones, no.

16. ¿Cómo encuentran empleados?

Mayor por recomendaciones o por los anuncios en el internet

- a. ¿Trabajan conjuntamente con las universidades o asisten a ferias de empleo?

Normalmente, no.

- b. ¿Esta empresa ofrece prácticas en empresa a los estudiantes?

Si. No tenemos como un programa definido, simplemente nos han consultado entonces hay oportunidad en los ayudarlos. Junto como a este empleado que hay oportunidad, y que tuvimos otros muchachos, y los ayudamos también- pero no tenemos un programa definido.

17. ¿Cree que hay alguna ventaja en la implementación de programas de formación para empleos verdes?

Si.

¿Estos programas le darían a esta empresa una ventaja competitiva?

Sí, porque los clientes tienen una responsabilidad social

18. ¿Cree que esta empresa va a generar empleos verdes en los próximos cinco años? Si es así, ¿qué tipos de puestos de trabajo serían?

19. ¿Hay demanda de sus clientes para ser una empresa verde?

¿Una demanda como tal?

¿Como si sus clientes quieren que ustedes sean verdes con certificaciones?

No.

20. ¿Tiene alguna recomendación acerca de cambios que pueden ser implementados dentro de esta empresa con respecto a los empleos verdes y programas de formación?

La necesidad de un procedimiento para el uso, primero de las materias y de hoción o manejo del ambiental.

21. ¿Qué ha hecho esta empresa para ser verde? ¿Hay algunas normas?

No tenemos ningunas normas pero lo que tenemos simplemente, es tenemos un estantes – lugares para reciclar, clasificamos y reciclamos a los materiales, calidades respondiente.

- a. ¿Ha establecido esta empresa alguna norma para la reducción de las emisiones de carbono?
- b. ¿Ha establecido esta empresa alguna norma para el reciclaje o la gestión de residuos?
- c. ¿Qué factores han motivado la implementación de iniciativas verdes en esta empresa?
- d. ¿Qué obstáculos han impedido esta empresa a ser verde?

Como se dice, pero no somos.

¿Pero si usted también quiere ser verde y algunas compañías dicen “oh para ahorrar dinero, ustedes quieren ser mas verdes?”

Ah sí claro.

¿Cuales obstáculos impiden que la empresa en ser verde? ¿El dinero, falta de empleos?

Básicamente, la disponibilidad del tiempo para de cómo, reunirnos y hacer el programa, que vamos hacer y tal.

22. ¿Qué mejoras ha hecho esta empresa para aumentar la eficiencia energética o el ahorro de energía?

Nada

¿Qué mejoras se pueden hacer en esta empresa para aumentar la eficiencia energética o el ahorro de energía en el futuro? ¿Piensas hacer algo en el futuro?

No.

Pero esto pregunta también, si emplee cosas en como apagar las luces, no tiene que ser un programa, pero si también avisas a los empleados para ahorrar. ¿Tienen uno?

No.

- a. ¿Por qué no y qué dificultades existen en la implementación de estrategias en esta área?

La disponibilidad del tiempo, los pocos que somos en esas funciones- no tenemos mucho tiempo para organizar el programa, y estamos un poco limitados ahí. Sea más que todos recursos. Y tener como un recurso para eso, eso significa más inversiones.

23. ¿Qué impropio ha hecho tú o estás haciendo para aumentar la eficiencia de energía o ahorros de energía? ¿Cuales mejores puede ser hecho en tu empresa en el futuro?

- a. ¿Cuales dificultades existen en la implementación de estrategias en esta área?

24. ¿Cómo incorpora esta empresa el uso de las energías renovables en sus procesos?

Como de práctica, no.

¿Cómo pueden incorporarlas en el futuro?

- a. ¿Qué dificultades limitan el uso o la producción de energía renovable en esta empresa? Por ejemplo, la educación, el costo, el conocimiento, los recursos.

25. ¿Cuál es su definición la sostenibilidad?

Lo que yo entiendo de la sostenibilidad una persona en la sostenibilidad simplemente porque tiene los ingresos encima de los gasto, pero los que sean sostenibles precisamente que puede implementar todas las practicas que como son extras de ser productivo y que sigan haciendo el target.

¿Qué puede ser hecho para contribuir a la sostenibilidad en esta empresa?

Técnicamente, hacer un programa de ahorro, al tantee, no sé. Y también programas de ciencia no sé.

¿Que ha prevenido en hacer esto en la empresa?

Bueno, ha faltado recursos, digamos estamos en un programa para precisamente ver donde nosotros tenemos que mejorar para ser más eficientes para la ventabilidad, el proceso, el manejo de la energía. No los hemos hecho pero estamos en el proceso de hacerlos.

Y esos son todas mis preguntas. ¿Alguien tiene más preguntas?

¿El programa que estás hablando de, es interno de esta empresa o es de la ayuda de otra empresa o universidad?

Dentro de la Cámara de Industrias estamos haciendo un programa pero como ellos no están capacitando para ver todos los aspectos de sostenibilidad entonces incluso ellos los hicieron, yo no lo sé, como precisamente con todos los aspectos de que necesita una empresa como se ponen a ver los logísticas, el ambiente, los manejos verdes, entonces en cuales áreas estamos bien, en donde seguimos bien, y donde tenemos que mejorar y todas estas cosas. Entonces al final del programa de la locación, tenemos que definir en cuales áreas vamos a trabajar para hacer nuestras prioridades con estas cosas con la Cámara de Industrias. Y aquí al nivel interno, estamos tomando razonamiento para las desechas que estamos tomando junta con una empresa de consultadores para llevar a cabo todo lo del ambiente.

¿A los fines de mes, cual empleado es responsable en pagar los viles?

Este empleado aquí. El está encargado de las cosas administrativas, de planillas, pagos a los trabajadores, facturación, ventas de cobrar, compras, manejo de órdenes de compras a la empresa, y todas esas cosas.

¿Quiere saber si ustedes quieren ser mas envueltos en las cosas de la Cámara o como pueden hacerlo?

Si, tenemos un interés en aprovechar los recursos que la Cámara tiene y eventualmente revisamos cada mes, cada dos meses ellos nos presentas un temario de recursos de hacer de proyecto como de personal, ventas, lo que sea del ambiente, etc. Entonces constantemente estamos recibiendo noticias de eso, escribimos, pagamos los cursos, asistimos, entonces la idea es aprovechar exactamente todos esos beneficios de la Cámara que son cursos muy accesible entonces a seguir con los conocimientos a de lo eso como con los programas escolar en este momento con ellos. Y seguimos aprovechar con todo que tiene la Cámara.

¿Y cómo ha movido en este programa? ¿Ustedes pidieron a ellos o ellos tés ofrecieron este programa?

El programa nació de una necesidad de cuestiones médicas de una necesidad de ellos que cambiaron a la cámara y las propongán. Entonces ya por lo menos tenemos nosotros certificado como empleador de este tipo de empresas, entonces nos invitaron a participar en el programa.

¿Hace cuanto esta puesta esta empresa?

Desde del 2006

¿Reciclas en esta empresa?

Si, tenemos compartimientos para plástico, cartón, aluminio, acero, entonces casi todos los tiempos cuando están llenos los compartimientos, los llevamos a las empresas de productores.

Y con este programa que este envuelto en la cámara-es de que tema seria ese programa ¿es sobre parte del medio ambiente en específico o todo?

Todo. Es el manejo de recursos humanos, procedimientos internos de la empresa, manejo también del medio ambiente...

¿Ustedes solo tienen la empresa aquí o tienen más empresas por otros lados?

Solo acá.

¿Y tus empleados tienen educación sobre el medio ambiente o temas verdes o una noción de estos temas?

Poco.

En cual, tú dices que tu buscabas tus empleados en el internet, tu vas a como a ¿craigslist o facebook o una sitia?

Normalmente los publicamos ahí en trabajo.com. Publicamos allí el anuncio que vamos a recibir. Estamos encontrando que las empresas no están tan desarrolladas en ser verdes.

Si de hecho, uno tiene la conciencia de que se sientan responsable en lo que hace pero no tenemos como un programa. Igual nos faltan programas internos para un montón de cosas.

Entonces parte de ese mejoramiento es que necesitamos es implementar un programa para que, para cada uno que nos complete. Entonces no los consideramos irresponsables, porque si tenemos la conciencia de que no debemos contaminar, que debemos reciclar, de no comprar materias que van a servir por un poco lapso tiempo. Es como una conciencia general pero no hay nada establecido, como un procedimiento definida que cada quien es responsable por cada cosa que hace.

Company D

1. Esta información se mantendrá en el anonimato. ¿Podemos grabar esta entrevista por favor?

Si

2. ¿Cuánto tiempo tenemos para esta entrevista? Tenemos aproximadamente 25 preguntas. Aproximadamente 40 minutos.

3. ¿Podría decirnos su nombre y hablar de su posición dentro de la empresa y nivel de educación?

Yo soy gerente general de la compañía y soy máster en administración de empresas.

¿Donde estudiaste?

La maestría en el Instituto Centroamericano de Administración de Empresas que se llama INCA, un business school que está aquí en Costa Rica.

4. ¿De qué parte del sector industrial es su empresa?

- a. ¿En qué se especializa esta empresa en términos de productos o servicios?

Somos en plásticos- se llaman filmmakers, en como se dice en ingles, eh, bolsas plásticas para transportar cosas o para industria alimentaria. Este es otro ejemplo bolso para contacto directo con los alimentos, esos son los fuerte, transporte o protección en paqueé de alimentos.

- b. ¿Cuántos años ha sido establecida su empresa?

5. ¿Cuántos empleados tiene esta empresa en Costa Rica?

46.

¿Y están todos aquí?

Si, están todos en un solo facilito.

6. ¿Puede darnos su definición de verde?

Eh, vamos a ver- verde que sea eficiente en el uso de los recursos para producir lo que uno que llevar al mercado. Y lo ideal de verde o el verde ideal es cuando se mide el ciclo completo de la industria del producto. Digo eso porque, por ejemplo, los psicologías dicen use vidrio, usa papel, y cuando uno ve que la industria es de papel y la industria es vidrio, son más contaminantes que requieren más energía por unidad producida y con efectos secundarios mas fuertes por unidad producida que para una bolsa plástica.

Entonces que sería verde es algo que visto del ciclo completo del producto es lo menos contaminante posible para tener porque todo contamina.

Sea, todo el acción que toma el hombre, toda la modificación que hace el hombre genera un impacto ambiental. Entonces mi definición verde esa actividad que impacta que tiene el menor impacto ambiental posible.

a. Defina empleos verdes.

Es que mi definición porque hay gente que dicen que es que- por ejemplo, tenemos que crear empleos verdes, energía limpia, eso tipo de cosas y es la misma idea. Empleos verdes son los que el que consuma la menor cantidad de recursos posible y menor impacto ambiental posible a la hora a llevarse cabo a la actividad. Por ejemplo, nosotros aquí reciclamos, usamos tinta que es un contaminante, usamos solvente que es muy peligrosa y otro contaminante, usamos la resina que por el plástico es un potencial contaminante y todo lo reciclamos dentro de la compañía. Entonces, para mí eso es un empleo verde. Mi tinta usada no se bota, puede ser reutilizada o reciclada pero nosotros mismos, mis sobrantes de tintas los reciclamos y los convertimos en negros, azules, o verdes. O los solventes que ya están contaminados porque fueron usados por la tinta se filtran y van de vuelta al sistema. Entonces lo que sale fuera de la compañía son los sólidos que esos ya es algo inevitable el que tiene que salir. Entonces para mí, un empleo verde es algo orientado en eso- en que hago para lo que estoy generando como su producto de actividad, cada puesto piense en como reutilizarlo o rediseñar el puesto para que minimiza el consumo de energía o el consumo de para disminuir el proceso.

b. Defina habilidades para empleos verdes.

Mental- open mind. Eso es lo que se requiere. Es tener presente el impacto y que la persona está dispuesta a cambiar usar las prácticas culturales. Por ejemplo, ¿las bolsas plásticas contaminan porque? Porque la gente los botan a la calle- los tiran. No porque sea el destino. Un empleo verde es alguien que tiene esa mentalidad de no gastar, de no botar, rediseñar. Y todo eso requiere la inteligencia, y se requiere actitud. Entonces por allí, eso es lo que se requiere para unos empleos verdes. Es gana para hacer las cosas diferentes.

Otro ejemplo, en mi casa somos 4. Suponemos que mis hijos debería estar más consciente del planeta, de lo que estamos nosotros los padres y siempre que abro la basura, peleo con alguien para decir porque hay esta un tetrabrik en la basura, el paquete de la leche. Y haya una bolsa para reciclaje en mi casa, donde tenemos papel, cartón, tetrabrik, plástico, vidrio, latón, lata, y ando detrás de mis hijos de que tienen 16 y 20 años, que nacieron en una era que supuestamente estamos con una conciencia de no contaminar. Entonces lo que se requiere estrictamente gana en hacerlo en cambio de un instituto. Claro que en vez de tirar todo a un solo lugar ir a clasificar a las cosas. Es un ejemplo en que es difícil es tener esa conciencia.

7. ¿Cómo se distribuyen los empleos verdes en esta empresa (por ejemplo, ingenieros, técnicos, posiciones administrativas)?

¿Tienes en esta empresa empleos verdes?

Definidos como tales no. Si tenemos un programa ambiental. Entonces hemos ido trabajando en reducir, rediseñar y reciclar las cuatro áreas. Pero como que formalmente, temas verdes no- eso sería la opinión de alguien tercero que les califican.

¿Cómo se distribuya...?

a. Ingenieros

b. Gerentes 2. Uno de los gerentes es ingeniero

c. Técnicos / jefes 4. También 4 administrativos que no deciden pero son autónomos. Los restos son operativos.

d. Obreros

¿Qué habilidades técnicas y verdes requieren ustedes que sus trabajadores tengan? Por favor dé 2-3 para cada posición.

Es que dependiendo en la etapa del proceso, hay 4 etapas hay dos donde que se requiere que la persona tengo a lo menos la primaria completa, de ahí viene las habilidades que son la capacidad de leer, sumir, multiplicar, lo básico. Y hay 2 etapas donde lo deseable es que la persona tiene high school completa porque la formación se da aquí en la planta. Pero entre mas nivel de educación tiene una persona, lo más fácil es para las dos secciones que tienen equipo complicado.

8. ¿Qué ha hecho la empresa para entrenar a los trabajadores en prácticas verdes?

¿Tienes programas de formación verdes en esta empresa?

No- más allá del programa, lo que se hizo para el programa nación ambiental como no, nada más se hizo el programa y se le da mantenimiento.

a. Describa a los programas de formación verdes. ¿Son exitosos y efectivos?

1. ¿Si no, que problemas o faltas tienen?

b. Describa a los programas de formación verdes que se gustaría tener para sus trabajadores.

c. ¿Esta empresa realiza sus propios programas de formación verdes?

1. Si no realizan sus propias programas de formación verde, ¿A quién subcontratar a?

d. ¿Tiene algunas relaciones con las universidades locales para la formación verde?

9. ¿Si no tiene programas de formación verdes, que ha hecho esta empresa para entrenar sus empleados? ¿Tiene esta empresa otros programas de formación?

a. Describa a los programas de formación, ¿Son exitosos y efectivos?

1. ¿Si no, que problemas o faltas tienen?

¿Cuántos programas de formación tiene en total por año?

El programa es uno, que es de todo que es la gestión de los desechos de la compañía y eso se le da una recomendación semestral al cumplimiento. Es un solo programa que redición semestral como de teoría.

¿Entonces eso es solamente toda los programas de formación que tienen?
Si, en el ambiente.

¿Puedes hablar sobre los otros programas de formación?

Es que los otros son los de formación para que aprenda manjar el equipo como las- digamos como de las operaciones de equipo y el otro programa que tenemos es el de calidad, que se llama la gestión integral de la calidad. Entonces para que las personas aprendan a seguir los procedimientos y sepan cuando un producto es como le llama es producto conforme o producto no conforme, lo aprendan a distinguir que hay que hacer para que el producto siempre queda con forme.

b. Describa a los programas de formación que se gustaría tener para sus trabajadores.

Temas como que tiene que ver con la personalidad, sea muy personales del trabajador. Por ejemplo, temas de tener en conciencia de lo que es red block. Cuando te digo conciencia es de trabajo duro, digamos que tiene que haber con los valores de una persona. Que de trabajar, ser honestos, no mentir, ser solidarios eso sería un área donde se debe trabajar. La otra área de la tema es del la conciencia de ser eficiente entonces también tiene que ver con el medio ambiente, en tener que hacer con los recursos viejos, ser eficientes en eso. Y después estén temas que tiene que ver con los por supuestos personales porque la mayoría de las personas viven fuera de sus presupuestos. Que es desprender mucha tensión y mucha distracción que impide que las personas ces concentran en otros temas, eso es que me gustaría tener por supuesto.

No entendí bien, ¿el presupuesto?

El budget.

c. ¿Esta empresa realiza sus propios programas de formación?

Si- son in house.

1. Si no realizan sus propias programas de formación, ¿A quién subcontratar a?

d. ¿Tiene algunas relaciones con las universidades locales para la formación?

No- solo con institutos nacional de aprendizaje- INA.

Que es su conexión con INA?

Eh, mandamos personales a los cursos de ellos y se le pidamos como de escuela. Ellos mandan aquí a los estudiantes a conocer el proceso y mandan muchachos para hacer práctica para que se puedan graduar.

10. ¿Cuántos programas de formación verdes tienen por año? ¿Cuántos programas de formación tienen por año en total?

11. Díganos dos habilidades que les faltan sus trabajadores en las siguientes áreas:

- a. Energía renovable
- b. Eficiencia energética
- c. Neutralidad de carbono

Es que seria de la tema de la conciencia que eso para mí es lo fundamental. Claro, el concepto si de no desperdicie, no bote, entonces la habilidad que falta es esa – la

voluntad, no sé si es un asunto de inteligencia, eso ya lo tendría que medir un psiquiatra- lo que se hace falta en general. Como empezando aquí en las empresas en general a la población lo que hace falta es la gana y conciencia en cambiar la forma en que van haciendo las cosas. Por ejemplo, yo salgo de aquí, apago las luces, el aire acondicionado y la computadora. Si regreso, vuelvo a aprender todo. Es que hay gente que se van y quedan las luces encendidas, el aire acondicionado, y la computadora – no importa si regresan en un minuto o al próximo día a la oficina. Eso es la habilidad que se falta para como alquilar la conciencia de que hay que cambiar la forma en que estamos acostumbradas a vivir.

¿Y crees que es una falta de educación o voluntad?

Educación porque eso hay que empezar desde pequeño. Y después ya es un tema de voluntad, otros por ejemplo son mis hijos. Antes de tener la educación, Mis hijos tienen la voluntad pero no tienen tanto como quisiera. Pero si es un tema de educación. Comparado como por ejemplo, comparado con otros países, Costa Rica es bastante limpia. El tema empezó aquí en el 77, en el 80 empezaron las campanas del gobierno de que no botáramos la basura a la calle. Que buscáramos un basurero, pero tiene que haber primero basurero. Entonces el gobierno tiene que hacer la campana, poner los basureros y la población, rapiditamente aprendió a botar la basura en el lugar correcto, o la mayoría de la población. Entonces si es un tema de educación y de insistir hasta que la persona lo hace ya automáticamente.

12. ¿Son sus trabajadores una mayoría de trabajadores altamente calificados, oficiales, o trabajadores poco calificados, braceros? ¿Requieren que sus trabajadores tienen que niveles de educación?

Si lo vemos por escolaridad – no. Si lo vemos por la complejidad y los valores de los equipos que manejan, si. Y los años que tienen en manejar los equipos. Porque aquí que el equipo más barato esta cuesta \$60,000. Y esa persona probablemente no tiene sexto grado de escuela y el equipo más grande cueste \$3 millones y es una persona que tiene es como decimo, y un año de colegio. La diferencia está en que ellos pueden tener, que lo menos tiene puede tener 10 años de experiencia en esta compañía y años mas en otras compañías entonces es de ahí que hacemos la formación in house. La mayoría esta, si

quieren un promedio, que la mayoría están operando equipos de \$100 miles o \$50 mil cada equipo. Entonces ese equipo no se la da a alguien que no está calificado.

¿Entonces no tienen mucha educación?

Es por la realidad, no.

¿Pero tienen mucha experiencia en estos procesos?

Sí.

13. ¿Que es su vincula con la Cámara?

Como somos una empresa social, yo soy el segundo vice-presidente de la cámara. Tengo 12 años en estar en la junta-directiva y 2 o 3 años en hacer el segundo vice-presidente. Yo soy el segundo vice-presidente. Somos 4 vice-presidentes como son muchas las actividades para que la cámara esta o invitada o representaciones de gobierno. Entonces una persona se vuelve literalmente loca. Aunque se quiere dedicar 100% a la Cámara, ces vuelven loca, entonces nos repartimos por temas. Por ejemplo mi tema es micro pequeña y mediana empresa. Entonces todo que tiene que ver con micro pequeña y medio empresa, es un tema que soy yo el representante de la Cámara en esos temas.

14. ¿Qué cree usted que el CICR puede hacer para ayudar a la empresa generar empleos verdes o preparar a los trabajadores para empleos verdes? ¿Qué ha hecho en el pasado? ¿Fue exitoso?

Hace años se hizo el CNP+L que fue un bien comienzo de ese iniciativa, y no estoy clara pero el centro se separo de la cámara. De todo que tiene que haber con de consumo que necesitaban las empresas y se han sido diagnósticos iba en reducir el gasto de papel hasta que se fuera el gasto de cambiar los motores y se le daba a la empresa los ahorros que podían tener. Porque tal vez es un punto que he dejado olvidado. La gente se vuelven más ecológicos en el tanto que eso genera un impacto económico, sea porque le beneficio, es un ahorro o porque se le multa con castigo. Entonces la mejor guía es la guía de los premios de ahorros la cámara debería eh, trabajar, no digo que no esté trabajando, pero debe trabajar más en esa área y en convencer al gobierno de que genera un tipo de ayuda o de subsidio a los que quieren hacer cambios porque lo que sucede es hoy por hoy es que, uno identifica el ahorro pero poco a veces uno tiene el dinero para hacer la inversión en que va generar ese ahorro. Y poco a unos porque los bancos o el gobierno no están tan abiertos en ayudar en ese aspecto.

15. ¿Cómo encuentran empleados?

Un anuncio en el periódico, tan sencillo en como es.

a. ¿Trabajan conjuntamente con las universidades o asisten a ferias de empleo?

No.

b. ¿Esta empresa ofrece prácticas en empresa a los estudiantes?

Si, y bueno en el INA hace como 10 años empezamos a que se crea un centro de formación de plástico justamente para que las personas pudieran aprender teoría en un lugar académico y la práctica que las vinieron hacer siempre a las plantas. Esto ha ido poco por poco evolucionando en que la INA tiene teoría y ya tiene maquinaria para que los estudiantes practiquen allí pero siempre se requiere de que los estudiantes venga hacer visitas de campo a las empresas o practicas dirigidas en las empresas y la otra modalidad es cuando como son cursos de tres años los más especializados cuando ellos ya están en su último semestre, del año, trabajan aquí seis meses haciendo ya practicas vivos que ya ese semestre su graduación final porque aquí se les pone como una guía de parte de los profesores, se les ponen hacer de todo para que ya validen que ya si saben hacer lo que estudiaron. Entonces los mismos profesores también viene aprender de los que saben y tenemos casos de operarios que ces han hecho profesores pero la mayoría son personas que los que tienen la teoría pero no tienen la práctica que ces han ido a formar en Colombia, España, estados Unidos, teóricamente y vienen aquí a ver a los viejos trabajando y aprender todos los secretos justamente por tener 25 o 30 años de estar haciendo algo que se aprendió a la brava.

16. ¿Cree que hay alguna ventaja en la implementación de programas de formación para empleos verdes?

Sí porque en el tanto que se educa la gente, eso va generar presencia y va generar el cambio de actitud.

¿Estos programas le darían a esta empresa una ventaja competitiva?

No necesariamente. Pocas países, y vuelvo a lo que te dije anteriormente, el consumidor es tan ecológico como el precio lo permita, entonces los consumidores quieren productos ecológicos por lo que cuestan igual o menos cuánto cuestan los productos chinos. Nada contractivo, no tengo un perjuicio contra los productos de los chinos

entonces lo que va dar es una satisfacción personal como de empresa, en decir que sí, yo estoy contribuyendo al ambiente. Y probablemente en países, tal vez ahora con la crisis no tanto pero probablemente en países como Europa, Canadá, ciertos sectores de los Estados Unidos marca la diferencia que cada persona dice que quiere esto o quiero esto. Pero no va dar una ventaja una competitiva como tal, de que si es más caro, la gente no les van a pagar. Tiene que costar lo mismo y ser verde para que la gente quiera comprarlo o tiene que haber algún tipo de impulso por parte en autoridad en decir esto es cierto, or esto no es. O esto tiene un tax free o esto no paga tax para que las personas ces inclinan hacia lo verde.

Y la otra que hay que distinguir es entre green y green washing. Por eso es que la discusión siempre, cada vez que me pongo con un ecologista o cuando alguien me ataca al plástico, yo me los llevo al tema del ciclo de vida del producto. Porque si uno solo ve los pedacitos es muy fácil equivocarse, en este tema verde uno necesita ver todo. Digamos, el papel consumo de contaminación que genera cuando se está moliendo, molida una de madera aunque la madera venga de un bosque cultivado, pero sea el papel es altamente de energía y es demasiado gasto mucho por eso hay que, yo siempre veo la discusión de distinguir entre greenwash con el verdadero green y cuando haya verdadero green es cuando hay el the whole cycle.

17. ¿Cree que esta empresa va a generar empleos verdes en los próximos cinco años? Si es así, ¿Qué tipos de puestos de trabajo serían?

Tenemos que definir verde primero, pero mi respuesta seria si, eventualmente incluir hasta por regulación del país yo la necesidad así digamos en Costa Rica estamos bastante consciente del tema de salud y seguridad ocupacional de hablar del tema que ya existe por ley, que todos tenemos que respetar esos temas. Yo veo muy probable que eventualmente haya un inspector de ambiente de cada compañía, alguien a cargo de esos temas dentro la compañía mas allá que sea de voluntad de la empresa, sea que para cumplir con las leyes que existen en el mercado. Sobre todo con esta tema, con la ley de cuestión integral de los residíos es a demostrar quien no está manejando correctamente los desechos que genera una empresa.

Para entender bien, ¿hay leyes sobre este tema pero no hay una persona dentro de la compañía?

Eh, ahora esos temas los maneja el gerente de la planta. Lo que pienso es que en general, que en unos 5 años muy probablemente en plantas pequeñas, no somos pequeños o medianas, esa es la categoría nuestra, plantas medianas vayan a tener ya una persona dedicada a esos temas. No como parte de parte de la función del gerente de planta, si no ya como un puesto específico, si lo veo en unos 5 años.

18. ¿Hay demanda de sus clientes para ser una empresa verde?

Si. Eh, PIPASA es el primer ejemplo. ¿Cómo se pronuncia en inglés? CARGILL, ellos son una multinacional americana que compraron un bypass y lo primero que me dicen es “queremos tintos a base de agua, no queremos a base de ventee.” O sea, si no fuera habido por ese cambio de ellos, esa petición no llega. Porque cada vez, las empresas, en que más grandes sean, más consientes están del impacto que ellos pueden estar generando en el planeta o en la salud de las personas. Entonces por la globalización si viene esa tendencia. Cargill son la empresa privado más grande del mundo, de las 5 más grande del mundo de corporaciones privadas.

19. ¿Tiene alguna recomendación acerca de cambios que pueden ser implementados dentro de esta empresa con respecto a los empleos verdes y programas de formación?

Wow, con respecto a la empresa. No- lo que me gustaría implementar son más horas de capacitación que sea sobre lo mismo o temas nuevas. Digamos, la frustración es poder dedicar más horas porque cada vez que dedicamos es una hora de producción que no se hace. Entonces es que la gente no necesariamente se queda o quiere quedarse afuera de su horario para llevar esa capacitación, o contratar gente que venga mas formada o puede dedicar más horas al personal actual.

20. ¿Qué ha hecho esta empresa para ser verde? ¿Hay algunas normas?

a. ¿Ha establecido esta empresa alguna norma para la reducción de las emisiones de carbono?

No tenemos normas todavía, pero estuvimos pensando en eso.

b. ¿Ha establecido esta empresa alguna norma para el reciclaje o la gestión de residuos? ¿Si no hay normas establecidas, cómo elimina esta empresa los residuos y materiales reciclables?

Nosotros fuimos pioneros en ese diseño en ese ejemplo. El filosofía ha sido que si ustedes lo que necesita es eso, no tengo porque venderles esto (la bolsa más

grueso). Desde que la compañía se fundó y eso nos permitió poder abrirnos espacio entre las grandes entre los competidores. ¿Por qué? Porque los competidores, ellos es mil veces más fácil hacer para hacer esta misma bolsa mas ventadle, mas rápido hacer la normal que hacer los más finitos. Pero como nosotros teníamos que abrir mercado nos empezamos por la parte difícil que es decir, es en enseñar la gente si usted ocupa esto, eso es lo que tiene que usar porque el costo unitario al cliente es muchísimo menor que aquí que aquí (la pequeña). Entonces de ese momento, nosotros para generar menos impacto por el rediseño de las bolsas, el tonelaje de plástico que no se usa sumen gracias a ese rediseño, entonces estamos evitando que salga materia prima innecesariamente a la calle. A cabo de hacerle un cliente una reducción de 50%, pues esa compañía antes se ocupaba 7,000 kilos para sus necesidades mensuales y gracias a nosotros, con 3,500 kilo cubre a su necesidad mensuales. Entonces de punto de vista de impacto, eso es, se echa uno para atrás, menos petróleo, o menos ganas total, menos transporte, menos materia prima y potencialmente menos basura que queda en la calle. Entonces nosotros hemos ido ser en rediseño y en reutilice.

c. ¿Qué factores han motivado la implementación de iniciativas verdes en esta empresa?

Reducción de costos. Esa es la incentiva.

d. ¿Qué obstáculos han impedido esta empresa a ser verde?

Falta de dinero para invertir en más equipos, por ejemplo ahora yo quisiera modernizar mis equipos para que consuma menos energía y que produzcan lo igual o más con un menor costo energético. O como para cambiar las luces, pero por ejemplo para cambiar todas las luces a LED es una inversión de casi \$40,000 que en este momento no se tiene. Normalmente la limitación ha sido falta de dinero aunque que los ahorros pagarían ese inversión, no tenemos los recursos o el acceso de los recursos para ese tipo de inversión.

21. ¿Qué mejoras ha hecho esta empresa para aumentar la eficiencia energética o el ahorro de energía?

La última vez que lo hicimos fue entre el 2000 y 2005 que cambiamos los equipos, les metimos varias de frecuencias y cambiamos todo que fue electromecánico a computadoras y entonces hemos logrado mantener el consumo en kilowatts que ahora es muy bajo. Nosotros hoy por ejemplo, si hubiéramos manteníamos el equipo que teníamos, estaríamos pagando 10, 12 millones por energía. Hoy por hoy, estamos pagando 7 a 9 millones gracias a esos cambios. Hay ahora una nueva generación de equipos que nos harían ahorrar más pero no tengo el dinero. Pero los cambios fuertes han sido cambios de motores y lo que se llama meter variador de la frecuencia que eso hace que los equipos consuman menos energía.

¿Qué mejoras se pueden hacer en esta empresa para aumentar la eficiencia energética o el ahorro de energía en el futuro? ¿O bajar los costos?

a. ¿Qué dificultades existen en la implementación de estrategias en esta área?

b. ¿Qué empleado o posición en su empresa es responsable de pagar las facturas de energía? ¿Está empleado utilizando cualquier estrategia para bajar los costos de energía? Mi madre, sea las conocemos todos, la gente de la planta, yo. Y las estrategias utilizadas fueron en el pasado eran cambios de energía para reducir el consumo y también nos cambiamos de tarifa. Una tarifa que premia el consumo en horas, en que no son las horas picas. Aquí se llama tarifa de media atención entonces eso ha permitido que uno redistribuya los horarios de trabajo ahora donde de medida es barata porque al empresa productor de energía en cuenta no tiene demanda o la demanda es muy poca, entonces eso ha sido la estrategia.

22. ¿Qué ha hecho esta empresa para aumentar la eficiencia de energía o ahorros de energía? ¿Cuales mejores puede ser hecho en tu empresa en el futuro?

a. ¿Cuales dificultades existen en la implementación de estrategias en esta área?

23. ¿Cómo incorpora esta empresa el uso de las energías renovables en sus procesos? ¿Cómo pueden incorporarlas en el futuro?

De ideas renovables, no tenemos nada que sea de cómo de hidroeléctrica es supuestamente que es un 60% hídrica pero de aquí a aquí inversiones como de tener algo generado energía propia como base solar, base viento, no tenemos nada de eso.

a. ¿Qué dificultades limitan el uso o la producción de energía renovable en esta empresa? Por ejemplo, la educación, el costo, el conocimiento, los recursos.

Tal vez, escala. Escala es un tema de tamaño que digamos, que el pueblo no sé si sería ventaja poner un colector solar para lo que sea alumbrado o para calentar agua, pero para aquí nosotros necesitamos enfriar agua, entonces no tenemos necesidades de calentar, pues que es un tema de escala. No tenemos un tamaño que justifique hacer inversiones en un molino de viento que podría a ser necesario en otros lugares para poder generar su propia energía. Aquí no tenemos un consumo que justifique ese tipo de inversión.

24. ¿Cuál es su definición la sostenibilidad?

Es que tiene que, vamos a ver, como una práctica de sostenibilidad es uno que compara con otras formas de hacer lo mismo en el largo plazo- esta práctica la que uno llamaría sostenibilidad es la que garantiza la mayor plazo, mas años de poder llevarla a cabo. Sería algo por allí. Mi definición de sostenibilidad es si yo quiere que algo sea sostenible, es algo que yo lo puedo hacer por tanto tiempo gracias a que soy muy eficiente en el uso de los recursos que empleamos para hacer esa actividad.

¿Qué puede ser hecho para contribuir a la sostenibilidad en esta empresa?

Hay cambios que se pueden hacer por ejemplo el montacargas a pasarlas a gas natural en vez de gasolina, las luces pasarlas a LED, ahora de los fluorescentes están compitiendo con fosforescente de larga vida entonces cambios en las luces, cambios en combustibles en montacargas, y se puede hacer también el reacomodo de los procesos a minimizar los movimientos el tema de cambio de los equipos a equipos más eficientes con mayor output con el menor consumo de energía que rápidamente que se puede implementar y generar ahorros en energía y sostenibilidad.

¿Creas que esta empresa necesita empleos verdes? ¿Y si hay una falta de formación en estas temas de la escuela en que aprenden en el trabajo?

No sé si en las escuelas se hacen falta formación, pero si lo creo que tienen. No sé si hay pero sí creo que se falta trabajar más en la formación de niños y adultos en el tema de conciencia y del cambio de la actitud. Y que si pienso que las empresas necesitan empleos verdes porque en el tanto, si las personas ces acostumbran a siempre estar cuestionándose, sea alguien que aprenda que viene se ser buen informado en rediseñar, reutilizar, reducir, reciclar, o sea es alguien que va ser bien recibido en cualquier organización porque esa persona va ser capaz de ver oportunidades

donde otros personas que no tienen esa conciencia no la ven. Solo porque esa persona tuvo la formación en esas áreas.

¿Y qué piensa que esta previniendo tener estas personas en las empresas?

La educación- la educación es muy lineal. Todos siguen dando, las mayorías de las escuelas públicas de este país, todo lo dan lineal y lineal, no hay un momento que las personas capaz de venir un conocimiento de geografía con un tema ambiental o un tema económico o de matemática eh, la formación va en como en líneas paralelas- sea, la persona sabe mucho pero no saben cómo unir ese información y que les den un cuadro total. En ciertas escuelas privadas, con la educación privada de las escuelas, los colegios, no hablo de las universidades, si hay otros enfoques que si les permiten a las personas poder unir esa material. De un solo hecho, así es la vida. Uno no está acostumbrado a ver pedacitos de la información como todo está pasando al mismo tiempo, entonces los que logran armar o ver todo, son los que logran a ver más allá mientras la mayoría están bien. Entonces hay que cambiar la forma en que educamos la gente.

Usted dijiste que la empresa está desde 1977, y son 46 empleados en esta empresa. ¿Usted no ha querido expandir la empresa?

No, nosotros siempre hemos crecido por referencias. No ha sido nuestro interés hacer una expansión fuera de Costa Rica. Exportamos a Panamá y Puerto Rica pero no ha sido nuestro interés en ser más grandes o abrir en otros países porque estamos bien con el trabajo que tenemos. Ya es un tema en la calidad de vida de que uno tiende a cometer el error y perdone que lo digo así, el error, por ejemplo cuando yo fui a la universidad fue en la maestría, todo el tema era en el mayor papel agregado que había que hacer productos y enfocarse en industrias y servicios en mayor valor agregado. Pero cuando uno ve la realidad que es el mismo juego con mayor dinero involucrado y no necesariamente, hay mas avance porque hay más dinero involucrado pero pierden calidad de vida por el tema de complejidad. Entonces yo le llamo eso una trampa y es por eso que lo digo perdón de que mi punto de vista, es un error. Eh, pero yo le llamo la trampa al valor agregado que las personas creen que porque alguien que solo hace esto quiere poder producir bolsas en la empresa. Diga que alguien que hace bolsas en impresión quiere ser bolsas impresas. Aquí nada mas era 15%, aquí en maquinas es 10%, solo como que esto es más caro, hay más dinero pero hay menos imagen. Aquí hubo que meter de cómo \$8000 en maquina, contratar gente entonces lo que terminas haciendo es el mismo juego solamente que es más complejo y las personas desde mi perspectiva pierden calidad de vida. Entonces de allí,

nosotros no hemos querer crecer la compañía mas allá donde ya está porque tiene que ser un negocio más manejado y que no quita tanto esa calidad de vida.

¿Hay como research y development para sus procesos o algo para reducir el uso de energía o hacer los procesos más eficientes?

Si, si. Aquí en el país no creo. No estoy enterado pero aquí lo que hacemos es asistir a las ferias que todos los años hay una feria ya sea porque se da en México, Brasil, Estados Unidos, o Europa. Cada año hay la oportunidad ir a la feria y ahí se ve novedades en los equipos, justamente cada vez con mayor output con menor consumo de energía y a veces con menor necesidad de mano de obra. Entonces ahí si hay la industria y el equipo si están muy en guardia en equipos cada vez más eficientes y también el proceso que cada vez utilizan sea menos intensivo en materia prima.

¿Pero no hay aquí dentro de la empresa?

No, aquí dentro de la empresa no hay.

¿Quería preguntar si usted tenía unas recomendaciones que la CICR, la Cámara de Industrias podría hacer para promover empleos verdes en empresas?

Ah, sí, es que sería el tema de dar cursos, capacitación podría ser un área de trabajo en para ir creando ese un our... eh, crear las personas cursos que crea la persona con una conciencia eh de que como se dice en español, el chiste esta o sea lo valioso es rediseñar y reducir. Voy a poner un ejemplo de algo que se debería dar en esos cursos y que debe ser por ejemplo obligatorio por parte del gobierno. Eh, Dos Pinos que es que produce leche lácteos la comparativa abusa que es un monopolio o sea, desde mi perspectiva, ese es mi opinión personal, eso es mi opinión personal, no como de alguien de la Cámara de la Industria, abusa de que es un monopolio y entonces, por ejemplo ellos simplemente porque el mercadeo lo quiere, usan el tetrabrik. Usan caja de cartón para los tetrabrikes y antes de eso usaban plástico termicogible entonces que eso es un desperdicio de empaque. Entonces, no estoy diciendo que se tiene que ir a plásticos para que no se crea que mi interés es que no se usen cartón y tetrabrik pero tiene que haber cursos de que les enseñan a las personas tener conciencia de que hay que reducir, eso es lo primero que se tiene que hacer es reducir y rediseñar antes de hablar porque reciclar y reutilizar ya son consecuencias. La problema que se tiene que hacer en reducir y rediseñar, por ejemplo ustedes son muy jóvenes pero la comunidad europea en los fines de los 90's puso una norma que impactó en los años 2000 o más a los 2004, si no me falla la memoria, de una norma para el

rediseño del paquete de juguetería que se dejara de producir 4 mil toneladas mensuales de cartón que iba para la basura, simplemente porque un regulador dijo que “no puede ser que un juguete así viene o explota en una serie de empaques y súper paquetes que todo eso es un desperdicio y si el consumidor lo puede pagar o no.” Entonces tiene que haber o generar cursos o comunicaciones que generan ese tipo de conciencia. Y a mí me gustaría ver más a la cámara o la cámara pidiendo pero el gobierno imponiendo ese sentido común de decir que “mira, a mí no me importa si las personas pueden o quieren pagar eso pero rediseña su impacto.” Entonces sí, no lo digo para ser a favor del plástico pero hay muchas oportunidades de mejora en lo que es el rediseño y la reducción de los empaques.

O también con la cantidad de tinta que se gasta en el mundo imprimiendo todos los empaques lindos a la vista pero es innecesario. Sea, a quien le importa que yo tengo ahí \$2000 o \$3000 en empresario. Pienso que el producto los empaques debe tener solo la información lo básico, sea nutricional o advertencias contra toxicidad. Como sea, gasta mucho dinero en imprimir cosas que la gente no aprecia.

Company E

This interview concerns the implementation of green jobs and relevant training within companies in Costa Rica. With the completion of this interview, the participants' responses and names will remain confidential and will not be released without their permission. All data will be handled carefully to ensure privacy.

2. This information will be kept anonymous. May we please record this interview?

Yes

3. How much time do we have for this interview? We have approximately 25 questions.

1 hour

4. Could you tell us your name and discuss your position within the company as well as your level of education? Where did you study?

I am in a position that is called here *histora ambiental* which is like is like an environmental technician and what I do here is to run programs that help with the ecological footprint of Company E. We have a main environmental aspect in which we want to work with climate change, CO2 emissions, energy efficiency, and sustainable construction and all of our legal compliances and environmental management which is from the ISO, the International Standard Organization which is an environmental standard to comply with but my area specifically my sector is energy efficiency and waste management. We are a team of 5 people in my department so each of us have specific duties or tasks.

And also, can you tell us where you studied and what degree you received?

I have a business degree, I studied here in Costa Rica and then I took a scholarship to go into Germany and then there I received a masters in sustainable management and then I switched from pure business to a more sustainable management after the scholarship. I think that in the USA, you don't have *licenciatura*.

It's an associate's degree but it's not mandatory you don't need it to get a bachelor.

Then I have also the *licenciatura* in business and then a master's degree.

And then you said you received a scholarship, where did you receive the scholarship?

I received the scholarship through the German government and the organization is called GIZ and then somewhere I switched a few with some German and some English variety.

5. What industrial sector is your company a part of?

Construction materials

- a. What does your company specialize in, in terms of products or services?

We have cement, and then we used to have concrete products but not anymore, we sold the company this April so these plants that you can see from here was part of the operation but not anymore. So we have 7 aggregate, como se dice, sediments, piedra, arena para mezclar con el cement and the concreto premezclado or premixed concrete, these three branches right now.

- b. How many years has your company been established?

6. How many employees does your company have in Costa Rica?

In Costa Rica we are now 600.

And is it smaller now that you sold the plants?

Yeah, before selling the company we used to be more than 1000 employees and now there are 600.

7. In your own words, please define green.

The term green is, well I think that a company that calls itself green is a company that is not only aware of their impact in the environment so do something to manage this impact. And well, be green I think is like let's say an idea, so we are never going to be 100% green because to be green is almost to be a part of the nature from my point of view. But it's a company that at least tries to understand how bad it is and to do something to minimize its impact.

- a. Define green jobs.

Green jobs are very new for us I think. Are all these new jobs that are coming up from the new technologies that help to avoid damage on the environment so all that related with the new technologies in energy and waste management and all the fields that you can do to help nature.

- b. Define skills for green jobs.

I think you have to be very strong in communications because you have to deal with your own management of the company and they probably don't understand this topic very well so you have to convince and communicate very well with them. You have to have the capacity to measure the cost- benefit or something that you can measure from the economic point of view and what are meant to be

the gains for nature, for the stakeholders, and of course for the company. If you are appointing risks to improve the image or the sales, at some point or maybe you are contributing for a better environment for the employees that want to be in a company that takes better care of the environment. But you also has to be very trained in your area and know that you know all the knowledge you need to work and the technical part you have to be very strong so that no one can refute what you are saying or believe that you always aware of what is going on in the green world. And um of course as they say, business is important, and financial techniques, or skills, communication, I think you have to have the capacity to motivate or encourage people to do something that is also that you can convince them that there are new ways to do things.

8. How are green jobs distributed in your company (i.e. engineers, technicians, administrative positions)?

There are, like 6 positions.

Are these the ones you mentioned before?

Exactly

So they're all administrative positions? Management? Or like engineers?

Yeah, it's true. I think that because it's our department, that we are on a corporative level but there are also at least one person in each plant that see this topic also. That's three more, like my boss, and the boss of my boss so that's like 10 people including my boss and management.

What green technical skills do you require your workers to have? Please name 2-3 for each position.

- a. Engineers
 - b. Managers
 - c. Technicians
 - d. Laborers
9. Does your company have green training programs? What has your company done to train workers in green practices?

Okay, let's see if this helps because when a new employee comes to the company, we do a little training that includes a little bit about the environment but like, I don't know how

to say, a formal training in how to do this green job, you don't receive it. Supposedly your degree or your background, that you already have this. But it's a lot to assist other courses to get more skills and knowledge.

- a. Describe any green training programs. Are they successful and effective?
 - i. If not, what problems do they have and what are they lacking?
 - b. Describe green raining programs you would like to have your workers go through.
 - c. Do you conduct your own green training?
 - i. If you do not conduct your own green training, who do you outsource it to?
 - d. Do you have any connection with local universities for green training?
10. If your company does not have green training programs, does your company have other training programs? What has your company done to train workers?

We show people how we measure our main environmental aspects and we show them the matrix that covers every aspect that has a prioritization and we exercise this matrix, apply it to real cases, we show them the main concept and eventually we show them how many certificates we have with the ISO . We see a video about Company E and we explain even about the climate change and made exercises we made calculations about our own CO₂ footprint so that's what we do. And of course we tell them about our jobs, what we do, and how we do it.

Is there any program such as these that you would like to see in the future?

It's because we only have one hour to do that, but we are really not allowed to yet try to do this. Besides this, we also program other courses around the year and it's more likely and yea, CO₂ emissions and climate change and we want to for example energy efficiency and how do you say that, manejo de canteras. Canteras is where you strike the stone to make the cement. Like for example management in the quarry o las minas because then after we finish with some area we have to plant trees and are trying to have everything better and that's important, so mostly I think few topics.

- a. Describe any training programs. Are they successful and effective?
 - i. If not, what problems do they have and what are they lacking?
- b. Describe training programs you would like to have your workers go through.
- c. Do you conduct your own training?

i. If you do not conduct your own training, who do you outsource it to?

And is all the green training done by this company or do you outsource to another organization?

Yeah we deliver the courses but sometimes we found a third party that sponsors the trainings, the charla like the decision, like 1 hour in explaining something.

d. Do you have any connection with local universities for training?

11. How many green training programs does your company have per year? How many total training programs does your company have per year?

12. Please list two skills your workers lack in the following areas? What skills do you think any of your workers need that they don't have already for the skill of renewable energy? I think they really need to be sensing the size, like to be more aware about what's going on in the world today. We have the feeling that sometimes they don't get it and that we have to try really hard to get them to understand one point. Some of them have children so they are receiving this information from other sources and they are more like, oh yeah, you have to recycle and have to switch down the appliances, so you want a solar panel for the house for example, but the main majority hasn't done that so they need to be more aware of the problem. And they need to receive from the company to get more information and know how they have a place that they can observe charts and pictures. We already made in June, because it's the environmental month in Costa Rica, in June we organize a big, all month we have activities so this is the moment where we trying to catch more attention and more awareness but still, I think more information and that probably in the performance and evaluation we need to add some papers that we desire- for example like improve something that impacts and that would be good for environmental in their plants.

a. Renewable energy

And you think that these are the same type of things that needs to be done to improve energy efficiency and carbon neutrality as well?

b. Energy efficiency

c. Carbon neutrality

Yes- actually, we already have a course and the families, we are like have 40 families that are saving electricity and we are going to give a refrigerator, like a contest. The family who saves the most, we are going to give a prize. And we have already have a program in energy efficiency and we put the stickers on the wall and already have a lot of what going on in this topic, giving a lot of training, sending information through the emails and doing things like that.

13. Are your workers a majority of highly skilled workers or low skilled workers? What levels of education do you require your workers to have?

Exactly, because the level of our operators and their educational levels is not that high but their skills....well we give for example in this building is more administrative and management education is better– but in the other parts is not that much.

14. What is your link to the Cámara?

The link is because we are part of them, we are members and also they have energy common and we are part of it and we are very interested in the Cámara because they also lobby, they make a good a good association with main actors like with the government or for example, there's a pricing regulator for energy from ISET, which is a science institution that is very important and sets the prices for the energy and we consume a lot of energy. So they are key because they made this work for us.

15. What do you think the CICR can do to help the company generate green jobs or prepare workers for green jobs?

The business case of green jobs could be a very good study and maybe they can do like how you are doing, like counting how many positions in what they are doing, and what are the benefits for the companies in having green jobs and hopefully that they spread out this information with other industries and government institutions and with the press and you can read it everywhere for example and that can help to reduce the occupation rate of the country. For example with Costa Rica, I don't know how much the rate is right now, but maybe like 10% or something like that and green jobs can help reduce that if you train well the technicians that help to understand green energy and for example that they get trained for solar cells, installations and that kind of thing.

What is the CICR done so far that you think was it successful in training green workers in green training programs?

I think that they are doing good because they are offering right now like energy management programs. I think they have offered, but maybe they need a little more to train jobs or training technique but well I think that if I have to think about it, I think Cámara is the one doing some training in that. Yeah I'm not sure if the INA in doing that but I'm not sure. I only heard about this because of the Cámara but yeah, they can do better.

And how do you think that they're in terms of publicizing the events and making them well known, do you think they are doing well enough that companies know enough about them or should they do more publicizing?

Well we always receive all the offers of the course but maybe they can sort of work, they can put it in the newspaper, in the television, and places like that that the como se dice costoso, they're not so original when it comes to cost.

Do you find that you can relate to the topics just by reading the title of the classes that they offer, do you think that it relates to you?

I think that they would need a more, a little more description that maybe with two sentences that you can say, oh yeah ,that's what solar emission or I don't know.

16. How do you find your workers?

Or where do the many employers of Company E, how they find positions here in Company E. Like does Company E attend job fairs?

Through the web page, but that's for more kind of professorial jobs. For the operational level and so, I'm not sure how they do it, I don't know where they publicize them.

As far as the management positions, it's through the websites?

Yes and sometimes through the newspaper, I think sometimes.

- a. Do you work jointly with universities or attend job fairs?
- b. Does your company offer internships to students?

Yeah, Company E does that. Only that the- the only thing is that the department needs to create a budget to have a scholarship for students doing some work. It's mostly us, in the environmental department, innovation department and yeah sometimes in the finance dept also. It's like 4 or 6 month scholarship or well, internship.

And is this any university specifically? Or is it universities everywhere?

Mostly any university

17. Do you see any advantages in green job training; would this give your company a competitive edge?

Yeah, sure. I think that it's a plus for your resume and to have some training in green topics.

What specifically do you think with a company having— like what advantage do you think it would bring to a company to have workers with green job training?

I think, in general to make well prepared good decisions to really attack our impact. For example, we developed a tool to make and we share it with many other companies to make environmental management, it's like an excel spreadsheet where you can measure your environmental performance, any water consumption, energy consumption – it's like even a basis to measure your CO₂ footprint and we record this in CDs and made an event and we share it and everybody was so happy with that. And with this kind of professional that are very aware of the green topics you make an appreciation with the market and creating a leadership this is very good.

And we are one of the first 5 or 6 companies of Costa Rica that received the 14064 which you can certify that your CO₂ emissions inventory is correct. From the 6 we are the second one to receive the certification and because one of my colleagues is very good with that and he received the training and can really understand the topics. And now it generates leadership in the topic and I am very proud of this.

18. Do you think your company will generate green jobs in the next five years? If so, what types of jobs would they be?

In 5 years I'm afraid maybe 1 position or 2 because I think that the economic environment, the way the economy is now doesn't allow us to do that. It's because now the construction economy is not that strong right now. We're lucky that we haven't received any cuts and we are very happy because it's been hard times here, since the crisis and everything. But yeah I can see that, for example I say that because 1 plant or 2 plants in the moment haven't anyone doing this job so maybe they are going to hire someone that knows.

Does each plant have an environmental manager?

Exactly

Or someone that makes sure that energy is being used efficiently?

Exactly, it's supposed to be one for plant but I think at this moment, there's like 1 or 2 places haven't budgeted to hire anybody.

Do you think that the main barrier isn't creating new jobs is because of the economic recession, and not having enough budget for it?

Exactly, yes it is and it's because these kinds of positions are nice to have but at least you really save money though your measures or something. It's a position that the other costs and other plants they subsidize.

19. Is there demand from your clients to be green?

Yeah, no we don't feel that pressure. The market is not. Okay let's say that like 20% of our clients have questions for us on oh, how do you manage your waste, but the gain is not a major concern. Sometimes we do this mostly because of the Swiss and major compliance, and the Swiss are very strict and their place is in marketing because we want to be leaders and we are doing that but here in Costa Rica I have the feeling that we are like pushing this. Like, bringing this to the table because the other players are not seeing that. It's not that major in the market yet.

20. Do you have any recommendations as to changes that can be made within your company regarding green jobs and training programs?

Yes. I would like to every department could receive like a basic course about the environment and the drivers for a company to be sustainable because what happens in the reality is that you have project and according to the resources to define an environment, they say that they know but they don't see the advantage and you have to really push that and reach all the information to prove that it is good otherwise they avoid making decisions on something that pays itself in 1 or 2 years in reducing costs. But we don't, yeah I think it could happen. In every company, we have a new CEO who is very nice and very important with commercial things, but he doesn't understand very well the green advantage and what it is. He doesn't see the link between being green and the market and that we can gain reputation.

So do you think this training program would be most helpful is everyone attended or if this is for more of the manager's department?

Managers because, well this is a formal way to do it, but the reality is that we have meetings like this to discuss it and try to discuss it. At this moment we can talk about it and explain “oh, this is okay”. But like a formal training we don’t have it, at least like a formal education course. Like when we plan a program, and there is training for them and then it’s mandatory that everyone assists...it’s like that.

21. What has your company done to be green? Are there any green policies or standards?

A lot. Let me point out that we have a hydroelectric plant that produces energy so that’s good and we are planning to expand this plant and generate more, it’s a very big project. We have a company that besides the agregado, the mixes the rocks and sand. We are with the company, which is a company that manages waste that can transform in a mass that can fit the cement oven and use less fuels and use more of this material mix and waste management. The recycle picks up like a kind of... I see paper, mermas, waste, rubber, and the kind of material that has very good energy power that really produces a lot of heat, mix quality and put it into the oven. And well this company is good for the business because we really consume a lot of energy but also is good for environment because it’s not going to a fill land.

Well, it’s looking for me either in the sustainable construction with reinnovating with for example, concrete that can absorb the water when it’s raining and impermeable, we have this area with these kind of products— cements which is the main product use less clinker, which is the main component of the cement, and it’s like when you have the stone, white stone, la piedra caliza, and you cook the stone and then you mash it. This and with other companies, you make the clinker. And yeah, it’s really what cement is. So that needs a lot of energy and less quantity of clinker and you cook it. And that’s really good because it means we use a lot of energy less and less clinker— so we are one of two companies, Company E and another company for Cement that are green cement.

Well, we have a lot of things, like a rehabilitation of the canteras, the quarries, and reuse the land, and plant trees and sometimes we do the development of houses or something can be done. But well, really best in the manage of the environment of the plants that everybody complains with the requirements of law and well, I think in our webpage you can find all the things we are doing right now...

- a. Has your company establish any policy for the reduction of carbon emissions?

We have no, we are emission and certified and because of that project of the cooking of the stone we cannot be CO₂ neutral. For example, it's not possible but we are pushing in Costa Rica for everyone to be "ah but we are also get training with the government to measure the emission and yeah."

b. Has your company established any policy for recycling or waste management? If there are no standards in place, how does your company remove waste and recyclables?

c. What factors have motivated the implementation of green initiatives in your company?

I think um, we want to be at the cleaner level, I think the motivation is strange but we really want to meet the goals that they set, from the headquarters. And because we are seeing that Costa Rica is mostly a country that is beginning to be worried about it, and we want that to get that market. And also for the reputation in the market place.

d. What obstacles have impeded your company from being green?

The awareness and because at the end he construction depends more on cost; so when a client has to decide, okay Company E do this with the caring of the environment and the caring of the people and with very high position of standard and this other company doesn't but it's cheaper, it's sad but they prefer the cheapest option. So we are working, our clients are mostly finer clients that care about the environment, that doesn't care to pay extra price and yeah. Finer clients and medium clients like intermediados, like big stores that sell materials but not, it's really hard. I think we are not the most competitive of enterprises in talking about prices.

22. What improvements have your company made to increase energy efficiency or energy savings?

Well, it could be, we need to change a lot of equipment in giant scale like compressor, air compressor. I think our assets we need to renovate for high efficiency assets but right now it's very hard, we are going little by little and we are trying to determine the zero costs measure first, but there is a very big opportunity there. We also have this oven that produces a lot of heat and we want to use that heat and maybe, like put a waste heat

recovery but it costs a lot and we are not allowed to invest in that right now but there is a huge opportunity. Company E has a policy that says to choose the projects from a list and the one that is economically viable is chosen and it's very hard to be on that list sometimes.

What improvements can your company make to increase energy efficiency or energy savings in the future?

- a. What difficulties exist for the implementation of strategies in this area?
- b. What employee/position in your company is responsible for paying energy bills? It's funny but it's the accountability department that pays the bill but we realized this year that some of the managers don't even get to look at them. So we discovered that and we put them in the email list of the energy company and now they receive it. But I also check it – I'm in that position that is trying to be sure that they are looking, that “oh, they have a penalty” because you don't use it. But now we are doing that and we are driving energy outings so that they can take a look at what they are doing well and has to be done and what kind of people they need and we form like a small energy commission and they follow up the projects, but it's not that hard. The reason that is because but there is not enough budget, at the end it's hard because we don't have the money, or etc. Did that answer your question?

Yes. Along the same lines, what improvements can be made about more renewable energies?

Okay, I'm afraid neither solar or wind. Well, we have sometimes we have to think about it. We have to make numbers because of the investment is very complicated because you have to justify the topic for the investment and say why here in Costa Rica, where solar is not that developed because the electricity is very cheap.

Because, compared with Nicaragua and Honduras, so now it doesn't pay back.

So they won't improve these inversions to say solar energy because the cost-benefit isn't worth the initial investment?

I think of the manager's point of view because it's a cycle that a company being green is very important, they see neutral, and they are driving this, they wanted to have solar cells in the roof just for education to awareness and everything, but the

manager, the CEO doesn't allow it for example because at the end, the cost-benefit analysis said umm...but um... and another moment we wanted to put a windmill, turbine in the Cartago, the cement plant, because very good wind blows there ,but the investment was so high they didn't want to enter in this project. I think what we need is more people to see in other examples to see that it's possible, that I think that they need to see with more practical examples in other cases and with big companies because I think that they are afraid and it's very hard. Well, I can mention that the hydroplant that we have, they really believe in that because we are already receiving returns of that and they want to expand on it, and they really believe in that. But I think that we need a missionary, manager or CEO that really believes in that.

And finally, what improvements can be made in terms of the increasing the carbon neutrality of the company?

We have a CO₂ market for example and we receive money about the emissions. I think that we really have a lot of projects that we are trying to gain to minimize that. I think that maybe in our balance scorecard indicator says how many CO₂ tons are you producing for a plant that you receive or like, like an incentive that could help faster. But now, our department is trying to promote that and sending them charts, like this month you have produced this tons, but they only look a little bit there is no consequence and nothing happened. So I think in the industry what really matters is money. If you can't do something to reduce your cost, this is the way, there's a way to move forward.

- c. Does this employee utilize any strategies to lower energy costs?
23. What improvement have you made or are you making to increase energy efficiency or energy savings? What improvements can be made in your company in the future?
- a. What difficulties are you encountering in implementing strategies in this area?
24. Has your company incorporated the use of renewable energy into its processes?
- a. How can your company do so in the future?
 - b. What difficulties are you encountering that limit your use or production of renewable energy? For example, education, cost, awareness, resources.

25. What is your definition of sustainability? What can be done to make a contribution to sustainability in your company?

It's like a company that is a success and really returns what they are receiving from the natural resources and increases the value of the economic point of view, but social and environmental that increases the value of the operations that nature remains that though is successful and is very welcome in the community.

So that's all the questions we have, does anyone have any follow up questions?

I have a question, so in your position, is there an established environmental department?

Yes

Okay, and also, to clarify, would you say that the biggest obstacle to developing more green initiatives and the point you could improve is teaching different departments in the company about the cost-savings initiative associated with to become more green? Like they don't see that in the long term that it's going to save money?

Yes, I think that they need to be more, yeah more aware that the economics return also can be received in the long term but you are also gaining money when you avoid penalties, and you are receiving a credit from a bank because you are good citizen, because you can save money with the more efficient assets. I think that they need training from the benefits of being green from the economic point of view. I think we need to open their minds that-

Like to develop an environmental conscience and mindset in industry as opposed to just cost?

Yeah. That you can be successful and gain money and you can be green. That really opens the door to the projects.

And I had another question- you said that there were green training programs other than the initial orientation so there are no more programs about environmental aspects, like training programs, or do people come in already trained?

Well, we have that kind of training only for the orientation but sometimes when we prefer some program, we include a one hour thing for people-

Like a presentation?

Yes, like a follow-up presentation mostly, or organize some event in the auditorium and everybody goes there to see something, or somebody talking about some topic. But your question was exactly?

Just to elaborate on if there were any training programs in relation to environment or?

Yeah. I'm afraid that orientation and this.

But there's like presentations?

Yeah, there's a presentation of course.

Um, I had a question- what year was the company founded? Because I heard something about it was founded in Costa Rica and then went to Panama and back? When?

Company F - I think it was in the 90's I'm not sure in which year. But Company E came and they bought other companies and then formed Company E. We were in Panama but the business there was not that good in Panama so they closed, and we also have a branch in Nicaragua but I think that they are going to separate. But maybe in the webpage you can find exactly the year.

Okay, it was, the question was also to bring up the question like if Company E started out small or just became big, if you know anything about it?

I think that they started big here, because it was an acquisition. Company E came and bought other companies so there was like an acquisition and they formed all this, a group but now they are selling some companies. So we are getting smaller. I think this is a very sensitive industry- it depends on cost, is very basic- it is not like a service company.

Just wondering about this because several companies are having difficulties in going green but, what we saw is that they want to see on how they can improve on it and how the CICR can help them. I was also wondering how Company E had grown. But in terms of the green sector here, do you know that started- had they had it all along when they acquisitioned in the areas or did they develop?

See, I don't know because I am from two years ago.

But she said that it mainly comes from the headquarters, this need to be green and the green initiatives.

Yeah more the Swiss, the Swiss are very strict on that, on the green motivation.

I had one question, um, for the environmental management position, your position- are any of the other people you talked about, are all of these people from Costa Rica or do you have any people that say came from Switzerland ?

No, we are all ticos, Costa Rica. But yes, it's very funny because everyone has a relation with Europe-

For studies?

Yes for studies, yeah their background for studies.

So like environmental management?

Exactly, yeah.

And I had a couple more questions. Is there any connection between Company E and say universities that do training in between? Or is it just the internship programs?

Yeah, no, here in Costa Rica no. We have not many relations with universities- no not really. But we receive, maybe with the University A because it's the oldest year and has a of civil engineering school and yeah probably is more like, I don't feel that the relation is the closest because they know each other. But, there is not any formal relation-

But they might get students to work here internally?

Exactly.

And also, could you elaborate on the recommendations that you have for the Cámara that would help generate green jobs in other companies, like what they could do?

Yeah, what I told you about, that they can make the business case more

More environmentally aware?

Yes, more environmentally aware. Well, maybe they have to offer courses that really helps, that really contributes to have better skills in environmental managing. Eh, what else...

Do you mean like to train people that can then go into companies and do environmental management?

Yeah... maybe that organize or run tables or bring an expert that is methodized and can explain about some experience about the people that work on the green areas that people can participate in and yeah. Maybe here what we need about training terms... yeah because the green job probably is formed, or an enterprise is needed because we need to comply with some rules, legal themes-

Some standards?

Yes, some standards and after that comes the awareness and all this and I think that can only and I only say that because I was thinking.

So you're saying that first they need the standards? Is that what you mean?

Yeah. Yes because, no I was thinking that what is first. An enterprise creates a green job first just to fill it out, because need someone to comply with something that position and yeah, that originates or-

So you're saying that what would create green jobs would be the standards that they need to create the green jobs?

Yes. Any more questions?

No, mucho gusto.

Company F

1. This information will be kept anonymous. May we please record this interview?

Yes

2. How much time do we have for this interview? We have approximately 25 questions.

An hour

3. Could you tell us your name and discuss your position within the company as well as your level of education? Where did you study?

Currently I am director of environmental affairs for Latin America for Company F. I've been with Company F for 22 years. My education is essentially agricultural economics with an undergrad degree in agricultural economics, and masters degree in agribusiness. Um, however I wanted to study biology at the University A years ago so I've always had a liking for things in the environment. So I've been working in environmental issues for about 10 or so years. And I studied in University A and also in the United States, Santa Clara University in the bay area.

4. What industrial sector is your company a part of?

We're basically in agriculture, mainly in export. We produce our own fruit but we also buy from independent grocers and ship products to the US and Europe. Our main factor would be agricultural exports but also transportation because we manage our own vessels, so we arrange the logistics between the different countries that we operate in and that we own, we manage the vessel fleets to ship the fresh fruit to most of the supermarkets like to china from Costa Rica. But I'd say that 80% of our market is to the US or 70%, and Europe about 28%.

- a. What does your company specialize in, in terms of products or services?

Company F worldwide does mostly fresh products, fresh fruit being the most important part in the company and also fresh vegetables. We're also a fresh package food business that we are in the process of selling. Here in the region, in this region that we/they are responsible for environmental is mostly bananas and pineapples, both conventional and organic. We are also largest in organic bananas and organic pineapples.

- b. How many years has your company been established?

Um, Company F is an old company, founded in Hawaii probably in the 1860's. Company F is an old company. And in Costa Rica, um the subsidiary in Costa Rica is called the standard food company of Costa Rica and they have been operating in Costa Rica since 1955. The regional office, which you are visiting today here has been in Costa Rica since the 1990's, and before then it was in Florida which was when it was moved there.

5. How many employees does your company have in Costa Rica?

The Company F in Costa Rica has probably around 5500 employees more or less.

Worldwide, probably around 65 or 70000.

6. In your own words, please define green.

Can I please define green? Not the color, it is my favorite color by the way, so that's one way to define it, it's Rudy's favorite color. Well, it's a pretty general question, environmental issues I guess it's very general.

- a. Define green jobs.

Okay, that may be a little more specific. Okay, I'd say that those green jobs are those related to any industry that is or any activity in the industry that is reducing or working to mitigate or reduce environmental impact.

- b. Define skills for green jobs.

It depends exactly on what the green job is because I think that there is a diversity of green jobs from engineers for example. When you start, if you're looking at product design for example, some of the designs are probably from the outside or designs a building from the outside you need to have the education, the skills necessary to do that project or building design in order to make more environmentally friendly (I hate that word).

So the first skills, I would say for engineering, I would say even in today's world I believe that managers in general should have skills to understand the impact of their business in the environment and they should consider it in their decision making. And because probably like ours, since we deal with nature a lot, with soils, water, managing water, operating in very diverse areas. We decided years ago to implement environmental management systems, so that's another kind of skill that we need. The understanding of environmental management standards

implementing those, also we have people, we've seen a need to have people that need skills in environmental auditing. And then once you get down on the farm, the skills needed to on the agricultural end, on the agronomist level also, you need skills now in which they can understand what the impacts of what they are doing on the farm are and reduce those impacts. Basic things like precision agricultural for example, where you know, you are targeting the agricultural impacts to use as little material as possible, to get the best and highest yields as possible. Those precision techniques I think are a green skill. In the past, when I went to school like 30 or so years ago, the emphasis was only on productivity and getting the most out of your farm. Considering other aspects like you would need to be producing, whether 40 or 50 years from now you can't degrade your soils otherwise you won't be in business for very long, those green skills that in this case, in our company, the agronomist cases also need to come from the universities. I don't know if I gave you a too more general answer to the question but in my view, green skills are all over any job function, from management to the field manager, even employees doing the formal training.

7. How are green jobs distributed in your company (i.e. engineers, technicians, administrative positions)? What green technical skills do you require your workers to have? Please name 2-3 for each position.

We don't have necessarily someone, other than myself, we have environmental department in each division that we operate so there's a guy in charge the environmental standard division. And then we have environmental auditors. Those guys are the guys that have the green hats directly but like I said, we spend a lot of time training, that's our major focus, its training everyone in operation to have green skills. So when we obtained a license for vocation in 2000 or rather in 1998, we were the first ones in agriculture to do that. The whole success of that program was training our people from the manager down on how to minimize impact. So I would say we specifically have an environmental department and environmental auditors, etcetera but everyone in the company that has to do with some sort of environmental impact does receive training to reduce impact. I would say that everyone needs to have green skills in order to work with us in those activities in those impacts which are quite a lot.

- a. Engineers
 - b. Managers
 - c. Technicians
 - d. Laborers
8. Does your company have green training programs? What has your company done to train workers in green practices?

- a. Describe any green training programs. Are they successful and effective?

There are several, but there are generally two types. One is general training regarding the management system. So every employee in the company needs to know that the company has a management system that identifies what the environmental aspects and impacts are and they need to be aware that there are ways to control those environmental impacts and those controls can be a procedure or a working instruction, an objective for the year to reduce electricity use or the use of input. So through objectives, targets, procedures and environmental impact, they need to be aware that we can manage our environmental issues. They also need to be aware of Company F, that we have a corporate policy on environmental management and need to be trained on environmental policy, in addition they need to be aware of like I said, what the system is and what the rule of the system was because any employee in the company has access to, if they see any issue, they have access to open what we call a nonconformity, which means that there would need to be an action taken to correct that. So that's, the general training, depending on the job training that we do, we would manage the system and then depending on the job function in the company, there is a specific training. So for example if a farm worker is applying pesticides for example to receive training specific to applying pesticides to reduce impact on himself, on the environment and if we have someone, in another job function, someone that is doing maintenance on our containers -because we operate or refrigerate containers- that person needs to know that he cannot, when he does maintenance he cannot just open the valves and release the refrigerant and put new refrigerant in the system. He needs to know that there is equipment that is used to capture the refrigerant while he does the maintenance so it's reinjected back into the system without producing an emission of greenhouse gases which is from the

refrigerant used. So every single job that is undertaken in the company has specific training and the environmental impacts of that job are considered the training.

- i. If not, what problems do they have and what are they lacking?

Everything is basically described as on the job training, and there is external training for all of these people that manage the management system, and do the environmental management and to do the environmental auditing, there is training they receive in universities and other areas. Is the training effective? Always, no. That's why the training runs every year, so there has to be retraining done all the time, every year. It's not enough to just to train someone one time. But in general, without a good and effective training program you won't have a very good business attending.

- b. Describe green training programs you would like to have your workers go through.

- c. Do you conduct your own green training?

- i. If you do not conduct your own green training, who do you outsource it to?

There are several – depends on the area. For example for environmental auditing there are companies like the ones that do the environmental certification normally have a department that does the training like SGS, BBQI, which are well known certification companies. There are other less well known certification places like La Sistema but anyways I would classify those as the certification auditing companies, they have training. The universities that we've hired in the past years, we've hired a lot of people Earth University from Costa Rica which Earth does a good job, they have specific environmental training so normally, when you hire an agronomist from them, they already have some pretty good environmental awareness. So yeah, when we hire people from University A, the awareness on environmental issues was nonexistent many years ago, now most universities have some kind of training about them.

So we benefit from hiring new people, normally, they are more convinced than we are that we need to build something about the environment. So

yeah, these universities, certification, also some of the suppliers that we have will sometimes have internal training programs, we'll take advantage of those. And then we have our internal training programs, one guy in our company, that all he does is organize our training programs that are described by him. He provides training directly and trains the trainers for the people who are our people, but I guess that would be internal training.

- d. Do you have any connection with local universities for green training?
9. If your company does not have green training programs, does your company have other training programs? What has your company done to train workers?
- a. Describe any training programs. Are they successful and effective?
 - i. If not, what problems do they have and what are they lacking?
 - b. Describe training programs you would like to have your workers go through.
 - c. Do you conduct your own training?
 - i. If you do not conduct your own training, who do you outsource it to?
 - d. Do you have any connection with local universities for training?
10. How many green training programs does your company have per year? How many total training programs does your company have per year?

Oh, the way they define those is by training session or training hours, I don't know I forget, but it's in thousands. Of course, it's down to like I said, down from to the pesticide level to the mangers- I don't know, my guess would be to 6-7000 hours per year overall.

11. Please list two skills your workers lack in the following areas?
- a. Renewable energy
 - b. Energy efficiency
 - c. Carbon neutrality

I think so. There's not too much awareness on that. We do have a carbon neutral program/project that we started like 5 years ago. So as part of that program, we train people. But in general, since something like renewable energy, something pretty new, not too many people are aware of it, maybe at the management level, my level. We're looking at renewable energy prices right now, we're actually working with some college students and we are hoping that their study will show that it's possible to use some of our

biomass. We have a lot of bamboo and we can see if it's possible to use that biomass to produce electricity. I guess the answer is that as the technologies are developed, the renewable energies are developed, obviously we will need to train people that are going to either manage the source of renewables and in this case if we are able to generate our own energy, we'll obviously need to train people in that. But I'd say that it's general awareness at the management level because we do have a project for them specifically.

12. Are your workers a majority of highly skilled workers or low skilled workers?

Yeah, let's say that out of the 5500 employees, I'd say that probably about 4000 or so are farm level employees um, are very skilled in the jobs that they do, which is farming pineapples and doing a lot of work on the equipment, container, facility, the vessel, the management, all that – so they're very skilled and trained on those jobs and activities.

What levels of education do you require your workers to have?

I'm trying to remember now. I think that all workers need at least a primary school education at least. They need to know how to read and write, those are the farmed labor. But for the managers, you normally want a high school degree and university graduate school hopefully most managers have some sort of graduate education as well.

13. What is your link to the Cámara?

Not too closely, we're more involved with the industry association. So there's a Corbana, which is a, let's say a semi-governmental organization that represents the banana industries, and there's also the Cámara de Bananeros. But anyways all the exporting companies and the producing companies are members of that association, So it's not that we're unaware of the Cámara of Industrias, but since there's a specific banana association, we deal with them, and also there's a pineapple export association and we are a part of that. But so I think we spend more time with those or industry specific orientations.

14. What do you think the CICR can do to help the company generate green jobs or prepare workers for green jobs? What has it done already? Was it successful?

For the Cámara de Industrias, well, even though we don't deal with them directly, I know that they have very good contacts with other organizations such as industries in different countries, so I know that they have helped, for example and I know that this is a recent example, Germany, thorough the development of the organization, the GIZ has been keen

on helping Costa Ricans with carbon neutral goals, they have donated like 6 million Euros and I know that they work closely with the Cámara de Industrias.

So in our case for example, we are members of the Biodiversity Partnership of Mesoamerica which is a new group founded this year and this association hopefully is going to get some help from Germany. And we recently had a visit like a couple of weeks ago with one of the undersecretaries of the German development ministry and he was in Costa Rica and he wanted to see what was the advances that this organization has, this Partnership MesoAmerican had in order to be happy with their commitment and to go forward with their commitment to fund this new organization and with the Cámara de Industrias present, allowing the Cámara de Industrias Costarricense a la mano. So I think that they have a good role with representing Costa Rican Industry worldwide and they can help get some development money or even contacts with international organizations that have knowledge into green business. And things like how you mentioned renewable energies, these are technologies that don't exist here, so the country needs to establish contacts with the US and Europe to hopefully learn about these technologies and eventually use locals and with the Cámara de Industrias with an important role.

Is there anything that the two other organizations, the pineapple and banana organization have done that the other Cámara can do for its organization, for its industries?

There's something interesting that the banana and pineapple export industries have done— the pineapple has been developed more recently. The banana association, Corbana, is a little older so they've done a little more. One of the good things, let's say that Corbana has done is a committee, what is the committee called... I forget the exact name right now but it's like the environmental committee of Corbana. That committee has representatives from the banana industry, so Company F is there and some other exporters are there and also has some other representatives of the ministry of health, and agriculture, and this committee, they do auditing of the industry, so they go to farms and they have a standard that they audit appliances and that's been going on for 10 years which is a long time. I think that that's very helpful. Along with that, the banana industry was severely criticized 15 or more years ago. Sort of what's happening right now with the banana industry, there's this guy right now, that he opened a new plant almost every month, every week or something, being criticized severely right now. The banana industry

did a really good job to communicate what the banana industry was doing in environmental issues right now. It helped a lot to get the pressure off of things and to have someone representing us that could answer for the industry when we're attacked, the banana industry, it become very effective. And the pineapple committee has a committee for social and environmental issues and that they're doing for its members to comply to a minimum standard. I don't know if sometimes that exists for other industries, but if it doesn't, I think it's something that has been helpful because it's helpful to members to learn how to improve their environmental fronts and reduce that in a voluntary way without the pressure of doing something large. At the end of the says , the industry members are the ones that know more about their business and can probably provide practical ways and solutions to control their environmental impact. I don't know if the Cámara de Industrias has worked in that way or not, but it's something that if they haven't done something like that, it would be helpful to do that in some other industries.

15. How do you find your workers?

a. Do you work jointly with universities or attend job fairs?

Well, we do attend, mostly, it's the human resources folks that go to job fairs, and there are a few empleos.

b. Does your company offer internships to students?

Yeah, sure, in the past particularly with the Earth University and the University A yes, we've gotten interns that eventually get hired.

16. Do you see any advantages in green job training; would this give your company a competitive edge?

That's an interesting question. A few years ago I would have said yes, um, but our industry is really like a commodity industry, everyone is selling the same product more or less, and we've tried to differentiate it by doing a lot of green stuff, like all these certification programs and carbon neutral programs. But we've never been able to get a specific advantage either by getting a premium on a product or by getting new business, other than the organic business, which I guess is related to the green industry. And that's really the only example where I can say hey, we have really achieved something in the market by doing all these green things. I don't clearly see the company advantage, I would that what you do see is that if you don't work in the green issues, you won't be in

business for too long. And you may be dropped as a supplier that I see. That's sort of a requirement from our buyers, rather than an advantage, it's a requirement to treat the environment well and if not, we're not going to buy from you. And that's what you call a competitive advantage, but we need to be there, we need to be involved to be sustainable in business.

17. Do you think your company will generate green jobs in the next five years?

I think if we're – I think we seriously need to work on alternative energy, and we love energy, a lot of electricity here in Costa Rica. But yeah, a lot of resources are used and we need to develop alternative ways to gain energy, and if that happens yeah, we're probably going to need to either directly or indirectly get involved in things like renewable energies; we'll probably need that knowledge. Indirectly I would say because maybe we may not want to go into the business of generating electricity for example, we may want to outsource it. But we need to establish a relationship with the people that know how to do that, so indirectly, we would be creating those green jobs in the renewable energy industry.

If so, what types of jobs would they be?

Yeah, they would be engineers or technicians. Even if we're talking about those engineers, and technicians, if we're talking about the use of biomass, and that would probably generate another business in the agricultural sector. So basically, producing the biomass, be it bamboo, king grass, that's going to require farming skills that also may generate small businesses of individuals that would be harvesting this biomass, preprocessing it, and then selling it to whoever would generate electricity so there's going to be a set of skills in the agricultural sector and farm labor also.

18. Is there demand from your clients to be green?

19. Do you have any recommendations as to changes that can be made within your company regarding green jobs and training programs?

No, not really. Ask the question again. Recommendations for my company...?

I don't see any right now- I think we're pretty focused on our business and on providing the training, the green training that we need for the business. If I could change anything, the time to do that is like in any company, I'm an old timer, I graduated in like '86 from university, it's going to be much nicer in the environmental point of view of the

managers. To have our people have received relevant training from the university, other than to just have something nice. There are in the company some old timers, some old ways of managing that, you struggle with people like that, to get them to consider the environment as one of the main things they need to consider in addition to productivity itself. But that will come. And with all companies, bringing new people and new managers eventually at the top and soon we're only going to have people that are very involved in environmental affairs.

I have a question. Being a company that is developed in green areas, what would you recommend to a company that has no green jobs or training program so that they could develop these?

I've seen the company, what happened in Company F after being in management systems. I would recommend in working, not necessarily in certifying, it's not necessarily necessary but in establishing a management system to deal with specific environmental issues, but our case, we've expanded environmental management systems to include worker safety, food safety and other things that important to Company F. But I really see it valuable to have a management system to, where you can have, and within the management system the nice thing is that you need to have all these elements to drive, and continued improvement, which, you need to have your internal training system, your procedures, your work instructions documented and you need to have a management review- so the management can't leave the environmental issues in the back room.

It's a part of the system, to have management review all the nonconformities, the audits with a certain degree, and twice a year they will sit down with the board directors of the company and they are brought the results of the auditing and hear them with our goals and stuff. And they need to hear them out and provide resources when they are needed. So I really think that I would suggest to a company to go out and get certified, we have a 1401 certification but you can start in the management systems- that's how we got certified but it's not only for environment but also for the business world. Many times, you train someone for a job and then that person leaves and he leaves with the knowledge that he learned from the company and nothing is left for the person that comes in. But if you have a management system which enables you to have procedures, work instructions and hopefully on the internet like we have all the stuff on the internet, you know, what's the best way to apply herbicide on the farm? That knowledge is there, it's

documented, it's available for, so that company knowledge is available for gaining over the years and years, and it remains with the company regardless of someone leaving. So I think it's very valued and that would be my suggestion, to apply a management system.

20. What has your company done to be green? Are there any green policies or standards?
- a. Has your company establish any policy for the reduction of carbon emissions?
 - b. Has your company established any policy for recycling or waste management? If there are no standards in place, how does your company remove waste and recyclables?

Yes, we have an overall policy, Company F environmental policy that one of the point there is waste management, recycling. And then, given that policy, for all the activities we do, we need to analyze the impact and waste is one of them. We need to determine what the best way is to deal with waste and reduce pollution. So, like we do things, like we buy the agrochemicals, the agrochemicals generate a waste, the containers which the pesticides come in and then one of the things we do is if you want to sell agrochemicals to us, the person that sells it to us has to have a system to take them back or to have a reuse program, so that's a good example.

We use for example a lot of plastic in fields, filed plastic to cover the bananas, so we've established ways for us to reduce them, so now for the past 3 or 4 years we've been reducing them 2 or 3 times, which is good for the environmental point of view, bad for our recycling facility because we had a plastic recycling facility that started like 15 years ago. Now they have less plastic to recycle so they've had to go out to get consumer plastic, not just the field plastic from Company F. So it's pretty good for the environment. And I guess everything that we do, even the tires that we buy for the chassis that we have to transport for the bananas that we buy from a supplier that needs to take the tires back or have a program to do something with the tires. Normally what they're doing now is shipping them- same with energy sources like batteries and recycling. We buy batteries and give them back to the supplier, because they can recycle batteries now. And that's for any waste system that we have. Basically our general procedure is that the supplier needs to have to ship the product and have some sort of recycling and reuse program.

And earlier you said something about climate neutrality in Company F? Do you have any specific policies in place for carbon neutrality or climate neutrality?

What we have is a goal with our environmental management system, inside the company of Costa Rica. Goal number 11, haha my memory doesn't fail me. Basically our goal is to be carbon neutral in Costa Rica by the time frame of the government, by 2021, and in order to do that we have done things such as measuring the water, carbon footprint in all the operations. We have been simultaneously looking at ways to reduce emissions with some specific programs like we were doing, we've renewed our container fleet, to new technologies that our containers are much more energy efficient. They also use less refrigerants, we've improved our procedures for managing the refrigerants as I mentioned earlier. We're now using controlled release fertilizers that we basically pioneered for the use in bananas and that allows us to use about half the amount of nitrogen that we used 5 or 6 years ago. Nitrogen, I don't know if you know these details but when you apply it as a fertilizer in the soil there is have aerobic and anaerobic conditions that creates the emission of nitrous oxide into the greenhouse gases. By reducing our nitrogen use, we reduce the amount of carbon emissions. Those are two important ones. We've got a lot of other smaller projects like trainings where we've trained people on how to drive better and how to operate machinery better so that they're more fuel efficient and use less fuel. We have, we are using biodiesel in some of our tractors, at one of our tractor farms that we are able to buy from some companies like Cargas and smaller prices like that that are parts of the climate change program.

- c. What factors have motivated the implementation of green initiatives in your company?

I'd say that there's basically 3. One of them is the management systems, we've had these environmental management systems in place and what you have to do is to show that you are improving year by year. So when we looked at our operations from the climate emission or change point of view which we hadn't done 15 years ago, we weren't certified until 2001. So if you would have asked me in 1998 what our impacts on the air were by the operations management back then, I would have said we didn't have any. But today, yes because of the fertilizer, because of the use of the refrigerants, because we buy electricity and some of the electricity we buy is generated using fossil fuels that generate CO₂ etcetera etc. So yeah, the perspective that we have looking at climate change is different and we've identified opportunities so refrigerants for us weren't really an issue. Already, years ago we substituted the

refrigerants for say ozone friendly refrigerants, but we didn't know that they had a climate change impact until we looked at them. And then we found out, and then oops, we needed to be more careful in learning that they do have an environmental impact from a climate change point of view. So to go back to your question because I think that I went around...

So one of them was the management system that we had in place looking for detailed improvement.

The other one was the country analysis in 2007 in the prior administration in the environmental analysis and carbon neutrality and this idea in the pilot companies to align themselves for the country strategies

And our customers were the third one. So we do get questions from our customers, uh main supermarkets mostly that ask us, oh what are you guys doing, you know regarding climate issues? Not really as anything specific as in that we need to do something in climate change but more as we're curious, what are you guys working on. So we found out that it's better to be positioned in doing something for climate change from the market's point of view earlier than later and that's the other reason- so there are three motivations.

d. What obstacles have impeded your company from being green?

Yeah, obviously, there are barriers, technological barriers, so like anyone else is highly dependent on fossil fuels. Almost 70% of our footprint, because we've also done that, we've done carbon footprint studies from production all the way to market, and those studies have shown that our footprint is closer to 70%, between 65 and 70%, that number. But it's around there, let's say 2/3 of our footprint, banana and pineapple footprints all the way to the supermarkets is ocean shipping. And the ocean ships, they use bunker, a type of bunker and right now there's no way around it. There's no way to deal with that except by being more efficient so newer ships are more efficient with bunkers. There's a German company, they're offering for new vessels the possibility of putting a kite on the ships and they have this large kite (costs about a million dollars by the way) with a computer in them that can reduce some of the fuel consumption. So maybe for the ships in the future, you'll see a lot of kites out there. But for right now, the only thing you can do is look at your future generation of

ships getting more efficient using bunkers or constrain with technological on how much you can go. Um, and there's really for operations right now, there's really no alternative other than the fossil fuels in our tractors and the shipping our products to port. Costa Rica is a good example actually. Most companies expect ours use only trucks to transport bananas and pineapples to ports for export. We're using 30% we use are shipped by rail. We'd like to do more of that, but we're constrained by the government not being able to invest more in rail or in better rail because the rail they offer to us now are diesel powered engine or electric power engine which are much better from an environmental point of view. So yeah, let's say that those are 3 examples of technological constraints. The other big constraint for us in the past few years has been, along with many other companies has been financial issues so we've had a very high debt for the past few years. And the financial world global crisis really affected us and the ability to invest in better equipment. We did do it on the containers so we had a program that started before the crisis which we wound up almost finishing fortunately because we got much better technology on the containers but you know, you are constrained to invest in new technologies because you don't have the money to do it. I would say that those are the two major constraints. The other one is a market one- like I said before, we haven't seen yet possibility of using market differentiation to justify on working on more for example a carbon neutral product, which is something people have been wanting to talk about for a long time but that market is not there yet. The supermarkets talk about it but if you sit down with them and offer them something concrete, which we've done, which are the reasons that we've done the certifications, to know what our footprint was because what we want to do is tell the supermarket "hey, you know the carbon footprint of the bananas you are buying are 1.2 kilos per kilo of bananas. Why don't you offset that by purchasing carbon credit of forests in Costa Rica or in the country you bought them from?" We had that concrete offer to our customers and they like the idea until you sat down with them and said "okay, let's work out a deal and they started figuring out, hey we can't do this for bananas- we sell 20000 items in our stock so carbon neutral bananas won't do it, we need to do it for more than that." I don't know if that's an excuse or not but that's how they see things. For them it would open more

questions for their customers than answers. So there really hasn't been a market driven requirement for carbon reduce or carbon neutral products. That actually would have been helpful to us in order to pursue more green alternatives. Because in reality, at the end of the day, you can't as a company continue investing and in some cases it's, you can reduce costs- I've seen it to be more fuel efficient and all that, that actually reduces costs. In the case of fertilizers, it's a little bit more expensive. I think that the program has been successful because we can actually see the carbon reduction. But after the low hanging fruit it gets to the point that you're going to be adding cost to the business and if you're not getting anything from the market, then you're not going to continue investing in it. You won't do anything to reduce it.

21. What improvements have your company made to increase energy efficiency or energy savings?

Well many, we've done things like there's some old technology used in the refrigeration, so the containers when you refrigerate the containers they have a something called a generators, they call them gensets, but basically these are diesel powered generators that that keep the refrigeration system running. That equipment, those generators are old technology, it's not like the ones that we have in our vehicles, for our cars that normally, well a new car is going to be fine for being more efficient to a certain extent. But these old diesel generator things is old technology so there are some valves that you can buy that are called vortex valves and you put them on the intake valve of these old technology engines and that increases the efficiency of the combustions in the fuel. So we've installed those things onto our gensets and onto our tractors and then with those things, we've reduced our fuel consumption by an average of about 8%.

We've done the training that I mentioned to all the people that operate tractors and vehicles that it also helps reduce, and we've done what we mentioned on the containers that the containers that we used before, the old technology compared to new technology, the new ones are 70% more efficient so those containers need to run on diesel engines or they need to be plugged on a ship or they need to be plugged into a container here, or in the US, or anywhere near the chain. And the energy source, the use of energy by these containers is really dramatic so that has made us more efficient. And we've done the traditional thing of changing light bulbs. We are looking for next year to do something,

cold rooms in our pint office, there is some way, and there are some systems that we can use that we are looking at to make them more energy efficient, if there was a cold storage room in the pint office.

What improvements can your company make to increase energy efficiency or energy savings in the future?

Definitely- mostly just better technologies, more fuel efficient tractors particularly, more fuel efficient vessels ships, hopefully some more alternative energy fuels, more alternative fuels as they become available.

- a. What difficulties exist for the implementation of strategies in this area?

Yeah, well one of them is money as I mention again. It would be nice to have newer tractors. Before we used get new tractors every 3 years and now it's like every 5 or 6 years. The older your tractor fleet is, the more inefficient it is. It'd be nice to have better equipment. Same for the ships- we have been renewing our fleet the same way that we used to, we are still operating some really old ships from 1998 for European services. It'd be really nice to have had the money to put in new ships sooner. I think that we're going to be working, ordering a ship now. But if you order them now, it takes like 3 or 4 years for that to happen. So if conditions would have been better back then, we would be getting our new ships now and we'd be more fuel efficient. So yeah, money is one of them and then availability of these alternative fuels as there isn't any. We use some biodiesel but not as much as we'd like to because there's not enough. Those have been the major constraints.

- b. What employee/position in your company is responsible for paying energy bills?

Does this employee utilize any strategies to lower energy costs?

Oh, that's everyone, every single operation, every single farm, the operations in them and then the container terminal and then all the operating compartments are responsible.

22. What improvement have you made or are you making to increase energy efficiency or energy savings? What improvements can be made in your company in the future?

- a. What difficulties are you encountering in implementing strategies in this area?

23. Has your company incorporated the use of renewable energy into its processes?

- a. How can your company do so in the future?
- b. What difficulties are you encountering that limit your use or production of renewable energy? For example, education, cost, awareness, resources.

24. What is your definition of sustainability? What can be done to make a contribution to sustainability in your company?

The simplest one is to basically to be in business in for years and years and years.

What can be done to make a contribution to sustainability in your company?

Well, we always need to improve, but again, going back to environmental impacts in agriculture, soil is key, increasingly managing water because in Costa Rica we don't have irrigation. Because of climate change all of the sudden we would have to have irrigation over the coming years. If you look over the country of where we operate, one of the key things that we do is irrigation technologies that are very efficient. So basically managing resources, those are the two very important in general, managing the land if you're agricultural. And then in our case we've seen value in the long term to maintaining an actually improving the forest areas that we have surrounding our farms and I think that that has to do for sustainability. I did mention the business but no one's going to buy from you if you're cutting down the trees around the plantation particularly with the street and hometown and by the university so that's part of the sustainability issues too and going back to the topic, that's something that has to be done in the long term. That's why we're part of the Partnership of MesoAmerica concept. Also we see that there is something positive that can be done by the University that exists around there.

Do you guys have any follow up questions?

I was wondering if you could provide a figure on how many green jobs you have of the total workforce.

That's a tough one. If it's just you know, the guy that has the environmental hat on, there's not too much. I would say that if you include because we manage the environmental- one thing that I didn't say in the interview was that for us, you know the most important individual in the environment is our worker okay, so we want to make sure that do nothing we do affects the people we work with. In addition to checking the water and the soil, the person comes first okay so we manage environmental and work safety together. So if we include the people that work in environmental and worker safety in Costa Rica or operations in Costa Rica is directly with the

green hat and it's 15 people out of 5000. But I would say that it's the wrong answer because of what I said before. That everyone in the company has a role and operating to minimize environmental impact and that's why we do training to everyone. So I think that's the right answer, 100%.

But depending on what you're looking for from your studies, we don't have, we don't really design. Ours is an old industry, so you're not going to have a lead certified engineer or architects because they're continuously building things, designing products and we want to make them environmentally sound. We don't have that figure in our company since it's an old industry. Though we do have the people that are looking at them the major environmental impacts and those are the ones that I mentioned before, the soil and the water. The whole organization is guided by these 15 people in addition to company policies and standards. And part of that is the training hat I mentioned, to make sure that all those people that are operating from the environmental manager down to the farm worker or the training in order to make sure that the impacts aren't there. So I don't know if you call that too general, everyone has a green job, but that's the way I look at our company anyway.

I have another question. so you say that our company or your customers ask you about your green commitments. Do you ask any of your suppliers that you buy like the independent, like fruit producers, do you have any questions that you ask them about their green industries?

Uh, yes actually um one of the first things that we did when we got the iso14001 certification years ago in the 98 was publish a manual on how to do it. We gave it to all our growers and many of them went out and had their own environmental management system and others are part of our umbrella system. Because what, in our management system we certify our own operations directly and then we certify our assistants so we provide assistance to on how to farm bananas and pineapples with assistance. In turn we include all the procedures of work instruction that we have to reduce the environmental impact. So yeah, we've provided training over the years on how to do things the best way possible. And in pineapples we're very concerned about the environmental management issue, we provide direct training in the control of soil and erosion and ways to do that. In general our expectation for our suppliers is that they follow the same standards we have.

I have another question. In the Costa Rican industry overall, what do you think are the most prevalent barriers to establishing green jobs and training programs because a lot of companies

don't have anything related to this theme? Is it lack of education, lack of concern? Do they need be made more aware?

I think that the fact that in our case, we'll say that we're a multinational company even though in Latin America when you go and tell people that you're a multinational company, they don't like you very much. The way that the drive is of being multinational and you're selling overseas is that there are questions and concerns regarding environmental issues, that there's a market driven need to work on the environment.

Maybe local companies that are not exporting don't feel that need or have that need. And you can see the change in Costa Rica over the last few years. You can see that even the local market now is requiring a deal over that. I do think that a part of it is knowledge and education and in the past I think that's changing. I do think that Costa Rica's knowledge of it is very old of regulations – the regulations are there so if a company assessed all the regulations that they needed to comply with, they would find out that if they invested in green jobs would end in doing things better.

But I do think that despite the fact that there are regulations, that there's not too much oversight, that the government doesn't have that much money to be oversight industries. Although. I have seen major improvements in the last few years – I still think that we have to do a lot of work on it. I quite frankly find it extremely sad that we sell ourselves as a green country and that our rivers are probably the dirtiest in Central America. I think it's extremely sad- I think that a part of it is oversight and it's hopefully like I said before, hopefully the new managers will come and all these younger people that are more concerned with environmental issues will be managing the companies that are basically throwing their efflux into the river. You know, they're not supposed to but since there's no oversight, with limited oversight, they continue doing so. They don't have the awareness. I think that it will be changing over the years. So I'm an optimist but it would be a little nice to have some oversight- it's strange for a private industry to be saying that- hahaha.

But I think that it would helpful to the country.

So is that more accountability and more in compliance with the regulations that exist?

Yeah, I think that's one of it and the other thing is in the market obviously, if the market is requesting better performance regarding the environment then you're going to have more concern about it. The local market hasn't been very demanding of environmental performance, but that's changing. I do think that the fact that Costa Rica has attracted a lot of foreign

companies could be good. Having said that, I do know that there a lot of Costa Rican companies that are very good environmentally. It's not just foreign companies. Awareness is one and accountability is the other.

Any other questions?

No

Thank you

Company G

This interview will be with two people. The interviewee scheduled did not allow a sufficient amount of time and allowed her assistant who specializes in the same area to assist with the interview.

1. Esta información se mantendrá en el anonimato. ¿Podemos grabar esta entrevista por favor?

Si claro.

2. ¿Cuánto tiempo tenemos para esta entrevista? Tenemos aproximadamente 25 preguntas.

Toma todo el tiempo que quieres, mi asistente Pablo, el coordinador del ambiente va estar aquí respondiéndote tus preguntas como habla mucho.

3. ¿Podría decirnos su nombre y hablar de su posición dentro de la empresa y nivel de educación? ¿Donde estudiaste?

4. ¿De qué parte del sector industrial es su empresa?

- a. ¿En qué se especializa esta empresa en términos de productos o servicios?

Company G sells all the products with sugar- iced tea, gelatina, esprinkles, sugars, light sugar, alcohol for cars not to drink, también controladores biológicos, like bees o mosquitos to prevent plaques from the farms, a kind of biological cultura, so you don't have to use chemicals to control that problema.

- b. ¿Cuántos años ha sido establecida su empresa?

Cuantos años- More than 70 years in Costa Rica

5. ¿Cuántos empleados tiene esta empresa en Costa Rica?

How many workers, in this moment 510 workers. We have 13 plants in all the country.

6. ¿Puede darnos su definición de verde?

- a. Defina empleos verdes.

- b. Defina habilidades para empleos verdes.

7. ¿Cómo se distribuyen los empleos verdes en esta empresa (por ejemplo, ingenieros, técnicos, posiciones administrativas)? ¿Qué habilidades técnicas y verdes requieren ustedes que sus trabajadores tengan? Por favor dé 2-3 para cada posición.

- a. Ingenieros .

- b. Gerentes

- c. Técnicos
 - d. Obreros
8. ¿Qué ha hecho la empresa para entrenar a los trabajadores en prácticas verdes? ¿Tiene esta empresa programas de formación verdes?
- a. Describa a los programas de formación verdes. ¿Son exitosos y efectivos?
 - 1. ¿Si no, que problemas o faltas tienen?
 - b. Describa a los programas de formación verdes que se gustaría tener para sus trabajadores.
 - c. ¿Esta empresa realiza sus propios programas de formación verdes?
 - 1. Si no realizan sus propias programas de formación verde, ¿A quién subcontratar a?
 - d. ¿Tiene algunas relaciones con las universidades locales para la formación verde?
9. ¿Si no tiene programas de formación verdes, que ha hecho esta empresa para entrenar sus empleados? ¿Tiene esta empresa otros programas de formación?
- a. Describa a los programas de formación, ¿Son exitosos y efectivos?
 - 1. ¿Si no, que problemas o faltas tienen?
 - b. Describa a los programas de formación verdes que se gustaría tener para sus trabajadores.
 - c. ¿Esta empresa realiza sus propios programas de formación?
 - 1. Si no realizan sus propias programas de formación, ¿A quién subcontratar a?
 - d. ¿Tiene algunas relaciones con las universidades locales para la formación?
10. ¿Cuántos programas de formación verdes tienen por año? ¿Cuántos programas de formación tienen por año en total?
11. Díganos dos habilidades que les faltan sus trabajadores en las siguientes áreas:
- a. Energía renovable
 - b. Eficiencia energética
 - c. Neutralidad de carbono
12. ¿Son sus trabajadores una mayoría de trabajadores altamente calificados, oficiales, o trabajadores poco calificados, braceros? ¿Requieren que sus trabajadores tienen que niveles de educación?

13. ¿Qué es su vincula con la Cámara?

We are members of the Cámara, we are industry so we work with this Cámara. I work with the Cámara in some committees, when we review topics about relationships in loss and topics about health and environment so we are members and work with them in some topics specific.

14. ¿Qué cree usted que el CICR puede hacer para ayudar a la empresa generar empleos verdes o preparar a los trabajadores para empleos verdes? ¿Qué ha hecho en el pasado?

¿Fue exitoso?

15. ¿Cómo encuentran empleados?

a. ¿Trabajan conjuntamente con las universidades o asisten a ferias de empleo?

b. ¿Esta empresa ofrece prácticas en empresa a los estudiantes?

16. ¿Cree que hay alguna ventaja en la implementación de programas de formación para empleos verdes? ¿Estos programas le darían a esta empresa una ventaja competitiva?

17. ¿Cree que esta empresa va a generar empleos verdes en los próximos cinco años? Si es así, ¿qué tipos de puestos de trabajo serían?

18. ¿Hay demanda de sus clientes para ser una empresa verde?

19. ¿Tiene alguna recomendación acerca de cambios que pueden ser implementados dentro de esta empresa con respecto a los empleos verdes y programas de formación?

20. ¿Qué ha hecho esta empresa para ser verde? ¿Hay algunas normas?

a. ¿Ha establecido esta empresa alguna norma para la reducción de las emisiones de carbono?

b. ¿Ha establecido esta empresa alguna norma para el reciclaje o la gestión de residuos? ¿Si no hay normas establecidas, cómo elimina esta empresa los residuos y materiales reciclables?

c. ¿Qué factores han motivado la implementación de iniciativas verdes en esta empresa?

d. ¿Qué obstáculos han impedido esta empresa a ser verde?

21. ¿Qué mejoras ha hecho esta empresa para aumentar la eficiencia energética o el ahorro de energía? ¿Qué mejoras se pueden hacer en esta empresa para aumentar la eficiencia energética o el ahorro de energía en el futuro?

a. ¿Qué dificultades existen en la implementación de estrategias en esta área?

- b. ¿Qué empleado o posición en su empresa es responsable de pagar las facturas de energía? ¿Está empleado utilizar cualquier estrategia para bajar los costos de energía?
22. ¿Qué ha hecho esta empresa para aumentar la eficiencia de energía o ahorros de energía? ¿Cuales mejores puede ser hecho en tu empresa en el futuro?
- a. ¿Cuales dificultades existen en la implementación de estrategias en esta área?
23. ¿Cómo incorpora esta empresa el uso de las energías renovables en sus procesos? ¿Cómo pueden incorporarlas en el futuro?
- a. ¿Qué dificultades limitan el uso o la producción de energía renovable en esta empresa? Por ejemplo, la educación, el costo, el conocimiento, los recursos.
24. ¿Cuál es su definición la sostenibilidad? ¿Qué puede ser hecho para contribuir a la sostenibilidad en esta empresa?

Good afternoon, my name is Pablo, I am an environmental engineer and you are from?

WPI Worcester polytechnic institute

Okay and what is the objective?

We are researching green jobs and training programs in Costa Rica to see if there's a gap and then to make recommendations on how the Cámara can help to help create these green jobs in Costa Rica.

Spanish or English? If you don't feel comfortable speaking in English then you can revert to talking back in Spanish. Okay so we can begin.

1. This information will be kept anonymous. May we please record this interview?
2. How much time do we have for this interview? We have approximately 25 questions.
3. Could you tell us your name and discuss your position within the company as well as your level of education? Where did you study?

Okay, my position is coordinator of all the sectors of all the course of the company tried to manage all the programs environmental aspects like reducing impacts, carbon neutralidad, management systems like iso14001 and try to do a lot of this capacitate, communicate and try to involve the ideas of sell the environment topic to all the population of each core of company so there is the principal components of my work everyday.

And your level of education?

I know that you don't manage this kind of topic, licenciado. I am bachelors, licenciado, and master degree and I have two licenciaturas. One in environmental health and other in safety and security, like occupational. So these are my two degrees.

And where did you study?

In University A and in ILASI

4. What industrial sector is your company a part of?
 - a. What does your company specialize in, in terms of products or services?
 - b. How many years has your company been established?
5. How many employees does your company have in Costa Rica?
6. In your own words, please define green.

Sustainability- like tried to do, the whole process in one word? Is like to do the whole process in tried to manage in the sustainable level, try to maximize your efectividad and you produce systems but reduce impacts so that this kind of process is making to the environment, to the society and other kinds of things.

- a. Define green jobs.

Like two months ago I was in a kind of interview of green jobs, and the presentador, interviewer, presenter, told us that green jobs is not the persons that works directly with the environment- is also all the persons that is related indirectly but try to manage his daily works and activities but in an environmental conception. So green jobs is not just like me, environmental coordinator, it is also the receptionist that makes a lot of issues to recycle paper. Is also the general manager of CEO because they worry to manage whether the disposals recycle adequately, so this is a green job for me.

- b. Define skills for green jobs.

If you heard I thought a lot of things of green jobs is directly green jobs and indirectly green jobs. I think it's just have the conception, have the necessity to understand where is the problem right now. So, you don't need to have I think eh, skills to work in green jobs, but you need to try to be convencido, convinced, to try to change your mindset, to relate it to the problem that all the world is leading right now. But if you want some skills directly in green jobs, I think in management you need to manage a lot of different parts, you don't work alone, you work with human resources where

you work with operations, personal, you work with accountability, you work with a lot of people so you need to manage a lot of different thoughts, persons, works, environments, to have this kind of skill.

7. How are green jobs distributed in your company (i.e. engineers, technicians, administrative positions)? What green technical skills do you require your workers to have? Please name 2-3 for each position.

- a. Engineers
- b. Managers
- c. Technicians
- d. Laborers

We have one coordinator- that's me. We have three chemical engineers that is related with the manage of what are the disposals in the treatment of plants of water, we have engineers that manage the part of use of material privado, and try to reuse the use of prime material in the companies and try to make the process so sustainable to make in some way. We have accountable person that makes the control of each kind of the amount that is consumed- so it is the solution that we have already.

We don't have specific persons in each part of the company to manage the environmental aspects- we prefer to entregar la responsabilidad, to bring the responsibility to different persons in each level of the organization and try to involve other organizations on the environment level and I think it's better trying to work in the environmental concept of the company in this way.

8. Does your company have green training programs? What has your company done to train workers in green practices?

Yeah, managers, engineers, and also technicians. There is the kind of technician that can work for us like, I don't know, divide the garbage, the solids and try to manage, I don't know, the use of paper in each department, it's a lot of different things. I think there is personal in each level of education in each degree, with engineers, technical, bachelor.

And how many green jobs would you say that this company has?

I also saw minutes ago that we have just one directly environmental related job, it's me. But we have a lot of responsibilities- was believed to the different person in each section of the company. I don't know, it's a lot... there are 13...

Feel free to provide us with an example or something?

I don't maybe 58 because a lot of people participate in this kind of programs, not directly, but indirectly.

- a. Describe any green training programs. Are they successful and effective?

Yes, we have some kind of big program that we called ULIACA, which is like a University that is internal of COMPANY G and try to manage all the courses that different persons of all the company that is related with green jobs try to manage this kind of concept. So in green capacitation, trainings, we give trainings of each topic out to different person that is related with the different topics. We have a matrice, a matrix of each topic that each person needs to work in that green topics.

- i. If not, what problems do they have and what are they lacking?

We have this quick program called UCompany G like 5 years to work with these, it's connected with all the computers of the company and it's very successful because at the end of each curso, course, you need to feel a kind of test to determine if you to pass or not the course. So in this way with the management system of quality environment and safety that you try to verify that this topic was really learned by the employees.

- b. Describe green training programs you would like to have your workers go through.

That we would like to have? Yeah. That we don't already have but would like to have? Okay. C-neutrality is a new topic that here in Costa Rica is managed by the management systems in the high levels of the organizations, but they think that this kind of topic have to bring down to the lower level organizations and there is not a lot of technical courses of this topic here in Costa Rica, it's a new movement in all the world and is maybe it is one of the topics to increase the, la incrementacion de aplicacion de estos.

- c. Do you conduct your own green training?

Yeah, we have our own program of formation and also we have external personnel that helps us to manage very specific topics. Like I don't know... where to start? We are going to start a process of iso14001 and we'll bring external

people to bring this knowledge to the middle levels of the organization and try to manage it in that very way.

- i. If you do not conduct your own green training, who do you outsource it to?

INTECO, do you know who is INTECO? INTECO is like... So you know what is OCEA in the United States? It's kind of organization that manages the topics in safety and bring a lot of normas, norms and standards. So Costa Rica, INTECO is the org that manages all the norms and standards of quality, safety, environmental and they bring this kind of knowledge to the company with capacitation and activity, and these kinds of topics.

- d. Do you have any connection with local universities for green training?

Yeah- I am from University A, and I have the career of environmental health. Also, UNA, they have the environmental management and tech, technology, like the ITC, the Instituto Tecnológico de Costa Rica have the engineering in environmental topics so there is a lot of things. Also we have students from University A and ITC that they were working here for I don't know, he's master's degree, or bachelor's degree but not directly right now.

- 9. If your company does not have green training programs, does your company have other training programs? What has your company done to train workers?

- a. Describe any training programs. Are they successful and effective?
 - i. If not, what problems do they have and what are they lacking?
- b. Describe training programs you would like to have your workers go through.
- c. Do you conduct your own training?
 - i. If you do not conduct your own training, who do you outsource it to?
- d. Do you have any connection with local universities for training?

- 10. How many green training programs does your company have per year?

I brought a computer for these kinds of things. These training programs are related with iso14001 – already we have several 16 topics to apply in the topics related to iso14001. So this is the principal topics, there is other topics that are going to be created when iso14001 is going to work in the company and try to get the major acontina, best accountability, to try to be better in be management system from my own topics.

How many total training programs does your company have per year?

In a year? Sixteen because the 16 topics have to be applied one time a year for me, for all the people that is related with green jobs. Is one of the procurements of iso14001.

11. Please list two skills your workers lack in the following areas?

- a. Renewable energy
- b. Energy efficiency
- c. Carbon neutrality

Yeah- we have 3 or 6 months ago, we are working in renewable energy. We have a big lag in this kind of things. We bring a person from the United States, from Canada that try to help us with these kinds of topics because renewable energy is not a great topic that you will learn in the university, you need to understand these topics outside. Because here in Costa Rica is try to do something like me, like I don't know, solar energy that if you try to implement these kind of projects, you need support from outside to do it that way. So I think this kind of topics is one of them. We have to improve here in the company.

12. Are your workers a majority of highly skilled workers or low skilled workers?

Which one? Which is related with green jobs- or all the company? All the workers- the most parts of the company is low skilled people. Why? Because they are inside of the cor- manage, the empaque doras, the packers, the big packers, and that you see using cranes, so there is not a lot of the technical, and knowledge of skills that we need- and so there is some part of the company that half have high skills but are the managers or the engineers.

What levels of education do you require your workers to have?

It depends of the position in the company- if you need to work in the field, the ground of the company, you need to be for the high school level and need to have some kind of technical experience. But is you are manager or engineer, if you are I don't know, assistant of manager or engineer, you need to have bachelor degree or licenciatura or masters.

13. What is your link to the Cámara?

14. What do you think the CICR can do to help the company generate green jobs or prepare workers for green jobs? What has it done already? Was it successful?

Okay- they are working to create a lot of- I am thinking like in words, como vidrio, a lot of presentation, like a conference, they do a lot of conferences in these kind of topics and try to sell us the idea of green jobs but in the technical point in the field, it think is a lack of advisors from them, because they tell us, you need the green jobs, you need to hire green jobs, but this kind of topic is new, and we have already done this kind of technical conference in these kind of topics. I don't know if you understand.

Could you explain it a little bit more?

Okay, they bring the idea that you need to have green jobs in your company and to be part of the environmental management in a good way, but the technical part of I don't know, the manage of the plant treatment of water disposal things is something that is beginning so it's not developed. It's going to be developed but right now it's starting to walk, this kind of technical aspects. General aspects they help all. Technical in different kind of topics, like the manage of the disposal things, I don't know, the sax, the greenhouse gases and other gases that affect the ozone, and this kind of presentation of conference in the technical level to manage these kinds of things is something that is walking right now but we need to improve these kinds of things.

15. How do you find your workers?

a. Do you work jointly with universities or attend job fairs?

Okay Company G is a company that is kind of different because it's difficult to be inside of the company but it's easy to permeate the company. So when this opportunity works here, they open opportunity and they publish it in the newspapers and the internet, and this is the way. We don't have like a job conference or a job fair. We work regularly with newspapers, internet, email...

b. Does your company offer internships to students?

Like 5 years ago, was a project of the company to bring this kind of internships...

okay yeah, we have these kind of things in one or two, Cajole and Role, these are two different places that we have- Cajole and Role and we have personal engineers in and I don't know how to say industrial engineer? Yeah, and maintenance but there is not a program established for the company, it's something that just happened eventually.

So there are some students working with the company?

Right now, I don't know but I know that there is places that have persons – I am not the human resources person but I heard.

One question- you said that there were students working in other plants but not at this?

Yeah, not in this. There was one girl in the next room, and she was making an internship for administration, pure administration and already she is not here but she was working here for I don't know, for 3 months, 4 months or so.

But there's no formal program?

Yes, there is no formal program.

16. Do you see any advantages in green job training; would this give your company a competitive edge?

Yes, because the first part is to try to get the compromise to impact this movement of the environmental topics is past. Now we have to technify this knowledge and to technify this knowledge is creating opportunities of green jobs.

And do you think that it would give your company a competitive advantage?

Yeah, because all the markets in the world is inside of this concept of environmental management. So if you don't try to get inside of this process, you are not going outside of the market. It's fundamental.

17. Do you think your company will generate green jobs in the next five years? If so, what types of jobs would they be?

18. Is there demand from your clients to be green?

Yeah, we have three big clients, one of which is Coca-Cola and the other one is Florida Bebidas, and we make something that we called compras sostenables, which is like sustainable buying that we check the environmental aspects in their plants and they check our environmental aspects in our plants and try to compartir, to share knowledge and try to improve the things in each plants. Is one of the requirements to be buyer of the appliances.

19. Do you have any recommendations as to changes that can be made within your company regarding green jobs and training programs?

Yeah, que cambios haría- I don't know- maybe- I was talking with the Cámara de Industrias in a conference like 6 months ago, I raised my hand and I talked I saw – I

talked and told them, I think you are working a lot in trying to sell the idea to have green jobs, but you are not capacitor, you are not training the principal manager of each company to have the necessity of have green jobs in your company. Okay, you are selling the idea to human resources and to I don't know, administration manager but not for the principal manager of each company. And who is creating the necessity of green jobs? The principal manager. If you hope, if you change this kind of knowledge in the principle manager, then you are able to work on all the other levels. But this is a kind of work that we have to work on because the principal manager and the junta-directiva. We need to sell the idea principal directed to personal and principal manager of the company.

20. What has your company done to be green? Are there any green policies or standards?

Well I have a presentation here, maybe you want to watch- it was all the work that we have done in 2012 and what will be our work done in 2013. I don't know if you want to see. It's 5 minutes long. This year Company G sold the idea that we need to start really in working on environmental issues but the first process that you need to do is measure yourself - if you don't know which are your impact, then you don't have the basis to work in those environmental issues. We work into to measure cells, we create a lot of things like create records of consume of water, electricity, fuel, greenhouses effects, greenhouse gases and disposables solids things, garbage and liquids, waste, residios líquidos, in this kind of things. We have a lot of applicable information for just back to make a great part of information to bring us the idea of how to manage the environment leisure. That was the first part, later we make a kind of competition, so that we can tell in this way that all the different center work is going to compete in themselves and try to win something that we call Bandera Azul. Have you heard about Bandera Azul? Bandera Azul is like an award for that the center that make a lot of effort in environmental or sustainable topics. So there is all that center works, all the different bases, that you can watch them here. Each plant is was competed with themselves. Later we began the part of that creates activities that let us decrease the environmental impacts, like electricity, water, make a process- we have a process that is called azúcar líquido, liquid sugar and it's like a kind of jarabe, it's like jelly but more liquid, syrup, yes that's the right word, it's a kind of syrup that we sell to all the beverage companies and is most easily to make beverage with this kind of sugar. We improved in 3 years ago, the consume of water for each unit of production. So we continued to do this, to decrease this kind of use of water for each unit of production, it's one of that.

So you're doing that for water and for electricity?

Yeah we have, also we are going to show you the control that we have managed in the engineering part, fields, we have a lot of things, one of the things the we have is that we implement here in oficina centrales and all the different plants, digo conferencias, the conference, not to try to throttle for one meeting, so instead of having one meeting we have a video conference. We have a lot of reuse of consume of foods in this kind of world, topics. Also we changed the flotilla, we changed the different cars that we have, the different trucks and all the things, but with new trucks and more efficient trucks and these kind of things. Paper, we have a program in the servers in the TI servers, technology information servers that showed us who was the person that was consuming more paper in all the companies. Each company was connected to this server and told us when you print, what you print, how many copies do you print, and one, if we have this information we can work in the process that is related with this person. So we have to work to digitalize the process that is using all of the paper.

Sustancias Agotadoas de la Capa de Ozono- that we change all the products for those that don't have substance that affect the sun. Also we have cleaning products that 55% of all the cleaning products of Company G are biodegradable, they have the potential to be biodegradable. I have to prove this kind of terminal works for waste management. This kind of recycled process economic retribution they used to be again invest in responsibilities social programs of the company. We make like I don't know, a world that we solve the, that solid waste and that then comes the, the disposable, the responsibility social programs- that is the idea. There is only things since the habilitacion that is a part of the communication, capacitate a conference, these kinds of things, and voluntariado, voluntary in all the topics in the green part. So this is the things what we managed in the three years 2012. We also create all the procedures for iso14001 and we are already to implement the first part of iso14001 and also we are involved in the GIG protocol, greenhouse gases protocol that is a tool, very knowledgeable here in Costa Rica. We have these two big projects for the GIG program- these are the things that we have working on here for 2012.

Could we have this emailed to us?

This presentation- no problem. Oh, I would show you the... This is an example of the manage of information related with the produce unit in electricity. If you can watch here, we are monitoring our consumption of electricity per month and also with that the production unit that we call

bultos de azúcar – that is like 50 kilos of sugar is 1 bulto de azúcar, so we related the consume of electricity with the produce of bultos in each one. So we comport this kind of data, we relate it with the years of 2009 and 2010. And we are 28% more efficient than 2011, we've improved 28% the use of energy used for each unit produce.

- a. Has your company establish any policy for the reduction of carbon emissions?
- b. Has your company established any policy for recycling or waste management? If there are no standards in place, how does your company remove waste and recyclables?
- c. What factors have motivated the implementation of green initiatives in your company?

It's the public, the marketing is related with the company, but all the things is related with the environment right now in Costa Rica. So if you don't get inside of this ring, you are going to be out of the market in 2 years or 3 years. So there's a high demand to take part in environmental issues.

- d. What obstacles have impeded your company from being green?

I don't know. Maybe, the first part that you have as an obstacle is the cost, high cost of the new technologies, the cleaning technology is very high so you need to sell the idea that you are going to recuperar, to get back the inversion that you make in the first place in I don't know, two, three or four years- that part is more difficult to sell to the principle manager and directive of the company.

21. What improvements have your company made to increase energy efficiency or energy savings?

I also already, but we are making changes and in pilot plant, plant piloto in LED technology, we have some in the office if you want to see how it works, it's very nice and I can show you in a few moments if you want. Also we are working in the use of new kind of movement in technology. I also I told this in this way because we try to make electricity use for transportation of things. I don't know if you know what is a transportation band –like something that has a kind of belt with continued, the conveyor belt, all the company is going to be changed because this kind of things use a lot of energy. We changed it for the use of gravity levels to make something more efficient, so using gravity instead of something mechanical. This kind of investment that we are

working on right now with different plants principal Coyol that is one and Role. We're already testing these things and is going to be changed in a bigger way. We use cranes that is very efficiently electricity consumed, I don't know how to say it, pero son muy eficientes, the cranes and what else?

What improvements can your company make to increase energy efficiency or energy savings in the future?

The first topics is to try to be more c neutrality and is difficult because our impact in the use of fuels principal bunker, we use a lot of bunkers in our calderas, the cooking ovens and use a lot of bunker, and our impact in this kind of things, in the greenhouse gases is very high and try to be sustainable with this kind of things is hard for us because it represents a very big big investment in this first way. So we have tried to reduce that and be c neutrality is going to be a difficult step for us, but we are working on that.

And what are these calderas used for?

Is used to warm the water and the vapor, steam of the water is used to move some kind of parts, motors, engines, and this kind of stuff, steam powered...

a. What difficulties exist for the implementation of strategies in this area?

Cost- we have a lot of taxes here for all the things that have to be to green technology, it's something confusing because Costa Rica is an environmental country, but we have a lot of taxes for environmental things so the first thing is the cost of each kind of technology and later the implementation of these kind of technology in some cases is not so well in the economic way because you have to wait a lot of the years to get back the inversion that you make in the principal, first year to get the initial investment back through savings.

b. What employee/position in your company is responsible for paying energy bills?

c. Does this employee utilize any strategies to lower energy costs?

22. What improvement have you made or are you making to increase energy efficiency or energy savings? What improvements can be made in your company in the future?

a. What difficulties are you encountering in implementing strategies in this area?

23. Has your company incorporated the use of renewable energy into its processes?

a. How can your company do so in the future?

- b. What difficulties are you encountering that limit your use or production of renewable energy? For example, education, cost, awareness, resources.
24. What is your definition of sustainability?

It's a difficult topic because to be sustainable is something that you need to work in get there with your process. I'm saying that you need to be more productive and also less damage to the environment, less harmful. It's related, you increase productivity but you need to in the single item, going to decrease the environmental impacts of your company.

What can be done to make a contribution to sustainability in your company?

The first thing is to solve the idea to the principal manager, the general manager of all the company because he makes the big decision to how the company is going to move, that's the first thing. And the second one is try to not only solve the idea for the manager of different plants for all the personal in the company because everyone is important in that kind of process.

Do you think the company will have more green jobs in the next 5 years?

Yeah, because right now, as I am just one person. But with the GIG protocol, the implementation of iso14001 with the I don't know, the big part in the high way, high position of the compras sustenable, compras verdes, sustainable purchases I will need more personnel directly related with the topic and with our goals of the each year is going to be increasing the personnel already need to be increasing to get to this goal.

What kinds of positions do you think will be created?

I don't know, coordinators, engineers technified in the part of consume of energy and management because we need to manage a lot of people with this.

And could you please clarify, earlier you were talking about the training programs- do you mind explaining that?

Yeah. We have, I don't know, we have different, I am going to show you the matrix of capacitation.

There is the instructive of capacitation, training of each position in the company and each position have two be part of different trainings that is related of this matrix.

So there are these 16 different categories that need to be implemented?

Yeah but not all the different categories of the matrix is implemented with all the workers some-

So which workers have to be trained in which category?

Yeah, so they let us know which worker have to be training in the different category.

So is this one training? Or is it one training program once a year or is it continual training?

Yeah- we have a UCompany G, but depending of the topic and necessity of the topic, we can make it repeat the topic one or two times a year, I don't know- it depends on the objective of the programs that we have created in this year.

And could you please explain UCompany G more about it. Is it a program or is it a database?

I don't know if you want to watch it, if you want to watch it.

Okay

This is intranet, this is, okay we have a party at the end of the year and this year is called Vota por tus Estrellas, like an Oscar. So Oscar awards, and these are the kinds

So like a video or a montage

Yes, a montage of Jack Sparrow. If you see the traduction is different of what he's saying. So he's telling us in the traduction, that the we have to vote for the best looking good guy, the smartest guy, and you need to vote. And UCompany G, is this kind of things Universidad de Company G, I think that you don't see that.

So this is like a kind of database?

Yes so that you can make the things more easily because you register participate that is going to be say an English course, you would coordinate from here, upload the topics, the material form here and everyone gets access to this kind of database and gets the information.

So this is like a training database?

Yes

And it has your procedures and your documents?

Yeah

And this is on all the different topics not just environmental?

Yes, is in quality, is in environmental, is in safety, and in my resources, shopping, unidad de compras-

So it has all of your procedures?

Yeah. You can make reports, new processes, get new information, and different titles of that tool and you can audits, you can watch what's happening in the audits each year, this kind of database.

Could you say on average how many training programs do you have a year, like just an estimate?

Estimate? I don't know. Could be but in...

In green topics?

In green topics, this year we passed 2012, we have night programs of environmental topics and the next year, with the iso14001 is going to be 16 topics so-

So whichever, when the standard passes, you have different training programs?

Yeah.

Those are all my questions, do you guys have any extra questions?

I had a question, you mentioned that for recommendations for the CICR you said that it would be helpful if they had more training in like technical skills and you mentioned in waste management and also knowledge of environmental impact- is there any more topics if they were to teach courses that you would recommend?

I am very convinced that we need to improve knowledge but in the highway, in the management part because they, I told you before that they sold the idea that do you need to have green jobs but don't sell the idea of the person that makes the big decision of the company because there is a lack-

So there are conferences but the high people don't attend it?

Yeah, it's not directly for the high people, they are more for the middle people like human resource.

And did you mean that they lacked specific programs to teach you how to make the changes—is that what you meant?

Yeah, it could be because everyone's told us about cleaning technology, all kinds of things but nobody tell you how to limit the clean technology and how to get this clean technology in your plant, in your company because it is difficult to get for the price, for I don't know, the continued maintenance.

So you are saying that they give presentations like you need green jobs, you need all these green things, but they don't give the exact procedure on how to do it?

Yea-

So then they're like I want to but I don't know how?

Yeah, they show you the door, but they don't give you the key to get inside the door.

So they're trying to convince you to do these things but then they don't say the details of this company would need to do this and this?

Yeah, there is no specific supervisor of the company because each company have different and specific necessities that you need to be, to get involved with these kinds of necessities and not all the different kinds of presentations that you give is going to be part of the different companies that we have because all companies have different funds to work have different processes, have diff things.

So their presentations are more general to all different types of industry but then they don't say how each industry can go about making the changes?

Yes. Yes. Exactly.

Anymore questions?

How long have you been working with Company G?

Okay, I was working from three years ago I begin with them but externally, like as an advisor, a person that came here to develop some kind of projects-

A consultant?

Yes if you say so. And the last year they hired me for permanent. Because I was working for other company and then they were like oh, come here and work for us regularly.

So is there – so there is like a kind of environmental management here?

Yeah. It's me! I don't know how to say this. But Doña Solana here is the general manager of management, gerente administrativa and I have to report to her all the topics of all the projects because –

Because you are the first green job here because you're the one working solely on the environment but that's going to increase-

Yeah. Yeah, yeah.

Thank you so much.

Company H

This interview was done as a focus group, as requested by the company in order to answer the questions to the best of the company's capability.

This interview concerns the implementation of green jobs and relevant training within companies in Costa Rica. With the completion of this interview, the participants' responses and names will remain confidential and will not be released without their permission. All data will be handled carefully to ensure privacy.

1. This information will be kept anonymous. May we please record this interview?

Yes

2. How much time do we have for this interview? We have approximately 25 questions.

An hour and a half

3. Could you tell us your name and discuss your position within the company as well as your level of education? Where did you study?

My position is process engineering manager- I am in charge of 25 people around. I have both sides chemical labs- some part of the quality assurance and also the process engineering itself, what we do is to take care of any process issue that can happen in the process from material in a warehouse to finished goods. We have 24 hours engineers working, um 7 days a week also. So basically that's what we do.

This is our key manager for our manufacturing area and he will be joining us also. There are some training questions that I saw in the previews.

Whereas, I am the regional manager for Latin America and environmental affairs. I am in charge locally for environment and regionally for Latin America. I am in charge of coordinator department in Venezuela, Argentina, Brazil, Mexico, and Costa Rica. Here I have 3 people working with me in the department and we basically are working to protect and conserve the environment around the plant, inside and outside. So we work with people inside and in the community and joined with the social responsibility department so we are trying to make a better world here, save money, protect the environment and try to give back to the community. All that we are take from them.

Could you each tell us about where you have studied and what degrees you have in your field?

Well, I am a chemical engineer as I said. I have a master's in industrial engineering and am studying now in project management.

And which universities?

My licenciatura, I got it from the University A. My master's from... it's now ULATINA and I am studying in business school for management.

I am industrial chemist. I have environmental specialization and I studied in la Universidad Nacional, located in Heredia and I have a master's in environmental quality safety from the UNA University. Right now I am finishing the thesis application.

4. What industrial sector is your company a part of?

Manufacturing

- a. What does your company specialize in, in terms of products or services?

Basically tires and retreating materials – that's basically what we do and produce here.

- b. How many years has your company been established?

In Costa Rica, 45 years, since 1967.

5. How many employees does your company have in Costa Rica?

Horita son como 800.

6. In your own words, please define green.

Well for me, everything that is called green is the product or service that is in harmony, ambient, this means that of course, to take some resources but at the same time tries to minimize the impact of the environment. Um, of course, it implies a lot of other things like how the people behave and how the company behaves as a total, and I don't know, it means efficiency and waste management, all these things for me, that's what I think. For us, for the environment is to do things well or right, it's in order to leave a better world to the next generations and to do things right right now, to do very well things right now. So if for Company H as a group, we try to leave a very good environment healthy for further generations. For that reason we are working in harmony with nature, we are working chose better products to use in our manufacturing products and reduce our carbon footprint or our CO₂ emissions. So these 3 objectives are very important for

Company H as a corporate in order to work with people inside and to work with the community, in order leave or to have a very good image by doing things right. So that means that green is not just to say, “okay we are doing this kind of product or just one product or 20 or 100 – on we are trying to do everything with harmony to join with the triple bottom line- doing very good. Again, trying to work with very good economy, saving money with the community and the firm. So we are working on that, making money of course but protecting the things that we have and reducing impacts, reducing the effects that we can produce, trying to find better products and educate people because I think that is the key. If you educate people, you can get better things and big things.

a. Define green jobs.

Well, for me as The regional manager said, a green job is a job where you take all that into consideration and apply it into your everyday activities.

Yes, it’s to have a green job, I think all the people that work here, we have green jobs because it’s important that everyone knows about environmental policies about environmental rules that we have to follow. Each position needs to know about the environment and needs to know about some position- I know that a green job is more than that. Every person who works here knows about environmental impact and knows about what they need to do to avoid environmental impacts to society and to protect the company.

b. Define skills for green jobs.

I think, to accept new information because we need to learn and – I don’t know.

And that’s basically, I think to have an open mind, a diff view on the way we were doing things in the past- notice that everything that can or we do can have an impact on the environment, for me that’s the most important.

So an openness to learning new things and applying new things within your career?

Yes.

7. How are green jobs distributed in your company (i.e. engineers, technicians, administrative positions)?

a. Engineers

b. Managers

c. Technicians

d. Laborers

Well we don't exactly ask for green issues when we apply interviews but when people get in the company, they need to learn how to work in environment and corporation specialization, quality, and safety and any kind of item that we need to teach them. So in that moment, there is a curriculum that is filled with this kind of training. So now you have, now a part of your work is to be trained but once you get into the company. Of course if you have to apply for a position in my department of course I am going to ask you for other items and other important items that are needed but for the rest of the company, it is they get the training sessions.

So you are saying that green jobs are distributed so all the positions have some degree of green?

Yes.

Is there any positions that are completely devoted to like environmental issues or—
Like to give us a number of the green jobs? How many there are?

Three, right now, three. Yes a manger and two environmental engineers and I have a student doing a practice here for environmental engineering. Also I have a chemist working with me, a biotechnology person working in the dept and environmental como se dice gestión ambiental, that is specific and have items for these environment issues.

And what are some of the specific skills that you require your workers to have as far as in these green fields like in some of the training points?

To know about water treatment plants, to know about solid waste, how to treat it and how to avoid it, and to know about air emissions and environmental installation is very important and what else, yes I think air emissions is included. Now is, a long time ago you can ask for air emissions, no you can ask for CO₂ emissions, so knowledge about this kind of item, it's a plus. But basically I think water, earth and solid is very important and of course legislation. They also need some skills to teach because they are the ones who teach everyone in the plant. Yeah, and if we talk about skills, very um easy going person, outstanding, because they need to teach others about environmental items.

8. Does your company have green training programs? What has your company done to train workers in green practices?

Based on iso14001? We elaborated training and based on the items we need to teach. For example, if this year we are going to implement teach our new system about the water treatment plant so we teach about that and just a few slides, just a few slides, one or two slides talking about that but we teach about that. New specific items we teach or new projects that we have, for example, we want to be CO₂ neutral by 2020 in order to support the government issue so we involve all the people that work here because we need the support from everyone here. So we teach about that, we teach about CO₂, and we teach how to measure CO₂ for example.

They do also do environmental first where they share course knowledge and teach people how to reduce emissions and reduce waste, not only here in the plant but also in their homes.

Yeah, we work together with the environmental suppliers and environmental suppliers could treat our waste, our solid waste; who treat it just to convert in another product or to take just to a final destination. So we work together with them and sometimes we bring them here in order to explain what they do with our waste materials and the people here learn about that. So we exchange knowledge that way.

- a. Describe any green training programs. Are they successful and effective?
 - i. If not, what problems do they have and what are they lacking?
- b. Describe green training programs you would like to have your workers go through.
- c. Do you conduct your own green training?
 - i. If you do not conduct your own green training, who do you outsource it to?

For example we work with Geocycle and a Cement company and once they came here to show us how is the process in the cement kiln so how the scrap tire we sent to them, it's treated in a cement kiln with something. So they explain people here how the process is, why it's too expensive or why we need the material in this way, etcetera. It's that kind of example. Or people who buy us, I don't know, green material waste, uncured

materials so they make some different products so we bring them to in order to show the products the similar prints that they have and people here know what happen here with that kind of material. But when we sent them-

So that's after the materials are used here and they're recycled...?

Yes. Also we reuse material here internally. But once we can't reuse anymore, we sell it to people in order to support the social responsibility with these kind of companies, small or medium companies and in order to have or to treat these residues there. We also have training from ISO. We have 1 certification of iso in 2001 and we followed the rules of this standard and also 6 months ago we received from government how to say, a verification of our greenhouse gas emissions. So Company H, Costa Rica is one of the 7 companies that are supporting the government to get the C-neutral goal by 2021 but we want to be C-neutral by 2020 and we hope to be C-neutral by 2017.

d. Do you have any connection with local universities for green training?

Yes actually, we have, just for green jobs? We receive a lot of students from different universities, private and public universities, because they want to receive some kind of training here in Company H or because they heard about Company H that is iso42001 or have this or this or this. So we receive, I don't have the info, but we receive a lot of students from universities and also students from North America by universities there. And at least once a year we receive from Denver University and I think Minnesota was the last one where we show them about green jobs, about green areas, and about social economy and about equality or anything that they need to know and besides we have a program that maybe human resources can explain where we receive the students and we incorporate them into different areas of the company. So I don't know if you want to talk more about that

Good morning I am the key manager for manufacturing. And I am the manager for the human resources department.

What she just told you about this program is that it's a program in which students, there are events in different kinds that um... professions like industrial engineering or any business administration area. They could come to the company here and do some kind of... it's not an internship but some kind of which... I think I could call it like that, like some kind of internship in which they would be allowed to develop their skills for 6 months, it's a co-op and it comes in a whole different process, for example we need some kind of support in a specific area. So in this case we use the program in order to bring talented people, advanced students, and we generate some kind of a normal recruitment process in which we allow them to participate, to generate interviews, some kind of tests if it's required and then we choose the best person and give him or she the opportunity to come to the company and develop their skills during these six months. Initially it's six months and then later we could extend for another six months up to a maximum of 1 year and the student will be allowed to be involved in a normal work environment in a multinational company with high standards, talented people and everything, so it will gather a lot of experience here and then later on if there's a possibility that this person could stay within the company, so if there's a job opportunity at their second period, they could be able to participate within the program. So again, they will go through the whole process of interviewing and testing and whatever is required, but at the end they will be allowed to participate and most of them have become regular employees of our company within the past years, just becoming part of this program initially. Mostly I think from the manufacturing areas, administrative areas too so, there is a good opportunity for them to become a regular employee.

And how often do you have students apply for this co-op?

Every moment. Actually during the whole year, right now- I think we might have like 40 students in the whole company within different areas at least. At least in HR right now we have 2 or 3, in finance I think it is like 2 or 3 more, in manufacturing like 15, something like that, and in IT I think there is 2 or 3 more and in marketing there is like 6 so far. What I remember, something like that. But yeah, every time for example... Every time that one student finishes their co-op, then if the department requires, we look for another one, we look for a replacement. So in that case, it's a continuous cycle.

So you would say a consistent 40 students or so?

I could say something between 30-40 students. Something like that.

And these students are from you said in Costa Rica and also North America?

No these ones are locals from Costa Rica from different universities, doesn't matter if it's a private or public university, what we require is that the student have all of the necessary requirements that we are looking for in a person, a talented person, because a part of the problem to focus on is to attract and retain talented people. So at the same time, we give them the opportunity to develop their skills and gather experience but for us it's just, pay attention to person, evaluate the person in the whole person and later on try to keep it within the company, if there is a possibility, we will give them a chance to stay.

This program is very different from the program that we receive students from the university. It's just to teach in a specific area where Company H teaches them something specific. That's different. That's mostly for um, mostly for normal visits for university to know about our processes, our quality areas, standards and all that.

9. If your company does not have green training programs, does your company have other training programs? What has your company done to train workers?
 - a. Describe any training programs. Are they successful and effective?
 - i. If not, what problems do they have and what are they lacking?
 - b. Describe training programs you would like to have your workers go through.
 - c. Do you conduct your own training?
 - i. If you do not conduct your own training, who do you outsource it to?
 - d. Do you have any connection with local universities for training?
10. How many green training programs does your company have per year? How many total training programs does your company have per year?

I have the number, but if you give me time, I'll tell you later.

So if you could email it to us?

Yeah, okay I will.

11. Please list two skills your workers lack in the following areas?
 - a. Renewable energy
 - b. Energy efficiency
 - c. Carbon neutrality

Well, renewable energy, we need to start with this because we don't have anything about that, but we need to start with energy efficiency and neutral carbon because we have been talking about these two items since maybe neutrality, since 2008 and with efficiency and I think, more than 10 years. Since we have the iso14001, we got this in 1999 so since then, have talked about these efficiency issues. So we need to improve in the renewable areas. We already have it if you can maybe see the solar panels we have outside the company, but we start to talk about this but not specifics items of the kinds of renewable energy in the world.

12. Are your workers a majority of highly skilled workers or low skilled workers? What levels of education do you require your workers to have?

We could split them in administrative and the manufacturing area. By manufacturing I mean like technicians, operators. Um, they need to be highly trained because of the different processes of a company. Regarding that if they might have or not a university degree or technical degree, we give them constant training for them to proceed with whatever they need to do. Most of the people here from the manufacturing area, for the plant, some of them receive if not 1 or even 2 up to 3 months of training prior, they could enter the plant and start working in the different processes. This is something that because of the standards that we manage and also the equipment, they really need to know how to operate a machine or do any kind of process because also we need to assure the quality of our products, the tires will be in one of the many cars around the globe. Also, there's people with cars, we need to make sure that our product is totally high quality product and this person needs to be totally trained in order to proceed with their job. When the people in the administrative area, most of them require a degree in their specific areas, in accounting, human resources, engineering areas, manufacturing, marketing so what we do in these cases, we do have some job descriptions. Most of the I think, the 100% of the administrative positions does have a job description so we got a profile which we need to fulfill or was established in the profile, because in this case we have like the minimum requirements that a person needs in order to obtain that position, to obtain that job and the desirable, but we do have a minimum of requirements and yeah, in this case they must be, I could say kind of highly trained, a high profile.

13. What is your link to the Cámara?

Membership, and we have training and we have, some of us are part of the specific groups, of the Cámara. For example, the energy manager or the maintenance manager is part of the energy efficient group.

I can- I'm part of the excellence program, and they have an excellence award where companies all over Costa Rica participate and we evaluate them to measure how they are doing business and how to see if they can achieve a product, we are a part of that. And I am part of the technical group, but there are a lot of people involved as evaluators.

And next year I will be part of green group and the sustainability group, I think next year, and of course, we have other people working on human resources and different kinds of groups.

I know that another person here is in social responsibility groups, economy, finance, and I don't know... and we think our general manager is part of the board of the Cámara of Industrias.

Like she just mentioned, we were recognized this year due to our efforts regarding anything related to environment. She is actually from here, she looks a part of the region within the other plants regarding all the efforts for the environment conservation and to minimize impact to the environment. Also, like they just mentioned, not just the industry chamber, also the American Chamber of Congress, and there are some other initiatives, working with the people from AED, Associations Empresarial Desarrollo, like Entrepreneur Development Association, in which there is also a lot of companies also working together to improve not just the social responsibility requirement but also we're working on the disability of people and changing our infrastructure within the companies to comply with to local labor laws and keep more opportunities within the labor market.

And you said that you attended some of the training programs? Can you give some specific ones that maybe you attend like on a reoccurring basis? And who you send to these programs?

Manufacturing, I think quality assurance, or the different norms and also there's some other courses that are not totally related like excel or other specific courses, but the chamber does give those courses but the other ones are like social responsibility.... and some courses for leadership or motivation and stuff like that.

Yeah, if we talk about a green area, we receive some help from with CNP+L and the Cámara de Industrias regarding waste water treatment plants or how to reduce the impact of solid waste and how to find other suppliers to treat this kind of material. Of course, we have a very good contact with people who work there, so if we need to find this information for specific material and we don't know how to find them, we call Cámara or CNP+L and they will help us to find and regarding the c-neutral area. We also receive information or support from the Cámara and depending on the item that you want to be informed.

Hello, I am in charge of corporation relations and social responsibility. I'm sorry I was in a teleconference and I could not move. I don't know if you talked about anything regarding my area? Well you already have our sustainability report- you can find all the info about our strategy and corporate social responsibility that includes the regional manager's work with all the area, social approach and also our financial results, so if you ever have any doubts...

14. What do you think the CICR can do to help the company generate green jobs or prepare workers for green jobs? What has it done already? Was it successful?

That we receive from them? For me? Talking about being green from Centro de Producción más Limpia (CNP+L) regarding waste, regarding strategy about something that we need something specific. Right now actually, we are working in order to have a group to work with natural gas, the program that the government wants to bring to Costa Rica, so they call us with other industries in order to have a group and to have rules, to have some items to discuss with the government. And to try to have a win-win, so right now we are working with them trying to have a better result when they bring the natural gas here to Costa Rica.

And what do you think that the Cámara can do that hasn't already, like any recommendations for strategies to improve on green training and green education for workers and the company?

Maybe improving the bench marketing because sometimes they can't share with us from other companies because not in all the areas they have the same active participation as in the green area so maybe related to Human resources or social scope they can work on some benchmark or information in these practices so the industry can share.

So like a catalogue of what other companies?

Not necessarily a catalogue, maybe they can maybe arrange some meetings or some forums or something that all the companies can share information or to promote working tables about some other topics besides environmental.

Yeah, maybe it's trended, a program that they already have. And as the Corporate Relations and Social responsibility says, to have a benchmark with other companies with forums or though meetings or any kind of this.

It could also help to share information with other countries maybe with the Cámara so with some projects that they have. So maybe Cámara asked for a lot of information for us and we don't know the results later. Maybe it would be a good idea to share.

15. How do you find your workers?

- a. Do you work jointly with universities or attend job fairs?
- b. Does your company offer internships to students?

16. Do you see any advantages in green job training; would this give your company a competitive edge?

Yes. Actually because like I said before, Company H as a group is working on reducing the impact that our process is, so we are trying to support our community to work with them and the people who work here and in order to teach them how to manage this kind inside the company and outside the company, because we are a Company H of here, outside the company. So this kind of training helps people here to promote our products, tires here because you are not only selling a tire, you are selling a lot of things behind the tire, corporate social responsibility, items, environmental responsibility, very good work from human resources, to have better people working here, quality, safety, we have a lot of things behind a tire. So if we are going to say "Our tire, it's good in quality, safety and environment," it's because it does. It's because we have all the evidence and the tests to say that as you can that you can see the success and that we have so far.

Information is the key- you have your teammates and co-workers living, feeling, and thinking the way our company thinks and works every day, it's not only easier for us to have better results but also to promote in the communities, families and all the neighbors around us have a different way of doing business. Because as we have said before, we are not just sending tires, we are living in a Company H way and our way is really different

because all of our teammates, our communities, the school, they all know about the way that we do our work, and it's really important— not only for hiring more workers, it's just because we need to share with all the ones around us, that we want to do things in a different way to leave a mark on society.

17. Do you think your company will generate green jobs in the next five years? If so, what types of jobs would they be?

I think so. But do you mean jobs generally or green jobs?

So first green jobs, but in the direction of like specific green jobs or position that will become more concerned to environmental issues and processes?

I mean, I think that from whatever is environmental in green jobs, I guess of course, we might require some people with some other skills in the future, and mostly because as Sylvia mentioned, we are targeting to be c-neutral for 2021 and in this case, looking forward to achieve that goal we need the necessary people in order to achieve it. Not only the resources that the company might be able to give us or the amount of money they can invest but also talented people that could guide us and lead us to this achievement. Of course, we already have some of those talented people but we might need more. From the rest of the hiring processes I guess, depending on the growth of the company within the next few years, from here in 23 countries regarding sales distribution, marketing, and I think of course depending of our growth plans, we usually hire people, I mean people here got promoted, so we need to replace them and even the students that we do hire, those are new hires that when they get to the company, it's regular. I cannot tell exactly you how many people we are going to hire in the next few years, but mostly, usually throughout the whole year, mostly in the manufacturing areas and probably I'm not sure if marketing, well, those are the two areas that usually you see people like some kind of turnover or maybe just because they were promoted, but not in a few years. Now, there is another operation, there is a new operation is the service center that they are targeting to hire something around 120-130 people that could help us with regional processes to bring in to Costa Rica, this is like an accounting process that we are centralizing the whole accounting operation here and this project started just a couple of months ago and so far I think that they've hired already like 40-45 people at most and they require for the next year at least 120-130 people. So one of our peers, she is the person in charge of this

whole process, she's actually recruiting a lot of people every month so within the next few months, that's our main target, we need like 80 more people getting through this project. Again, those are highly trained people with accounting degrees, industrial engineering degrees, and administrative degrees.

I have a question about the tests and the process for hiring students for the co-op. Do you ask about any environmental specialization or any environmental issues at all on the evaluation process?

For students?

Yes.

As a requirement no, but we do give them some training at the moment that they arrive within the program. They participate from the normal training process, that we need to go through all the employees, regular or students, it's a process of 4 days, continuous days, in which all the departments and areas that are involved, you see people from environment, you see people from quality assurance, you see people from HR, basically all the areas are involved so we give them a good training in order for them to know generally from Company H, but yeah, as a requirement, we are not yet requesting some people or knowledge in green jobs.

For environmental area? Yes it's a requirement. Yes, even if they students. But not as general.

But the rest of the people it's just specific training as we talked about before, and the main item that all of us need to know, it's about environmental impacts. How I can have an environmental impact in doing my work or how to avoid it, or how to prevent, or how to improve, how to act in case of this. So don't be afraid to say this, you need to learn so just tell us how to improve or how to learn about something that is happening in the product, in the quality process.

18. Is there demand from your clients to be green?

Well the industry in general is asking for more green solutions for all of the products that we purchase and that the debate is not specifically in the tire market but the corporation is working on some sustainable technologies so that we can work on some processes that will have less impact on the environment, but The regional manager for Latin America and environmental affairs and all of the manufacturing area are doing a great job reducing

all of the effects that the manufacturing process might have on the environment. But in general I think that the industry and the customers are asking for more green products and solutions. Actually we like to go and stay forward. Actually, we are working with the distributors in corporate social items and now in environmental items so we try to go and to step forward in these kind of materials.

Do you have any standards specifically for your distributors or suppliers that you work with that happen to follow?

Yes and no. For example, The Corporate Relations is working on social responsibility. She is applying with them, not specifically the iso training 6000 standard, but she used most of the items with them, trying to teach them about corporate responsibility but it depends on the size of the company and it depends on the opening that they have. For example, next year we will work in environmental issues with them so I'm using the iso14001 as a base but I'm not going to apply the iso14001 that's trying to introduce them to this kind of standards and good practices.

It's important for you to know that for good or bad, not all of our dealers are related to green businesses or social standards. But our work here is to educate them, to teach them how we do our things and how they can include all of the good practices in the processes too but the first step is basic in any kind, it's to share the information with them because as far as social responsibility goes, it's a volunteer action, we cannot force them to do volunteer work or to help with a school nearby because if they don't want to do it, they won't do it in the right way. But in environmental issues, it's really important that they have some kind of commitment to this global movement around green strategies and processes because they will need to have this as a competitiveness and car to do this in their countries. We are actually working really hard sharing information with them, giving sustainability reports, working on little projects so that they have with them some sense of what we are trying to do and we are trying to help them reach a goal. As long as they are committed with our philosophy, our values, and our strategies, they will of course have more benefits as a dealer or distributor because they will have discounts, or they will have extra opportunities to work on some kind of pilot project, right, because they are aligned with the things that we believe in. So it's better for them to be with us than none right? But the thing is that we are working on the education for them and

information for them as a first step and the next year, we will work on specific projects with them but it's like a very long term plan because it's day by day with them. So that is the way that we are involved with them.

19. Do you have any recommendations as to changes that can be made within your company regarding green jobs and training programs?

Maybe we can have some like a guide or something, not like a test but could be really interesting to include some affinity and some relation with the green and social outatives of the company when we are hiring, but sometimes we only ask about "do you like volunteer work, are you familiar with green initiatives" but it's a yes or no answer. So maybe we can improve our selection process with extra information that can to give the future boss some guide about how the teammate will be regarding green or social objectives of the company.

So maybe like the part of the general application for all workers?

I don't know, human resources. This is...

Actually, no we haven't focused with ourselves with green jobs. I guess that in developing countries, green jobs initiatives is something we just barely started hearing about. Of course, it would be great if we had more information regarding it, or to be able to establish something within our hiring process in order to look for people or not just people but people also focused on environmental conservation concept for any kind of knowledge that they might have within this.

So far, at least as far as I know here we haven't focused on ourselves on the HR perspective asking this kind of requirement in a candidate. But of course we are always hoping for them to have any kind of training.

20. What has your company done to be green? Are there any green policies or standards?

The iso14001 in 1999 as said before, we treat our wastewater in waste water in our water treatment plants from domestic water and now we are treating industrial waters so we are reducing costs there. Also, we implemented a system to control the oil to improve the mix of the natural rubber in the mix area and we mix natural rubber with synthetic rubber so the natural rubber with specific other so we implement a system to treat these gases and to reduce the other. Also we established a program in 2010 to reduce or to improve the energy efficiency in all the plant, this program we call PACE, Programa de Ahorro de

Consumo de Energía. These programs is to involve people here in plant and to commit them to reduce the consume of energy, like to turn off the lights when you leave the office or in the plant to turn off the things that they already have. So this program focuses to get the c-neutral certification in 2020. So the other program that we have is the greenhouse gas entry where we established a the management system to have this venture in place for our process so we have the verification, validation and we now are working on the CO₂ emissions that we generate in the plant, we are implementing new technology and nitrogen systems in the plant. We used to use fossil as a fuel so now we are going to use part of the nitrogen so we are going to reduce the use of this kind of fuel, so we hope in 2016 to have all our cured impresses working with this nitrogen system so of course we are going to reduce 30% of our emissions CO₂, and waste areas where Ivan is the leader of this kind of process.

Basically in the plant we are working a lot of time trying to reduce the waste that we produce in our production areas. We have reduced up to 30% in the last 5 years. Actually we are the best plant in Latin America regarding waste. Everybody in the plant is focused about this. They know exactly what are the main causes and what are they doing to improve. We are also working to reduce the ozis and use some solvents and other materials that reduce the ozis– we work in that way to reduce the consumption of these kind of materials. And we are also recycling or using recycled materials into our tires. We are using a small portion in some of our tires. And so that's some that's some of main focuses in the production area. Of course as we said, we are also working in the energy consumption, water consumption and this kind of stuff.

In the future years we hope to work in c-neutral water.

The investment done with the plant to reduce emissions qué antes había, we have implemented a lot of items to reduce the energy consumption in the plant and we have water free urinals to reduce water consumption and also we work with solar panels in the parking lot area. In 2 or 3 months will have solar panels in a building in order to conjure energy and to use this kind of energy oh in one office, the general manager office, we are going to monitor this so we are implementing a lot of things to reduce our carbon and water.

Recycled paper towel, recycled toilet paper recycled... Yes, actually talking about solid waste, when we began with iso14001 system, we used to send 80% of our solid waste to a landfill and now we send 88% of our waste to treat it to recycle. So we just send 10% of our solid waste to recycle and we are working to be zero waste. Maybe before 2020 we will have zero waste and what I mean by zero waste is to find more environmental suppliers that treat our waste. And of course help with engineer process to reduce the waste that we are producing in the project process so we are going to focus on that call. Here in the booklet, you can take a look at our summary of strategies in our environmental activities and here is our information until 2011 about environmental scope, you have here the information of the initiatives that we have and all the indicators and the data, here is the information about the solid waste. The solid waste management and all the percentage of disposal and you will find information divided in 3 big areas or 4 are corporate philosophy and everything regarding our values and mission or vision in the environmental scope, the economic scope and social scope so here you will find all of the information. Here is where our waste water treatment plant, our waste disposal for tires, and all of that in this report.

- a. Has your company establish any policy for the reduction of carbon emissions?
- b. Has your company established any policy for recycling or waste management? If there are no standards in place, how does your company remove waste and recyclables?
- c. What factors have motivated the implementation of green initiatives in your company?

Our mission from our founder, he believes in this since 1931. So he said that the companies who just think about making money will just be companies that... so we need to think in our community, we need to think in our environment and how to improve our systems inside plant to produce a very good product of quality, environmental safety, when thinking about society, et cetera so it's inside the corporate.

- d. What obstacles have impeded your company from being green?
But you mean for everything in the green?
General, just general and barriers or obstacles.

I think education is difficult because you can't educate people that depend on them- that want to make a change. It's a long process and you invest a lot. You have to everyday, you have to have a new beginning.

And I think, it's not totally focused on our education system or education within it's actually education coming for our homes. It's really difficult because our society in general is not totally focused, at least now on environmental conservation. You see kids in the street throwing trash on the streets or parks and doesn't care about energy consumption, water consumption, rivers, everything. So it's more of a focus of starting a kind of education in our homes and try to reinforce that within our companies, within our society. That would be something that would be helpful to us.

Also I think that maybe some kind of new technology to do greener products to treat waste since some time ago we did not have a system for treating warm tires for example. Now we have a way to treat them, to reuse as a byproduct. Also since some time ago, there were no green or green products into tires, they were all oil related. Right now we have new technologies that have been incorporated in the tires.

And do you have any recommendations for anything, for the Cámara can do to help other companies, small or large to overcome some of these difficulties?

Through training programs, or through policy?

Reduce the cost of training programs. Hahaha.

Work with companies, benchmark, work with the education system.

In the education system you mean like from grade school up to the university?

Right, like primary, high school.

Maybe they can give support, but it's not their responsibility. It's not a part of their system but they can teach or they can go side by side from the education minister to give them information about the main topics of the industry so that they can put that in the curriculum.

21. What improvements have your company made to increase energy efficiency or energy savings? What improvements can your company make to increase energy efficiency or energy savings in the future?

- a. What difficulties exist for the implementation of strategies in this area?
 - b. What employee/position in your company is responsible for paying energy bills?
Does this employee utilize any strategies to lower energy costs?
22. What improvement have you made or are you making to increase energy efficiency or energy savings? What improvements can be made in your company in the future?
- a. What difficulties are you encountering in implementing strategies in this area?
23. Has your company incorporated the use of renewable energy into its processes?
- a. How can your company do so in the future?
 - b. What difficulties are you encountering that limit your use or production of renewable energy? For example, education, cost, awareness, resources.
24. What is your definition of sustainability? What can be done to make a contribution to sustainability in your company?

It's like the triple bottom line, you can't have sustainability only if you work with the same interest and in the same level of importance in environmental, social, and financial scope because you cannot be a sustainable company if you only care about the green area and you don't care about your coworker's right, because it's like the double speech. But you can with the triple bottom line to reach your approach of sustainability, you can look at the sustainability report in the first pages, you will have the definitions or how Company H defines sustainability for our industry and especially for our plan here in Costa Rica. You also have the Company H definition of sustainability regarding 22 focus points that they share with all the plants in the world of how can we be a more sustainable company for the future, so it's from Japan, through all the continents and especially to Costa Rica, and we work in as a really united way, standard way, especially with Latin American and I don't mean the environmental area but also with social responsibility in the community and so it's pretty much to have the right amount of importance or activities or focus of the business in social, economics, and environmental areas.

We need to make money, that is true, but we can do this, working together with society, with sites outside the company, and the harmony of the environment. So if we want to give back what we have taken from the environment of the society, we need to reduce to make money and to give back more and more.

Okay, that was all of our questions. Do we have any follow up questions?

I have a few follow up questions. Given that Company H is one of the more developed companies in this area in Costa Rica, what advice could you give to smaller less developed companies to develop green jobs, green training, green initiatives?

Small companies you mean?

Just companies that aren't as developed that maybe don't know how to develop in these areas?

I think in my opinion- first of all, they have to believe in this. If you don't, you can't do anything. So since the general manager to the rest of the people, you have to believe in this, at least one thing you do, you can make the change, at least one thing but you have to believe it. So you have to put all your effort to reach what you want to reach but working together, I mean if you, if the company is going to have an environmental department or corporate social department or whatever, you can't do things if you don't work with people inside and outside the company. Walk the talk.

Also, it's also really important to know where you are, so you need to measure your actual situation, you need to have some metrics, some indicator so you can improve them, right, because if you don't know where you are, you can't make a plan trying to improve. So you need to do like a self check of how is your company's situation today and where you want to be in the future. As I said, putting all your heart on this because otherwise, it's not going to work. Basically it's not optional, if you want to survive, you need to lead these kinds of activities and work hard.

And would you say that a lot of the motivation for these initiatives comes also from internationally from headquarters or is it solely in Costa Rica?

Well in manufacturing specifically, I think it's a lot of corporate standards, and also environmental standards, but I would like to say without question that Costa Rica is one of the punitive in the initiatives, tropicalizando, tropicalizing, putting in our way some initiatives that the corporate put in a table for us, volunteer work, environmental actions, initiatives in the plant for improvement for our processes and production. Costa Rica in general has been really proactive with some of the results that you will see in the report, but we also need to credit to our corporation because they are working really hard in the processes too, we of course follow all the processes and initiatives and programs that they share with us but we can also develop our own projects and in those own projects is where I can say that we have been really good.

And I just wanted, could you clarify what you meant by benchmark? I didn't really understand.

Well sometimes you have a lot of industries working in green jobs for example. But they don't know that Company H, Florida, I don't know, Cemex and Holcim, are working on the same thing so maybe the Cámara can put together all the companies and share the best practices and you can do a benchmark of what you are doing, and what I am doing so how we can improve our practices to have better results. So we used to compare with ourselves and to others so that benchmark is the mark that gives us the way that we want to follow for the next months, years, or 2020 plan for example. So the benchmark is when you share information when you compare yourself to yourself and to others so that benchmark is what maybe the Cámara can put together for the companies because they have all the know now right, so maybe we can have some information from others that we can apply or put in our plant.

Also she said about the benchmark- because that, we have a saying here, that if you don't measure, you cannot improve and we are in that. And sometimes we focus on benchmarks not just locally but also international because we are trying to compare ourselves with the hundred x companies in environmental conservation or whatever we need. KPI's, we need information in order for us to compare our facilities and compare our companies. And of course, I mean, if all the companies, or most the companies in the top 100 here, and we are doing a lot of efforts but we are still low, we cannot say that we are doing a very good improvement in our processes. So we need information, in that cases it can be local or international, we can compare ourselves and develop new objectives for the next few years.

And just one more question, how maybe Company H developed the framework for this environmental management and infrastructure that maybe other companies don't have and could improve?

How we did it? Based on iso14001, we took this and implemented it here, and with all of the points that are marking the iso and we try to incorporate it into our process. But as we said before, this is not an easy way to do it because day by day you have to learn or teach something new and sometimes we are very good but one day we are not and one day we are good.

It's an effort that you have to apply everyday or things change and you need to adapt because there is a new metric or now new reactors in the code, and you need to work on a daily basis on this. And naturally, you don't need to have that certification, I mean you can implement it, but you don't need to pay to have this iso14001, to have an environmental system inside your plant,

you just need to implement the points, the specific points that internationally are using and you can have an environmental system without to spend money in the certification and I said before, but you have to believe in this, to apply it and to convince other people to be part of the green group.

Thank you, I think those were all my questions.

I have one more question, specific to the solar panels. One of the companies we interviewed said that they mentioned that they would like to incorporate solar panel use, however they didn't have the specific training or education on how to go about it, or right positions to know how to get them or how to install them. Are there any recommendations that you could make on or how the Cámara can educate companies?

Yeah, I think it's very important because we need to know about these kinds of systems.

Actually we learned with the people who sold the solar panels because we didn't know about this. Actually, this is a very expensive method/investment that we are doing, and maybe we are going to have the retorno de inversion, return investment in 4 or 5 years but we are doing this to support our environmental policies. But if that company wants to know something, they can call us and maybe we can them some support and maybe will be a good idea that the Cámara talk about more about these new ideas and present some new companies that can offer this kind of technology.

And then, can be incorporated if there was a meeting like benchmarks so that they can collaborate?

Exactly.

And that's all the questions that I have.

Gracias

Company I

Esta entrevista se refiere a empleos verdes y programas de formación en las empresas en Costa Rica. Con la realización de esta entrevista, las respuestas de los participantes y los nombres se mantendrán confidenciales y no serán divulgadas sin su permiso. Todos los datos serán utilizados con cuidado para asegurar la privacidad.

1. Esta información se mantendrá en el anonimato. ¿Podemos grabar esta entrevista por favor?

Sí

2. ¿Cuánto tiempo tenemos para esta entrevista? Tenemos aproximadamente 25 preguntas.

3. ¿Podría decirnos su nombre y hablar de su posición dentro de la empresa y nivel de educación? ¿Donde estudiaste?

Soy ingeniero industrial y soy de la gerente de sostenibilidad. Estudie acá en Costa Rica en la universidad Fidelita.

4. ¿De qué parte del sector industrial es su empresa?

Agroindustrias.

- a. ¿En qué se especializa esta empresa en términos de productos o servicios?

En productos lactas, bebidas y néctares.

- b. ¿Cuántos años ha sido establecida su empresa?

75 años.

5. ¿Cuántos empleados tiene esta empresa en Costa Rica?

Son más de 3500 empleados

6. ¿Puede darnos su definición de verde?

Para mí verde es realizar nuestras propias actividades, nuestra relación día a día de una forma sin afectar el medio ambiente o nada que tenga que ver con él. Sería hacer lo que hacemos diariamente pero de una forma eficiente donde estemos.

- a. Defina empleos verdes.

Para mí, empleos verdes es un punto de vista pero no necesariamente tienen que hacer empleos que tienen que ver con el medio ambiente, si no puede ser empleos tradicionales que tenemos pero que podemos acostumbrar de nosotros como principales proveedores de estos en hacer las cosas de la mejor forma y en

usos eficientes de recursos. Por ejemplo, un empleo verde no necesariamente tiene que ser trabajar en un parque nacional o trabajar en no sé, una protección de una cuenta si no que también puede ser de mi puesto, verdad, realizando un uso de recursos eficientes, como a la hora que salgo, apago la computadora, apago mis luces, a hora de preparar los desechos lo hago en una forma eficiente. No necesariamente imprimo todo lo que necesito, solo lo que requiero. Entonces yo creo que empleos verdes viene de hacer un concepto no solamente de las personas que trabajan a la hora en un área digamos que técnicamente es armonía con el ambiente, como las personas que se dedican a eso si no que también puede generar, digamos es concientizar a nuestros propios colaboradores en que pueden trabajar en una manera eficiente de los recursos sin afectar el medio ambiente.

b. Defina habilidades para empleos verdes.

Sí, nos vamos al punto de que veamos empleos verdes como únicamente aquellos trabajos que se genera o que tiene un requerimiento en materia del medio ambiente y los requerimientos que terminan son básicamente el conocimiento técnico en los materias como por ejemplo los que están trabajando en el medios ambientales, sistemas ambientales, como se está trabajando en la parte comunicación o educación. Por ejemplo en el tema de ambiente pero como le digo si nos ponemos a ver de empleos verdes igualmente, yo personalmente pienso que muchos de los empleos convencionales pueden convertirse en verdes y ya es básicamente un tema de concientización, un cambio de ese chip, de que seguimos haciendo cosas de la misma forma entonces yo siento que si el tema de empleos verdes va mucho más allá de solamente de personas que discutan o que estén haciendo un proyecto dentro de una condición que los exige de la parte del medio ambiente. Hay hoteles que ya tienen dentro de sus condiciones, por ejemplo el que tiene una cantidad de hojas verdes, entonces para usted trabajar allí tiene que cumplir con ciertos perfiles. Por ejemplo saber sobre varios recursos, saber de que a la hora que se genera diferentes residuos y como tienen que tratarlos y también incentivar los huéspedes, por ejemplo en que a la hora que usted va, no necesariamente todos tienen que cambiarte las cosas de la cama porque se genera

que tengas que lavar más, entonces como usted, como empleado de ese hotel, como tienes esas condiciones tiene que hacer partícipe de parte. Pero como lo digo, el tema de empleos verdes es un tema que no solamente aplica para esos tipo de actividades. Yo creo que todos debemos ir trabajando en función que el empleo que revisamos día a día lo hayamos haciendo en una forma eficientes. Porque cuando hablamos de empleos verdes, nos ponemos a ver que es un tema que en Costa Rica, tal vez en otros países Europeos, o en los Estados Unidos ya se tiene un poco tal vez mas de conciencia en algunos ambos entonces aquí estamos logrando esa concientización que nosotros como personas que realmente podemos seguir haciendo las cosas pero en una manera más eficiente como en día a día.

¿Y tiene Company I empleos verdes?

No, nosotros no tenemos así como empleos verdes. Porque como te digo, es un concepto muy nuevo. Es un concepto que tiene que tenerse claro de lo que es, que realmente en este momento, te digo que si como se considera como empleos verdes, no. Sin embargo, si en día a día, al interno trabajamos que un personal sea consciente de que puede realizar sus acciones de una forma igual, muy productiva y eficiente pero con la menor cantidad.

7. ¿Cómo se distribuyen los empleos verdes en esta empresa (por ejemplo, ingenieros, técnicos, posiciones administrativas)?

- a. Ingenieros
- b. Gerentes
- c. Técnicos
- d. Obreros

Hay de todos, hay de misceláneos, hasta ingenieros y hay administrados, sea que de aquí hay de todos profesiones. Y se distribuyan de acuerdo de la necesidad que tenga cada unas de las áreas en los departamentos en la organización entonces dependiendo en ese requerimiento.

¿Qué habilidades técnicas y verdes requieren ustedes que sus trabajadores tengan?

Por favor dé 2-3 para cada posición.

No necesariamente pero por nuestro sistema de gestión somos una empresa que estamos certificados con iso14001, somos una empresa que trabajamos a disminuir

nuestra huella, y estamos trabajando en los planes de reducción para ser una empresa carbono neutro. Entonces por todos los sistemas que tenemos al interno, si trabajamos mucho con personal de que el personal va a ingresar para nosotros es importante de la inducción que se le da al personal dejarle claro cuáles son los criterios que tienen que cumplir.

8. ¿Qué ha hecho la empresa para entrenar a los trabajadores en prácticas verdes? ¿Tiene esta empresa programas de formación verdes?

Les damos mucho capacitación en lo que eso es en recursos y como utilizar eficientemente el consumo de agua, como trabajar la parte energética, como hacer un uso eficiente del bunker, del combustible. Como por ejemplo, el chofer es de cómo del frenado, de forma de conducción que ellos tienen que ces influyan para que haya un consumo eficiente de lo que es el bunker, en lo que es de la gasolina. Entonces influimos muchos en ellos de manera tal que ellos a la hora de conducir, lo hagan de la mejor forma para que sea el menor uso. Por ejemplo, en la parte de acá, ustedes verán que siempre ce le pida a la gente que apagan las luces, que igualmente cuando van a lavarse los dientes, que van eficientemente. O sea, por ejemplo, tienen que pasar la mano entonces no pueden dejar el tubo abierto verdad, ¿por qué cual es la costumbre en lavarse los dientes? Abrimos el tubo, cantamos, hacemos de todo lavándonos los dientes, y agua corre entonces les ponemos el ejemplo que cada vez que ellos ven que el tubo está corriendo, son 10 personas que ces pueden lavar los dientes, y no solo uno como él. Entonces les ponemos muchos ejemplos luego que tenemos indicadores que de desempeño, en cuanto lo que es consumo entonces ces pegan a las paredes, a las pizarras, y ellos ven con unas caritas que si estas verde, estas bien, si estas amarillo, más o menos, si estas rojo, estamos fuera de la meta. Sea ellos entienden que conjuntamente con el equipo nuestro en el ambiente, verificar todo lo que está pasando en el área para poder reducir inmediatamente lo que es el consumo que se salió del aparato. Pero entonces siempre estamos insistiendo lo que no sostenemos.

- a. Describa a los programas de formación verdes. ¿Son exitosos y efectivos?

Sí. La parte de concientización en el consumo de agua, el concientización en el consumo de energía, manejo eficiente de los recursos, todo el tema de desechos es el tratamiento adecuado en la parte de desechos. Y también, antes de todos los

aspectos de impactos ambientales que tenemos como organización y como los estamos controlando.

1. ¿Si no, que problemas o faltas tienen?

b. Describa a los programas de formación verdes que se gustaría tener para sus trabajadores.

Bueno horita lo que tenemos para nosotros son buenos y son suficientes. O sea, sin embargo como vamos teniendo mayor conciencia, vamos alcanzando también mas madurezca en los sistemas entonces vamos solicitando otros requerimientos que es información que requerimos para eso. Pero si tenemos un equipo de alrededor 60 personas que son auditorios internos en sistemas integrados de gestión. O sea, ambiente, calidad, y salud y seguridad quienes son los que verifiquen y indique permanentemente la calidad de que revisamos. Si vemos que hay un área que tenemos una ineficiencia, algunos de esos aspectos, inmediatamente trabajamos con ellos. Pero sí igual, siempre lo que uno quisiera que alrededor de esos temas es tener lo mas en la parte económica para comunicar un poco mejor el interno y medios alternativa de pantallas, y cosas más tecnológicas ya que existen pero es un tema de recursos que poco a poco lo vamos a ir a generar.

c. ¿Esta empresa realiza sus propios programas de formación verdes?

Sí, tenemos una universidad corporativa que está en capital humano y les ayudan diariamente a elaborar los planes de formaciones para nosotros en todos los temas ambientales.

1. Si no realizan sus propias programas de formación verde, ¿A quién subcontratar a?

d. ¿Tiene algunas relaciones con las universidades locales para la formación verde?

Sí se tiene pero no para la formación verde. Se tiene para convenios igual para tener capacitaciones de diversos temas. Pero sí se tiene con el INA o con la universidad nacional, con la UNA, sea con diferentes universidades nacional.

¿Y se mandan empleados para?

Sí, se les ayudan para que puedan revisar las capacitaciones so ellos vienen acá y dan la información igualita internamente.

9. ¿Si no tiene programas de formación verdes, que ha hecho esta empresa para entrenar sus empleados? ¿Tiene esta empresa otros programas de formación?
- a. Describa a los programas de formación, ¿Son exitosos y efectivos?
 1. ¿Si no, que problemas o faltas tienen?
 - b. Describa a los programas de formación que se gustaría tener para sus trabajadores.
 - c. ¿Esta empresa realiza sus propios programas de formación?
 1. Si no realizan sus propias programas de formación, ¿A quién subcontratar a?
 - d. ¿Tiene algunas relaciones con las universidades locales para la formación?

10. ¿Cuántos programas de formación verdes tienen por año? ¿Cuántos programas de formación tienen por año en total?

Por años, podemos hablar de que podemos tener unas 200 actividades de formación, al nivel general que tenemos 10 acúsales, 21 almacenes que están dedicados en todo el país, y adicional las plantas de proceso que están acá en Coyol y en San Carlos.

¿Entonces son programas de formación generales y no verdes?

Generales y verdes— no, verdes también porque eso es en la parte del ambiente.

11. Díganos dos habilidades que les faltan sus trabajadores en las siguientes áreas:
- a. Energía renovable
 - b. Eficiencia energética
 - c. Neutralidad de carbono

Yo creo más que lo que hace falta es un tema de conocimiento en el tema de carbono. Por ejemplo, es un tema nuevo, verdad que un tema muy técnico que estamos trabajando en los muchachos para que puedan entender de qué se trata. A partid de eso también, hay un tema que es el tema de energía renovable en Costa Rica. Nosotros somos una empresa de cero residuos porque no enviamos nada rellenos sanitarios pero si mandamos lo que iba al relleno sanitario a compro cesamiento. En este momento, nosotros no mandamos nada como les digo rellenos sanitarios pero sí utilizamos el compro cesamiento. Entonces todo lo que era basura lo mandamos a compro cesamiento. Para que tenga una idea, anteriormente pagamos millones y millones de colones por tratar lo que era la basura. Y hoy en día, la empresa recibe alrededor de un

millón de dólares solamente por venta de basura. Vendemos el cartón, el plástico, el vidrio, el aluminio, todo lo que sea valorizable, lo valorizamos. Todo lo que es el producto non-conforme de que viene de los supermercados por ejemplo la leche mala, el yogur, o lo que ya no está bien, los ponemos en unos tanques, los mezclamos y se los vendemos a los porcicultores o los chancheros, la gente que crían chanchos para venderlos como comida.

12. ¿Son sus trabajadores una mayoría de trabajadores altamente calificados, oficiales, o trabajadores poco calificados, braceros?

Sea la mayoría están muy... sea los hemos ido entrenando, capacitando para que cumplan con todos los requerimientos internos de nuestro sistema de ambiente.

¿Requieren que sus trabajadores tienen que niveles de educación?

Acá, dependa en el puesto pero creo que están pidiendo tercer año del colegio.

¿Y es diferente para administrativos?

Si totalmente. Cada uno tiene su perfil, un puesto que tiene que cumplir y eso lo establece el capital humano. Entonces está establecido así y cada uno entonces debe cumplir con eso. Si dentro de los perfiles ya están incluidos los requerimientos técnicos de la parte ambiental.

13. ¿Que es su vincula con la Cámara?

Nosotros somos asociados con la Cámara de Industrias y realmente en la parte de sostenibilidad pues yo pertenezco a la parte de la sostenibilidad en la Cámara de Industrias. En conjunto con la que técnicamente maneja luces.

14. ¿Qué cree usted que el CICR puede hacer para ayudar a la empresa generar empleos verdes o preparar a los trabajadores para empleos verdes?

Yo creo que es un tema más de que la Cámara de Industrias puede ser el vínculo que necesitamos con el gobierno para poder que este tipo de empleos o este tipo de actividades ser reconocidos al nivel nacional. Como tal, y que a la vez la empresa como nosotros estamos haciendo una diferencia o un esfuerzo para que las cosas se hagan de otra forma. También tengamos un incentivo o una motivación en porque hacerlo porque en este momento no hay ninguna diferenciación. Ni en el consumidor, ni en el sector industrial como tal. O sea que nos ve igual que cualquier empresa que no está haciendo nada.

¿Qué ha hecho en el pasado?

De la Cámara de Industrias, sí. Yo trabaje muchos años como consultora en la Cámara de Industrias en la parte ambiental y si, sea ha trabajado mucho en tema de Producción más Limpia que es muy importante para nosotros en la empresas porque allí involucramos a nuestro personal en el trabajo de hacer unas actividades de una forma más eficientes y yo creo que eso para mí es primordial para las organizaciones que queremos hacer las cosas diferentes.

¿Fue exitoso?

Sí claro, para nosotros sí.

15. ¿Cómo encuentran empleados?

Yo creo que no hay que buscar- si se tienen bolsa de empleos, que están allí los puestos que están oferentes pero Company I es una empresa en que todo el mundo quiere trabajar aquí. Entonces, realmente, no es nada difícil – siempre hay bolsas muy grandes, hay mucha volumen de curricular, pero para poder ingresar acá.

a. ¿Trabajan conjuntamente con las universidades o asisten a ferias de empleo?

No, asistimos a ferias, o igual como te digo que realmente ya aquí internamente hay cierto volumen de información que ya se utilizan requerimientos.

b. ¿Esta empresa ofrece prácticas en empresa a los estudiantes?

Eh, no necesariamente. Pero si se trabaja con algunas bolsas de empleo.

16. ¿Cree que hay alguna ventaja en la implementación de programas de formación para empleos verdes?

Sí claro sí porque realmente si ustedes concientiza a su personal en el uso eficiente y los recursos internos, siempre tés van a dar los beneficios económicos. O sea, entre más eficiente que es tu producción, más eficiente vas a ser entre los costos internos de operación y por eso vas a tener un producto más barato y que va salir al mercado con más beneficio.

¿Estos programas le darían a esta empresa una ventaja competitiva?

Sí, claro. Siempre cuando, como te digo, en el nivel del gobierno o al nivel del consumidor sea lo conocido. Pero en este momento el consumidor costarricense no tiene esa conciencia de hacer una diferenciación. Voy a comprar un producto de Company I porque tiene carbono neutro. No, sea, no les importa. Sea es lo mismo, la gente toda lo

compra a precio, no por eso tipo de cosas. Si hay dos helados y uno es más caro, aunque yo tengo carbono y aunque hago las cosas muy bien en la parte del ambiental, el usted, como consumidor no va a llegar a comprármelo porque yo lo hago bien, si no va ir a comprarlo porque el precio es mejor que este otro.

17. ¿Cree que esta empresa va a generar empleos verdes en los próximos cinco años? Si es así, ¿qué tipos de puestos de trabajo serían?

Sí, no creo tanto como empleos verdes pero, sí, no, vamos a requerir que nuestro personal tenga mayor conciencia, que tenga mayor formación del tema ambiente.

18. ¿Hay demanda de sus clientes para ser una empresa verde?

Por el momento no, solamente lo tenemos cuando se sale al nivel internacional, al nivel europeo o al nivel de los Estados Unidos pero a otra forma, al nivel Centro Americano no.

¿Entonces hay demanda para hacer verde los productos?

En Europa y en Estados Unidos básicamente.

19. ¿Tiene alguna recomendación acerca de cambios que pueden ser implementados dentro de esta empresa con respecto a los empleos verdes y programas de formación?

Yo creo que sí podemos todavía muchas cosas de mejora en el tema de empaques, sea con el nuevo integral de residuos, generando empaques con mejoras alternativas en la parte que el empaque sea digamos reciclable, o que el empaque que vayamos a generar sea de menor impacto en el medio ambiente y es trabajar un poco más en consumidor final que pueda no solamente entender lo que estamos haciendo como lo estamos haciendo diferente, sino también el que puede entender de que eso tiene un valor y que tal vez no se ve reflejado 100% en el precio del producto pero que si requiriéremos en el apoyo de ellos en la compra para que se haga la diferenciación, porque que te digo, sea la motivación no es muchas veces que no se tiene ese valor del consumidor final de que si estamos haciendo las cosas diferente pero no les interesa comprar por eso. Sino que les interesa comprar por calidad o por precio.

20. ¿Qué ha hecho esta empresa para ser verde? ¿Hay algunas normas?

Somos certificados en iso14001 en todos nuestros emplazamientos. Somos una empresa que año a año trabajamos en tecnología con producción más limpia. Somos una empresa que estamos trabajando ya en ser una empresa carbono-neutro que va de igual hemos

estado trabajando en el primero en cuando es bueno las practicas de manejo en fincas. En fin realmente, permanentemente estamos trabajando en sistemas, somos una empresa que vamos a ser los residuos y trabajamos en el uso eficiente todos nuestros recursos, sea el agua, energía, bunker, diesel— cada día queremos hacer las cosas con lo menos uso de recursos.

- a. ¿Ha establecido esta empresa alguna norma para la reducción de las emisiones de carbono?
- b. ¿Ha establecido esta empresa alguna norma para el reciclaje o la gestión de residuos? ¿Si no hay normas establecidas, cómo elimina esta empresa los residuos y materiales reciclables?
- c. ¿Qué factores han motivado la implementación de iniciativas verdes en esta empresa?

Responsabilidad social básicamente. Somos una empresa en que queremos hacer las cosas bien pero siempre cumpliendo, protegiendo el medio ambiente y también la parte social.

- d. ¿Qué obstáculos han impedido esta empresa a ser verde?

Básicamente la parte concientización al nivel del consumidor final y también la falta del apoyo al nivel del gobierno. En cuanto que esas empresas se nos vea de otra forma por sus esfuerzos que revisamos.

21. ¿Qué mejoras ha hecho esta empresa para aumentar la eficiencia energética o el ahorro de energía? ¿Qué mejoras se pueden hacer en esta empresa para aumentar la eficiencia energética o el ahorro de energía en el futuro?

Muchas que realmente que va desde cambio digamos en lo que son motores, cambio de iluminación, los luces LEDs, cambio en que también lo que son protección de todos los tuberías de vapor de las calderas, igual retorno de la circulación de agua en las mismas calderas que sean más eficientes. También digamos en esta parte el bunker es un consumo mayor digamos entonces si ha trabajado en la nueva planta secado es una planta más eficiente en la parte de bunker pero va consumir un poco más de energía entonces la energía renovables en Costa Rica es más limpia que el bunker, entonces pues tendremos eso. Iguales estamos trabajando en alternativa de evaluación para pasar las calderas a biomasa, si muchas cosas se ha trabajado con paneles solares o sea, bastantes alternativas.

a. ¿Qué dificultades existen en la implementación de estrategias en esta área?

Básicamente un tema tecnológico y de costos que no todas las empresas tienen la posibilidad de ejecutarlas porque a veces el retorno no es tan rápido y el costo muy alto. Entonces básicamente esa parte tecnológica y económica.

b. ¿Qué empleado o posición en su empresa es responsable de pagar las facturas de energía? ¿Está empleado utilizando cualquier estrategia para bajar los costos de energía? Apagar las luces, usar el agua eficientemente, por ejemplo en la planta primero se limpian seco y luego se limpian con agua para entonces usar hacerlo con los menos recursos a la hora que también se generan desechos, bueno tratar que el desecho sean el mínimo y que no sea mucho. Y que también estamos valorizando todos los residuos que son valorizables e igual mandando únicamente al procesamiento que no es. Y tratando adecuadamente que los residuos que son peligrosos, que realmente requieren un tratamiento especial.

¿Cuáles mejores pueden ser hechos en tu empresa en el futuro?

Bueno estamos trabajando en todos los planes de reducción, que son muchos.

Verdad, son 54 iniciativas las que tenemos actualmente que van desde reparar las calderas como te digo de biomasa, trabajar con el gas natural también para los combustibles, en camiones para lo que sea combustible en calderas, también estamos trabajando toda la parte energética como te digo, en cuando cambiamos la iluminación, en cuanto la concienciación del personal que apaga las luces, si vas a salir que apagas el monitor y en el tema que de lo que es de este bunker, de las tuberías. También en la parte de combustibles estamos haciendo relaciones con los sustantivos que se pongan en los diferentes motores, o en lugares del vehículo que sea más eficiente, capacitando al personal para que se haga un uso de cursos más eficientes. También tenemos ruteos dinámicos, evaluar camiones eléctricos, oh sea muchas alternativas que estamos trabajando dentro del tema de carbono.

22. ¿Qué ha hecho esta empresa para aumentar la eficiencia de energía o ahorros de energía?

a. ¿Cuáles dificultades existen en la implementación de estrategias en esta área?

23. ¿Cómo incorpora esta empresa el uso de las energías renovables en sus procesos?

¿Cómo pueden incorporarlas en el futuro?

- a. ¿Qué dificultades limitan el uso o la producción de energía renovable en esta empresa? Por ejemplo, la educación, el costo, el conocimiento, los recursos. Básicamente la legislación nacional o sea si queremos hacer cualquier iniciativa de una planta, por ejemplo Company I, el consumo que tiene es muy alto por mensualmente al nivel de Kilowatt. Entonces se ha pensado a generar un proyecto de alternativa de energía limpia como por ejemplo donde se puede apagar un peaje a lise y poder compensar el volumen de energía que nosotros tenemos. Pero en la legislación nacional es muy limitada en esa parte y no es rentable para una empresa de muchas veces que se puede disputarlos por la cantidad de limitantes que hay al nivel nacional porque el hico que se tiene el proceso y realmente para hacer cualquier proyecto hay que tener primero el habar de muchas partes al nivel gubernamental que no está fácil.

24. ¿Cuál es su definición la sostenibilidad?

Sostenibilidad para mi es la parte económica, la parte ambiental, y la parte social de cualquier organización. Para mí las tres tienen que estar de la mano y siempre cuando esto se esté en conjunto, la empresa puede ser sostenible de otra forma.

¿Qué puede ser hecho para contribuir a la sostenibilidad en esta empresa?

Nosotros tenemos les digo, somos una empresa certificada con iso14001 en todos nuestros los emplazamientos, tenemos de la seguridad o OCEA en nuestra organización, tenemos sistema de iso9001 en gestión de calidad. Somos una empresa que estamos trabajando para hacer carbono-neutral, igual tenemos proyectos de responsabilidad sociales basado en las normas de iso26001,26000 y tenemos HACCP que es toda la partid de nuclear que estamos certificado el nivel de los Estados Unidos y también tenemos diferentes proyectos de reciclaje, que tenemos un proyecto de reciclados que es reciclaje envases de fracturamente y tenemos un proyecto con las escuelas que incentivamos a niños a recolectar el empaque, los educamos en los centros educativos y por cada 40 kilos que ellos recolectan del empaque, de cualquier marca que sea, les damos un pupitre que es laborado con ese lamen que es la lamina que hacemos con el reciclaje de empaque. Company I es la única empresa en el nivel nacional, en el nivel de Centro

América que cuenta dentro de sus propias instalaciones con una planta para el reciclaje de envase del empaque. Entonces eso se lleva allá, hacemos todo el proceso del reciclaje, transformamos la lámina y en la reforma donde están los privados de la libertad de ciertos penitenciarios, los que están en las cárceles, ellos son los que laboran los pupitres entonces pues a cambio de eso, les damos un incentivo salarial que con eso ayudan a sus familias y por cada dos días que ellos trabajan, les descuentan un día de pena. Entonces todos esos son los esfuerzos que estamos haciendo en materias de sostenibilidad para cumplir lo que les conté, de que para ser sostenible hay que trabajar en el tema ambiental, social, y económico porque todos tienen que tener sus impacto al nivel económico.

Y esos son todas las preguntas. ¿Algo más? No, pues yo sí. ¿Tienen un departamento ambiental, algo así?

Sí, es esta. Mira, de la gerencia de sostenibilidad yo tengo ambiente, salud y seguridad, responsabilidad social, todos los proyectos de sostenibilidad que son proyectos de reciclaje más carbono neutro.

¿Entonces no crees que hay algunas posiciones que pueden ser llamados verdes?

Sí. Para mí, podríamos decir que todo de mi persona estamos trabajando en empleos verdes. Sin embargo, como les digo, a capacitar y al concientizar a todos nuestro personal también los hacemos que sean empleados verdes.

Y cuantos empleados tienen en este-

Más de 3500 empleos

¿Y en este departamento?

En este departamento somos 50 y- como casi 60 empleados.

¿Algo más?

Cualquier otro consulta, mucho gusto, yo les doy mi tarjeta y me pueden escribir.

Muchas gracias y mucho gusto.

Appendix G: University Interview Transcripts

Universidad A

Con esta entrevista, esperamos determinar el estatuto y la vincula entre universidades y empresas en relación a los empleos, habilidades, y programas de formación “verdes.” Con la compleción de esta entrevista, las respuestas y nombres de los participantes serian confidencial y no serán divulgados sin permiso. Toda esta información seria manejado con cuidado para asegurar la privacidad. Agradecemos usted dedicar este tiempo para responder a estas preguntas.

1. Esta información se mantendrá en el anonimato. ¿Podemos grabar esta entrevista por favor?
2. ¿Cuánto tiempo tenemos para esta entrevista? Tenemos aproximadamente 20 preguntas.
3. ¿Cuál es su posición en Universidad A? ¿Cuáles son tus responsabilidades allí?

Profesora del Curso de Derecho Ambienta y Coordinadora de la Cátedra de Derecho Ambiental en la Facultad de Derecho. Las responsabilidades incluyen: diseño y actualización del programa del Curso, coordinar las actividades de la Cátedra y la invitación de expertos sobre temas relacionados con el curso.

4. ¿Como usted defina trabajos y habilidades verdes?

Oportunidades laborales que contribuyen al desarrollo sostenible del país.

5. ¿Qué piensa que está impulsando la necesidad de empleos verdes?

Por ahora la visión de ciertas empresas que quieren asumir el liderazgo, diferenciación y mejorar su competitividad al incorporar la sostenibilidad en sus operaciones.

6. ¿Usted sabe de leyes ambientales y políticas en Costa Rica que el gobierno o el CICR ha implementado a promover empleos verdes?

La Ley de Gestión Integral de Residuos y el Plan de Residuos Sólidos de Costa Rica (PRESOL) tiene como objetivos específicos:

- Generar nuevas fuentes de empleo a través de las acciones de separación y valoración de los residuos.
- Fomentar el desarrollo de mercados de productos valorizados, de forma tal que se creen flujos de materiales y encadenamientos entre empresas, lo que para una empresa es un residuo para otra puede ser materia prima.
- Generar mercados para los productos reciclados, reciclables y biodegradables de forma tal que entre estos sean más accesibles para su población.

7. ¿Usted sabe qué políticas implementan compañías para promover empleos verdes?

No.

a. ¿Puede recomendar políticas que empresas pudieran implementar en ayudar promover empleos verdes?

8. ¿Qué habilidades necesitan estudiantes desarrollar para nuevos sectores verdes?

Primero mayor sensibilidad sobre temas ambientales y querer asumir el reto de ser parte de los cambios estructurales que requiere el país desde la perspectiva del desarrollo sostenible.

9. ¿Sabe cómo la Universidad escoge cuales cursos y programas de entrenamiento ofrecer a los estudiantes para emplearlos en empleos verdes? NO

a. ¿Cuales programas de entrenamiento tiene Universidad A para ofrecer trabajos y habilidades verdes? NO

b. ¿Qué habilidades verdes enseñan en la Universidad?

El curso de Enfoque de Derecho Ambiental contiene temas como RSE, desempeño ambiental, Ecoeficiencia, PSA entre otros.

c. ¿Cual matricula y especializaciones ofrece Universidad A para el empleo en sectores verdes en el futuro?

La Facultad de Derecho Ofrece la Maestría en Derecho Ambiental.

10. ¿Qué opinas de la motivación de Universidad A para enseñar habilidades verdes?

Es limitada.

a. ¿Sabe cómo la universidad incorporara habilidades verdes en la matricula? NO

b. ¿Piensa que la Universidad A está respondiendo a la demanda de industria? NO

c. ¿Dentro los próximos 5 años, donde ves un desarrollo de tu Universidad para acomodar el aumento de empleos verdes?

La Universidad A no está respondiendo a las necesidades del país para forjar futuros líderes que promuevan el desarrollo sostenible.

11. ¿La Universidad de Costa Rica persigue sus estudiantes para ver donde trabajan después de graduarse? NO

a. ¿En cuál área general van los estudiantes para trabajar en empleos verdes después de graduarse?

Biología, Biotecnología, Ciencias Naturales, Ingeniería

- b. ¿Cuales sectores específicos emplean la mayoría de estudiantes de Universidad A? No tengo esa información.
12. ¿En cuales industrias ves trabajos verdes apareciendo dentro los próximos 5 años?
Biotecnología, Nanotecnología, Química, ingeniería.
13. ¿ Su universidad tiene relaciones con empresas sobre programas de formación verdes?
No tengo esa información
- b. ¿Espera a tener relaciones con empresas sobre programas de formación verdes en el futuro? SI
14. ¿Cuáles son los mayores obstáculos para el desarrollo de empleos verdes?
Falta de visión para aprovechar nuevas oportunidades no tradicionales.
15. ¿Tiene recomendaciones para facilitar la generación de empleos verdes con el desarrollo de programas de entrenamiento?
Esfuerzo conjunto de las Universidades con los sectores productivos del país y con la formulación de políticas sobre atracción de inversiones en el país.
- a. ¿Tiene recomendaciones en cuales políticas la CICR podría promulgar?
Políticas de desarrollo de empleo y de atracción de inversiones
16. ¿Piensa que enseñando habilidades verdes satisficiera el demanda para empleos verdes en dando una labor más calificada?
Habrán oportunidades de empleo mejor remunerado y con profesionales mas calificados.
17. ¿Hay programas cooperativas donde estudiantes pueden trabajar con profesionales en empleos verdes antes de graduarse de la universidad? No tengo esa información.
- a. ¿Hay un programa de estudiantil extranjero sobre habilidades y entrenamientos verdes? No tengo esa información.
18. ¿La universidad emplea profesores en los estudios ambientales de otros países? NO
- a. Sabe si los profesores de Universidad A de Costa Rica se educaron en Costa Rica? De la facultad de Derecho todos estudiaron derecho en Costa Rica pero la mayoría tiene especializaciones de otros países.
- b. Sabe si los profesores en Universidad A no de Costa Rica se educaron en países extranjeros para su especializaciones? Por ejemplo ¿E.E.U.U., Europa o Asia?
Los profesores de la Facultad de Derecho pricipalmente se educan en Europa

19. ¿Usted o la Universidad tiene documentos relatado a este tema? NO

20. ¿Tiene contactos en cuales podemos hablar con sobre esta tema?

Lawrence Pratt, Director CLACDS del INCAE. E-mail: lawrence.pratt@incae.edu; tel. 2437-2207

Universidad B

Con esta entrevista, esperamos aprender sobre programas de la Universidad relacionado con empleos verdes y como preparan estudiantes para empleos verdes. El objetivo de entrevistar universidades es para evaluar los programas de formación y el nivel de educación de empleos verdes que existe en Costa Rica y también evaluar como estos programas han ayudado el empleo de trabajadores verdes.

1. Que es su posición en la Universidad B?

Director de Recursos Humanos

2. Que responsabilidades tiene usted en la universidad?

En general, la supervisión del departamento de Recursos Humanos y el desarrollo e implementación de estrategias de crecimiento personal y profesional de nuestros funcionarios con el apoyo del equipo que trabaja conmigo.

3. Como se define empleos verdes? Como se define competencias verdes?

Los empleos verdes son aquellos empleos que contribuyen a desarrollar economías sostenibles, amigables con el ambiente, que realizan una administración justa y adecuada de los recursos naturales.

Las competencias verdes son aquellas habilidades y conocimientos de los candidatos que tienen como base la conciencia ambiental y social.

4. Que tipos de capacidades necesitan trabajadores para tener éxito en sectores verdes?

Debe tener una alta conciencia social y ambiental que les permita comprender la situación de sus comunidades y del entorno en la que están inmersas con el propósito de generar un equilibrio entre ellas y los recursos que se extraen de la naturaleza.

Deben formarse con valores éticos que le permitan aplicar la empresarialidad responsable.

Deben tener conocimiento acerca de las nuevas tendencias y tecnologías sostenibles que se utilizan para desarrollar procesos, por ejemplo, el uso de energías limpias para la producción de electricidad.

5. Que programas de formación ofrece la universidad sobre empleos verdes y competencias verdes?

- a. Que competencias verdes se enseñan en la universidad?

Uno de los valores institucionales de la Universidad B es la conciencia social y ambiental, ese mismo valor nos ha permitido desarrollar un plan de estudios basado en cuatro pilares que

preparan a nuestros graduados con las competencias que se requieren para responder a las necesidades del mundo de hoy que están principalmente ligadas al cambio climático. Esos pilares son:

- Conocimiento científico y técnico: a través de este pilar nos aseguramos de que nuestros graduados adquieran el conocimiento necesario para promover la agricultura sostenible y el manejo adecuado de los recursos naturales.
- Compromiso social y ambiental: formamos a nuestros estudiantes con un alto nivel de responsabilidad social y ambiental que refuerce sus habilidades para propiciar cambios positivos en sus comunidades.
- Valores y ética: desarrollamos en ellos la conciencia, empatía, respeto, trabajo en equipo, comunicación efectiva y enseñanzas que a lo largo de la vida les ayuden a promover la paz, el diálogo y el entendimiento.
- Empresarialidad: estimulamos en nuestros estudiantes un espíritu empresarial que les permita de forma proactiva generar oportunidades y soluciones a los problemas. Los estudiantes construyen e implementan un negocio d
- e principio a fin durante sus primeros tres años en Universidad B, logrando un conocimiento global sobre lo que implica comenzar un negocio.

6. Porque es importante enseñar capacidades verdes?

- a. Como responde la Universidad a las demandas de industrias?

Hoy el mundo vive una situación muy compleja a causa del cambio climático, las consecuencias de este fenómeno están afectando el desarrollo de las comunidades, la agricultura, la economía en genera; los desastres naturales se intensifican y provocan muerte y destrucción. La Universidad B es consciente de esta situación y por eso contantemente trabaja en el desarrollo de proyectos que contribuyan con la sostenibilidad y que además, le permitan a los estudiantes tener la vivencia y adquirir la experiencia para resolver los problemas actuales a través de acciones efectivas.

Universidad B forma agentes de cambio, líderes que promuevan cambios positivos en las sociedades, por eso el graduado de Universidad B tiene las capacidades de: ejercer liderazgo, se comporta con valores y principios, practica sensibilidad y compromiso social, se comunica efectivamente, trabaja en equipo, ejerce el aprendizaje autónomo, practica razonamiento, análisis y síntesis para resolver problemas, tiene sólida formación técnica, tiene capacidad gerencial y

empresarial, busca el desarrollo y manejo sostenible de la agricultura y recursos naturales de los trópicos. Todas estas capacidades le permiten satisfacer la demanda de la industria en su campo.

7. Porque piensas que necesita Costa Rica a empleos verdes? Donde necesita más empleos verdes (en que sectores específicos?)?

Costa Rica adquirió el compromiso mundial de convertirse en la primera economía carbono neutro del mundo para el 2021. Esto implica realizar un esfuerzo mayor por parte de toda la industria, la población, el gobierno y el país en general, por alcanzar la meta. A su vez, este reto implica que las empresas requieran personal con el conocimiento y las capacidades que contribuyan a que cada estructura logre la carbono neutralidad. Costa Rica necesita empleos verdes principalmente en el área productiva (agricultura, ganadería) y en el área de turismo.

8. ¿Cómo se puede generar más empleos verdes?

Se requiere primero la conciencia por parte de las empresas de que se requiere hacer un cambio en la gestión del negocio, eso permitirá que se abran más oportunidades de empleos verdes.

9. Qué está impulsando la necesidad de empleos verdes?

La necesidad de conservar nuestro ambiente, de administrar de una manera justa y equitativa los recursos naturales y por supuesto, el impacto que ya está teniendo el cambio climático en la forma de vida de todos.

10. Que programas y cursos ofrece la universidad a los estudiantes para prepararlos para empleos verdes? Como deciden cuales programas ofrecen?

En este link encontrarán información sobre otros cursos y estudios que realizan los estudiantes durante su carrera, como por ejemplo las pasantías y el desarrollo comunitario: *Interviewee provided a link associated with Universidad B.*

11. Que planes de estudios y especializaciones (curriculum and majors) ofrece la Universidad a los estudiantes para prepararlos para empleos verdes?

La Universidad B ofrece un programa de estudio de 4 años, donde los estudiantes se gradúan en la carrera de Ciencias Agrícolas con un grado de “licenciatura”. Por el momento no se cuenta con programas de postgrado pero se están desarrollando un plan para incorporar esta oferta en el segundo campus de Universidad B ubicado en Liberia, Guanacaste.

En el siguiente link encontrarán información sobre el plan de estudios de Universidad B: *Interviewee provided a link associated with Universidad B.*

Donde van los estudiantes de la Universidad B después de graduarse?

- a. La Universidad B persiguen los estudiantes para averiguar donde trabajan después de graduarse?

Una vez que se gradúan, los estudiantes regresan a sus países y comunidades con el propósito de aplicar sus conocimientos en su propio entorno, con ellos buscamos que contribuyan al desarrollo y prosperidad de sus comunidades. INTERNATIONAL

Universidad B sí mantiene contacto con sus graduados a través de la Oficina de Graduados, además, cada cierto tiempo se aplica una encuesta que nos permite conocer sus avances, lugares de trabajo, situación actual, entre otras cosas. Universidad B mantiene contacto con ellos para ayudarles a seguir abriéndose camino y para generar una red de contactos con los nuevos graduados, de esta forma apoyamos el crecimiento y superación de todos.

12. De donde se educaron los profesores?

- a. Por ejemplo, estuvieron educados fuera de Costa Rica?

La facultad de Universidad B integra un grupo de educadores de clase mundial, procedentes de 19 naciones y con amplia experiencia en docencia e investigación. Los miembros de facultad son seleccionados principalmente por pasión hacia la educación, su experiencia previa en agricultura y su compromiso para trabajar con jóvenes y comunidades en la promoción de prácticas sostenibles alrededor del mundo.

13. Hay programa en estudiar en un país extranjero en cursos perteneciendo a hacienda e entenas verdes?

Dentro del programa académico está contemplada una pasantía que le permite a los estudiantes ganar experiencia de trabajo. En el siguiente link podrán encontrar más información sobre este tema: *Interviewee provided a link from University B.*

14. Hay programas cooperativas donde estudiantes pueden trabajar con profesionales in empleos verdes antes de graduarse de la universidad?

Los estudiantes durante sus cuatro años de carrera llevan un curso llamado Experiencia de Trabajo, el cual les permite entrar en contacto con distintas áreas de trabajo de la Universidad y su funcionamiento desde el punto de vista de la sostenibilidad. Además, tienen la oportunidad de trabajar con productores de la zona aledaña a la Universidad para asesorarlos y ayudarles a mejorar sus sistemas de producción desde la perspectiva sostenible. Durante su tercer año de estudio, realizan una pasantía de 15 semanas en Universidad B La Flor (segundo campus de

Universidad B ubicado en Liberia) con le propósito de que adquieran experiencia con productores de la zona tropical seca del país y puedan complementar sus conocimientos.

15. Que motivo tienen empresas para querer trabajos e empleos verdes? Que información podría convencerlos ir verde?

De nuevo, el mundo necesita cambiar su forma de producir, debe pensar más en el ambiente y el impacto de su gestión en las comunidades, la situación del cambio climático obliga a las empresas a ser más conscientes y a querer cambiar sus modelos de trabajo por estructuras más sostenibles.

16. Cuales sectores de industria han tenido dificultades en ser verdes?

El sector productivo (agricultura y ganadería) son quizás los que tienen un mayor reto por las características de sus sistemas.

17. Que sector tiene mas empleos verdes?

En el caso de Costa Rica, podríamos decir que el sector turístico es el que más se ha desarrolla en esta área dado el interés de nuestro país en ofrecer alternativas ecológicas a sus visitantes.

18. Que ha hecho Costa Rica hasta hoy en dia en referencia a empleos verdes?

Desde nuestra perspectiva, Costa Rica ha trabajado fuertemente en formar a profesionales con mayor conciencia social y ambiental; el tema ambiental ahora es parte de fundamental de la gestión del desarrollo económico y la regulación y aplicación de la legislación en esta materia se ha fortalecido.

19. En qué sectores ve empleos verdes creciendo en los próximos años?

En la industria turística y en la producción.

20. Cuales estrategias recomendáis para desarrollar trabajos verdes en Cosa Rica?

a. Que son los huecos para desarrollar empleos verdes y cuales haciendas hacen falta en los trabajos costarricense?

Al ser una institución educativa velamos por formar a nuestros estudiantes para que se conviertan en agentes de cambio, desde ahí hacemos nosotros un cambio que apoya los demás esfuerzos del país. Esa formación de profesionales en clave y es donde todavía podemos construir más para lograr una fuerza laboral con conciencia social y ambiental.

21. Qué piensa usted son los obstáculos principales para el desarrollo de empleos verdes?

Todavía necesitamos cambiar las estructuras y modelos de gestión de muchos sectores, hasta que eso no se de, habrá una limitante en el desarrollo de empleos verdes.

22. Piensas que enseñando haciendas verdes van a crear nuevos trabajos e oportunidades e eventualmente beneficiar Costa Rica?

Sí, formando profesionales con conciencia ambiental y social lograremos generar un cambio hacia la sostenibilidad y al ser una institución internacional, el impacto de nuestros graduados será mucho mayor.

23. Qué avances se crees que va a ocurrir en esta universidad en los próximos años, en referencia a los empleos verdes?

Nuestra mayor fortaleza es nuestra conciencia ambiental y social, seguiremos innovando en ese camino para satisfacer la demanda de empleos verdes y seguir siendo también un empleador verde.

24. Usted o la Universidad tienen documentos relacionados a este tema?

No contamos con documentos de este tipo.

25. Tiene contactos en los cuales podemos hablar sobre este tema?

En Universidad B manejamos una política de confidencialidad con nuestras empresas amigas, razón por la cual no podemos facilitarles estos datos.