Developing a Sustainable Marketing Plan for the Pochote Tree in Sámara, Costa Rica

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Chapter 1: Introduction

Costa Rica is a country rich in natural resources and biodiversity. It is home to hundreds of plant and animal species. Because of this vast diversity, it has been subject to much devastation due to human impact, especially during the twentieth century. Much of this devastation was in the form of deforestation and exploitation of the forest's resources.

While mankind has manipulated much of the natural state of Costa Rica for the purposes of economic benefit and human expansion, no ecosystem has been harmed by such activity as much as the tropical dry forest. The tropical dry forest is an environment of harsh extremes. It commonly experiences a dry season that lasts the majority of the year and then is followed by a rainy season (Tropical Dry Forests of the Pacific, 2012). Because of this distinctive environment, the tropical dry forest has become home to species that well adapted to thrive in the region. The pochote, *Bombacopsis quinata*, is one such species that thrives in this environment because it has become very resilient. The characteristics that enable the pochote to prosper also make it well suited as a source of lumber (Kane et al., 1993). The pochote is resilient in that it has adapted to survive in the extreme environment of dry tropical forests, but it is less adept to survive in other environments.

In the past, the pochote was highly valued as a source of lumber, and as such was exploited. Exploitation of the pochote has occurred throughout history, but reached a peak during the twentieth century. The pochote was used for furniture, construction, boat building and window frames. It was harvested directly from the dry forests by locals in areas of the Nicoya Peninsula and other communities on the Pacific Coast of Costa Rica. Due to a lack in methods of managing the removal of the pochote, its existence became nearly obsolete (Sauter, K., 2012).

The pochote is only one of the native species of Costa Rica that was affected by the wide spread deforestation experienced from the 1900's-1960's. Realizing its destructive effects on the environment as a whole, the Costa Rican government took proactive steps towards the preservation and regulation of tree removal through

legislature. Programs were created to encourage individuals to support conservation and repopulation of exploited species, including the pochote. They also promoted the sustainable harvesting of the wood from plantations (Calvo-Alvarao et al., 2009).

Our sponsor, Sr. Konrad Sauter, with the support of his family, has participated in the repopulation of species exploited in the past, in particular the pochote. In addition to owning and providing the funding for the Werner Sauter Biological Reserve, the Sauter family created a pochote plantation containing approximately six thousand pochote trees. After twenty-five years of growth, these trees are ready to be harvested. The felled pochote is intended to be processed locally and sold either to Costa Rican communities or the international lumber supply market.

It is the goal of our sponsor to find people or industries to purchase the felled pochote and use it as lumber. Although the wood was highly valued in the past, its prevalence in the market has been minimal for a long time (Sauter, K., 2012). The problem being faced in the completion of this project extends beyond the creation of a sustainable marketing plan for the sale of the pochote lumber. This plan must also consider the public perspective, and ensure that the marketing strategies for this harvesting will be viewed by the community in a positive light in regards to the impact on both the population and the environment.

The goal of our project is to synthesize a strategic and effective marketing strategy that will introduce the pochote tree as a sustainable source of lumber in the market. Keeping the processing of this lumber within Costa Rica would emphasize the theme of sustainability in addition to benefiting the local communities. Members of the community could be included in felling the lumber, processing the wood or creating products with the supply. We aim to concentrate the marketing strategies on the local communities so that the majority of the lumber can be used for crafting locally. The products created locally could be sold internationally, but this new supply of lumber has the potential to increase local commerce. This will give locals more incentive to support the sustainable thinning of the plantation. It is important that the pochote felling technique minimize carbon emissions.

There are several tasks to complete in order to attain our goals. First, we must develop our current understanding of the environmental history of the region, including human impact on the forests and ecosystems.. This is important so that the community will be confident in the marketing plan that the environment will be protected. Thinning of the Sauter pochote plantation will be done sustainably with minimal negative impact on the environment and local communities. Secondly, we must establish relationships with local environmental and legislature experts so that we do not promote illegal felling or break laws regarding to felling of lumber. Additionally, we will learn about developing a successful marketing plan and investigate the qualities of the pochote tree that will make it a desirable and suitable source of lumber. Contacting local artisans will answer inquiries about what makes pochote a desirable material to work with and a desirable product to purchase. Finally, we will develop programs to incorporate the local communities in this project and demonstrate how this project will positively affect them. To encourage their support, interviews will be conducted with individuals regarding how they believe they could benefit from keeping the pochote lumber locally.

The focus of our project includes the reintroduction of the native pochote into local communities. This native species has the potential to restore traditional practices and stimulate the economy. The goal of successfully reestablishing the pochote as a source of lumber in the market requires the development of a marketing strategy that will mutually benefit local communities and Sr. Sauter.

Chapter 2: Literature Review

In order to better understand the scope of our project, we will discuss the region of Sámara and the implications of introducing a new source of wood into the lumber market. The pochote is a native species to Costa Rica; therefore the country's history has had a significant effect on the environment and survival of the species as a whole. The historical popularity of pochote wood and the subsequent over-harvesting of the tree give insight into the necessity of sustainably growing and using the wood.

2.1 Regional Background: The Nicoya Peninsula

The Nicoya Peninsula is the western-most landmass of Costa Rica. The shape of the Nicoya Peninsula and the major districts that it contains are shown in Figure 1. It is surrounded by the Pacific Ocean on the west and the Gulf of Nicoya on the east. The Peninsula itself spans a distance of nearly 140 kilometers. It is comprised of two provinces, the Guanacaste and the Puntarenas Province, in the north and south respectively (Northern Nicoya Peninsula, 2012). Land in Costa Rica is divided into provinces which are made up of cantons. Cantons are groups of districts in an area (Provinces of Costa Rica, 2011). The site of our project is in the district of Sámara, located in the Nicoya canton, which is encompassed by the Guanacaste Province.

Figure 1: The Nicoya Peninsula (Map of the Nicoya Peninsula, Costa Rica, 2012)

Sámara is considered a location for relaxation because of its characteristic "laidback vibe" (Samara, 2012). The addition of the paved Road 150 and a small airstrip nearby has improved transportation to this area. Buses to Sámara run daily from cantons, including San

José. It contains services such as stores, restaurants, bars and a rich nightlife (Samara, Guanacaste, 2012). However, due to its small size, little information is available regarding Sámara.

Costa Rica has a history of widespread forest clearing. In the past few decades there has been an effort to reverse the damage this caused to the environment. Tree plantations, such as pochote and teak, have become more prevalent, so that whole forests are not destroyed to obtain lumber. Farmers have begun to grow pochote plantations so that people do not cut down trees directly from forests. One such plantation, owned by the Sauter family, is located in Sámara.

2.2 The Pochote Tree

The pochote tree, is part of the Bombaceae family of trees that favor tropical dry forests. These trees grow in the lowlands of Central America and are characterized by their dark grey, fluted bases, large crown, and distinctive protruding spikes, as depicted in Figure 2. They are deciduous trees that grow to an average height of forty meters and diameter of one meter, but they can reach up to two meters in diameter. The pochote is a resilient species that can grow in many types of soil, ranging from heavy clays to sandy beaches. It can survive in drought conditions for up to several years and flooding conditions for several weeks (Perez Cordero et al., 2002; Hodge et al., 2002; Chudnoff, 1984).

Figure 2: Pochote Tree in Guanacaste (Randy, 2012).

The pochote grows in "stands" ranging in size from three to five hectares or 40-50 meters (Hodge et al., 2002). It is a fast growing tree with a large canopy capable of blocking light. This makes it valuable to farmers whose understory crops need shade. Over ninety percent of coffee farmers surveyed in Costa Rica use trees to provide shade for their coffee (Albertin & Nair, 2004). Pochote trees are grown in coffee

plantations because shade grown and organic coffee is more profitable than harvesting larger amounts of biologically enhanced sunlit coffee.

For many years, foresters harvested the pochote for its lumber because it is long and has a straight trunk. As a result, the wood of the pochote is excellent for door and window frames, cabinets, furniture and molding. In addition, veneer, plywood, particleboard and paper products can be made from the pochote. As a sapling, the wood is yellow in color and absorbs preservatives. When the heartwood is initially harvested it is a pale pink color but after exposure to the air it becomes a darker mix of red and brown and is very hard to treat with preservatives. The heartwood is the durable center of the trunk and it is quite resistant to white and brown rot fungi. However, it is susceptible to termite attack (Chudnoff, 1984). These characteristic qualities of pochote wood make it valuable and versatile. The high demand for this wood led to over-exploitation that required government intervention by the end of the nineteen eighties (Kane et al., 1993).

2.3 Costa Rica's History of Deforestation

Loggers had harvested tropical dry forests for decades before the government of Costa Rica passed protective legislation late in the twentieth century to preserve their rich plant life and abundance of resources. To support their families, local residents used the forests of Costa Rica as unregulated common-pool resources. Consequently, the area in which the tropical dry forests once flourished now covers only a small portion of Costa Rica (Calvo-Alvarao et al., 2009).

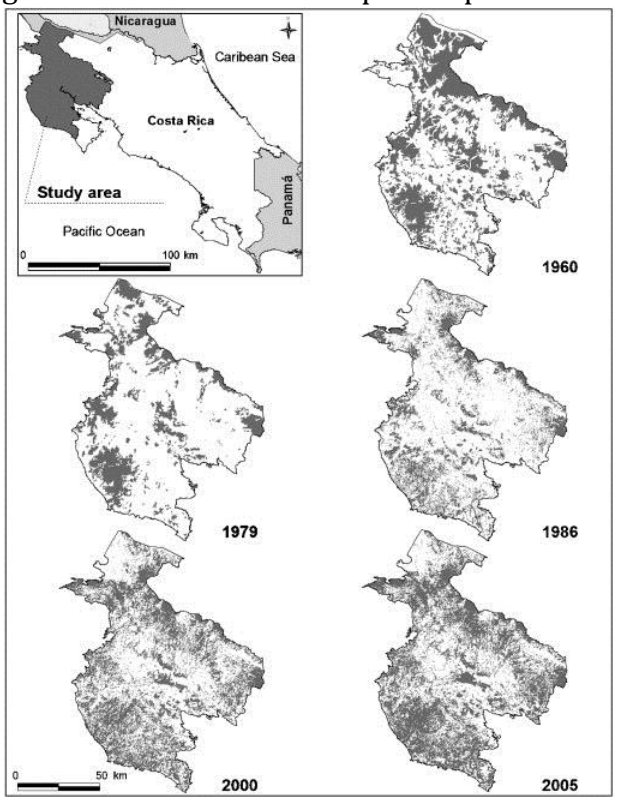

Figure 3: Forest Coverage Change (Calvo-Alvarao et al., 2009).

The forest coverage from 1960 to 2005 is shown in Figure 3 for the Guanacaste region of Costa Rica.

Even though the forests have been coming back, as shown in Figure 3, satellite images show that only about 0.1% of the original tropical dry forests remain in Costa Rica, making it the most endangered ecosystem in the country. A mere 1.7% of the estimated original forest still exists in Central America with only 0.5% of it currently protected by conservation units. This is very small even compared to the 4.9% of tropical dry forests that are protected globally (Quesada & Stoner, 2004; Blundell & Gullison, 2003).

Timber Harvesting and Agriculture

Although the Guanacaste province was originally used for subsistence farming, when the value of lumber increased, the harvesting of trees became a source of livelihood. From 1908 to 1960, the United States obtained a steady supply of the native species mahogany directly from the Guanacaste region, one of the only sites of the wood's widespread growth. Like the pochote, mahogany is now scarce in the forests of Costa Rica because of its exploitation and the deforestation of the region in general.

Figure 4: Deforestation (Siry)

The majority of tropical dry forests are secondary forests, which are simply ecosystems that grow back once the original has been destroyed, usually with little or no management by humans. The consequence of this is that the secondary forests that grow back may or may not have the same species as the original forests and may or may not have a relatively similar representation of the original forest (Quesada & Stoner, 2004). By 1961, the tropical dry forest ecosystem of Costa Rica was nearly non-existent. At this time, it was estimated that 40% of all cattle in Costa Rica were located in the Guanacaste province. At one point, one third of Costa Rica's land was comprised of cattle pastures, but the price of beef worldwide declined and the countries awareness of

the environment increased. This led to the government creation of legislation protecting the environment (Calvo-Alvarao et al., 2009; Sader & Joyce, 1988; Quesada & Stoner, 2004; Arroyo-Mora et al., 2005).

2.4 Protective Legislation

To prevent the exploitation of resources, the government has enacted several laws to protect the environment. The first forestry law, adopted in 1969, created a national parks system and aimed to regulate forest use on public land (Calvo-Alvarao et al, 2009). Now, Costa Rica has an environmental department called the Sistema Nacional de Áreas de Conservación (SINAC).

In 1996, the Forest Law 7575 of Costa Rica was enacted and a Payment for Environmental Services program was decreed to compensate landholders for the reforestation of their properties (Forestry Law – N 7575, 1996). The payment system reimburses landowners for their efforts in protecting the ecosystems with money from the national forestry fund. Payments are made for measures of conservation including water protection, carbon sequestration, and biodiversity protection. The incentive program exists for pochote production as well. By the end of 1988, 4500 hectares of pochote trees were commercially planted in plantations to promote its growth instead of harvesting of the wood in forests (Calvo-Alvarao, et al., 2009). Data has only recently been collected concerning the effectiveness of these laws and programs, making it difficult to quantify the link between deforestation rates and the implementation of new legislation.

Werner Sauter Biological Reserve and Plantation

The Werner Sauter Biological Reserve, located in Playa Sámara on the Nicoya Peninsula, was founded by Werner Sauter more than twenty-five years ago. The 364-acre wildlife reserve was created by the Sauter family with the intention of protecting the forests of the Sámara area. Guided hikes through the reserve allow visitors to experience the diversity of the land, including the regions where cattle farms once dominated, richly forested areas, and a mango orchard (Sámara Trails, 2011). The Sauter family is invested in various conservation efforts throughout

Costa Rica. The family has recently aided in projects investigating the sedimentation and contamination of the Mala Noche river estuary and advocating for its restoration by spreading awareness of this threat to local communities (Armstrong, et al, 2010; Anderson, et al, 2011). For example, to decrease the amount of sedimentation in the river, the Sauter family sponsored research in the development of restoration methods for local mangroves (Noelle). In a continued effort to support sustainable forestry practices, the Sauter family created a pochote plantation adjacent to the biological reserve.

Figure 5: Pochote Plantation (Property: Costa Rica - 27 Year Old Pochote - Plantation on 10,000 Square Meters - North Pacific, Costa Rica, 2012)

The Sauter Plantation, like the plantation illustrated in Figure 5, is a mono-cultured area containing approximately 6000 pochote trees between twenty-three and twenty-four years old. The pochote was an extremely popular and important source of wood years ago, but it was extensively over-harvested in the later nineteen hundreds. Until recently these trees were not grown on plantations. Government incentive programs and the prospect of harvesting and selling pochote wood have since promoted their existence.

2.5 Sustainable Growth and Marketing of Tropical Timber

The pochote is a tree that is relatively easy to begin growing. The colonization of the pochote can occur from cutting shoots or sowing seeds, which initiate roots within eight days of planting. Extensive fertilization is not required, but pruning occurs during the first dry season and from then every five to seven years. The pochote is a useful species due to its lack of excessive care. It is used for shade and shelter as well as for live fences (Pochote: Red Ceiba). The wood itself is a high quality lumber used because of its durability and aesthetic aspect. It is because of the high quality of this lumber that the government promotes the establishment of pochote plantations (Perez et al., 2004). In the past, pochote was often sold locally

to saw mills, artisans and carpenters but it was overexploited and replaced with teak, which was already being grown on plantations in some of the first experiments in sustainable forestry.

Pochote lumber was not as prevalent in the marketplace after its overexploitation because the tree must have a diameter greater than thirty-five centimeters to be of value. At this diameter the previously yellow wood changes to the more desirable, denser, red heartwood that is used as timber. The pochote has a minimum growth period of twenty-four years before it can be harvested and sold. However, other trees can be harvested earlier. Teak wood for example, can be accepted at diameters of less than fifteen centimeters. At this diameter, the wood has all the properties which allow it to be marketed; the proper color, density and thickness. By the age of ten years, teak is grown to eighty percent of its total height and fifty percent its total diameter, and thus, teak can be harvested after as few as thirteen years. In 1996, both trees had comparable prices for a given amount, but because teak wood can be harvested and sold earlier than pochote, teak was not considered for plantation species. Now that pochote have been planted as a plantation species, they can once again be marketed as a native tree and source of lumber (Perez Cordero & Kanninen, 2002: Floors, 1997; Bermejo et al., 2004).

In Costa Rica, furniture was the number one wood product purchased in 1994. The same year, the pochote was ranked the number six timber species for furniture making. Ninety percent of people preferred dark wood, such as pochote, however besides color the consumer did not have a very thorough understanding of the species. The creation of tinting and finishing technologies allowed the simulation of different types of wood. This generated a credibility problem because the buyer did not necessarily receive the quality of wood they thought they were going to (Vlosky & Aquirre, 2001). In 1996, a study found the factors which determined the quality of wood products in Puerto Rico and United States. The factors were: strict standards of quality, price-stable products, and finishing capability. Promoting these qualities could help market various types of wood in Costa Rica as well (Vlosky & Aquirre, 2001).

Marketing challenges

It is common in areas like Central America for one species of tree, although comparable to others of the area, to come to dominate the marketplace. Sawmill operators bypass said species because of consumer demand and preference for other species. The preference for only select species promotes extraction from the forest, damaging the ecosystem and causing lesser known species to be passed by. In Honduras, a forest cooperative is working with fifteen species to bring them to market because their resistance to fungi, ease of drying and workability makes them highly valuable. The company is certified with an international eco-label, which is a major marketing opportunity. However, they are having trouble monitoring payments and work plans (Vlosky & Aguirre, 2001).

The marketability of pochote timber could be increased by doing a biodiversity study, to see what pressures are there and can be minimized by the plantation. Timber has always been a valued necessity but unregulated harvesting has been detrimental to many ecosystems. The Tropical Forestry Action Program and the International Tropical Timber Organization recommended using sustainable methods for continuing the plantation. In this way, companies can introduce themselves as a sustainable harvesting company and encourage others to do so as well. If pochote wood is labeled as "responsibly-produced" it may promote the market of timber from the plantation.

Within the country, the Sauter plantation can look into being approved by MINAET, the Costa Rican Ministry of Environment, Energy, and Communications. Within the MINAET, the SINAC or national system of conservation areas, will look at an area and see how it is functioning, and moreover investigate the level of functionality of a specific area. The approval often simply states that a process is sustainable, well organized, and environmentally cautions. A certificate of approval from the MINAET is a national one in that it is recognized by Costa Rica, but comparable international certificates can be obtained as well. The process for obtaining an international certificate of sustainable harvesting is an arduous one.

In 1993, the Forest Stewardship Council (FSC) was founded in response to global deforestation. The FSC was created through the collaboration of councils from international environmental establishments, retailers of timber, wood industry representatives, unions, and native people. The FCS uses Chain of Custody, or CoC certification to confirm that the laws and policies put in place are followed. To promote sustainable foresting practices and provide evidence that the customer is receiving products that have been grown and processed responsibly, certification is carried out by a third party organization. Figure 6 shows the labels of this certification. This method of certification is widely used in the industry because by providing a label, consumers understand that the lumber was harvested with the protection of the environment in mind (FSC Principles and Criteria, 2012; Canby & Raditz).

Figure 6: FSC Certification Tags (Iannaco, 2011)

To be certified by the FSC, a business must follow ten principles intended to improve management, promote the best use of forest resources and reduce waste. The first principle is compliance with regional, national, and international laws and treaties with regard to timber harvesting. The second principle is that the company must have the legal right to use the wood and have long-term tenure. The third and fourth principles protect the rights of the indigenous people to own and manage wood, as well as the socio-economic wellbeing of forest workers and local communities. In many countries like Costa Rica the timber market is quite large, and it provides and has provided the people with livelihoods for years. The people cannot be stripped of their way of living, and these laws establish the fact that whole communities need to be taken into consideration instead of just the trees of a specific area.

The fifth and sixth principles state that companies should strive to attain economic viability, encourage minimized waste and conserve the environment. The economy can be stimulated by avoiding dependence on a single product and not harvesting more than can be permanently sustained. An assessment must be completed to review the impact of on-site processing facilities, the use of chemicals, control agents, exotic species, and forest conversion to plantation. The conversion of forests to plantations cannot occur unless clear, sustainable, long-term conservation benefits, such as the preservation of species occur.

Management Plans

A management plan must be assessed and monitored according to principles seven and eight of the FSC, and upheld by the attributes of High Conservation Value Forests, which is principle nine. A High Conservation Value forest must have one or more of the following characteristics: it contains significant concentrations of threatened species, the ecosystems are rare, it is a critical nature protection area, or the area is fundamental to meeting basic needs of local communities or cultural identity. Principle ten states, "they (plantations) should complement the management of and reduce pressures on and promote the restoration and conservation of natural forests". This principle describes the enforcement of management plans that demonstrate objectives of promoting protection and natural forest conservation. These actions have been put into place to encourage the security of wild life corridors, diversity of aged stands, and the conservation of natural forests (FSC Principles and Criteria, 2012).

It is exceedingly common in many areas including in Central America for one species to become dominant while those with similar qualities are left ignored. Sawmill operators bypass these species because of consumer demand and preference for other species. The preference for only select species promotes extraction, damaging the ecosystem and causing less known species to be passed by. With the introduction of other species into the market, there is less waste with timber harvesting, and the wood processing trade can be slightly more efficient, as much wood goes to waste currently.

To properly market a product, the consumer should be provided with the information regarding the good qualities of the product. With the marketing of lesser-known woods, the proper labels and heritage of the timber are very important aspects. To market a new product a broad conceptual framework is necessary, beginning with the identification of the market orientation. After understanding the market, defining the product advantage is extremely important. The product must be tested to specify its quality. In the beginning stages of FSC's existence, different non-government organizations were campaigning against the buying of wood from illegal harvesting of tropical dry forests. Large-scale marketers such as Home Depot agreed to begin the FSC certification process, and thus many small businesses also wanted FSC certification to be able to sell to large businesses as well. The certification is now practically a requirement for trade in northern markets. To prove smaller companies are reliable, a budgeting strategy, marketing tactics, and thorough approach to the market must be adopted to ensure the success of a new product in a market. Finally, there must be an organized system of regulating and recording the performance of a product. When demands are made by the buyer for samples, the producer must be able to give high quality samples, and with increasing demands, must not give in to the pressure of producing lower quality products because of time constraints. Studies have shown that the organization of a company and its product are directly related to its performance in the market. Knowledgeable informants are required to correctly market and sell a product (Dickson & Ginter, 1987; Didier, 2009; Langerak et al., 2004).

Figure 7: Pochote Wood (Pochote: Red Ceiba)

2.6 Case Studies

Pochote is to be brought into the lumber market that already consists of multiple species of trees. Several others are Bocote, Cocobolo, Goncalo Alves, Ipe, Madero Negro, Mahogany, Nargusta, Peroba Rosa, Primavera, Purpleheart, Roble

Santa Maria, Teak, Trebol, and Wild Tambran, all grown in Costa Rica for export and for use in the country itself (Tropical Hardwoods, 2011). Mahogany was a tree which was nearly completely wiped out in the late 1900's but is now starting to make a come-back, especially as it can be grown in plantations. Ipe is a fairly common wood used commercially for years, but has been exploited and is rare outside of national parks and reserves. Teak is a tree imported to Costa Rica, and has been used in most wood industries. Materials that are being introduced into the market should have defining characteristics, and the products that can find a niche with these characteristics tend to do well in market.

Koa Wood

One species of wood that definitely has a specific niche is the Koa. The *Acacia Koa*, is native to Hawaii, and in the past was used to build the Hawaiian giant war canoes. These seventy-foot hulls were made out of a single tree. Surfboards and paddles were also made out of Koa. The wood itself is a national treasure and a point of pride. It is a very fine wood that is thought to be the most valuable native timber of Hawaii. It is a golden color that often has a curly grain. The trees are much less prevalent than in the past because of commercial use, land clearing, and destruction by animals, insects and fire. The Koa is a species, which, although has a desirable coloring, would not have been used prevalently except for its high valued use in ukuleles, the local use, of the wood now. It is a rare wood and makes the ukuleles extremely valuable and desirable. The wood amplifies the sound to the pleasure of those who play the instrument. The use of Koa as a niche product is one example of how a species of wood, although not desired in the lumber supply market, could be marketed towards specific applications (King & Tranquada, 2003; Whitesell, 2004).

Teak

The Teak tree, *Tectona gradis*, is a species that has been planted worldwide. The tree was imported from sources in Burma, Thailand and India and was introduced to Central America in 1926. Teak can survive a dry season between three to five months long, and flourish in flat areas of deep fertile soils. When planted in

sloped areas, the teak tree plantations have been known to cause erosion due to weak root structure. Controlled burning and undergrowth cutting also affected the surface runoff and soil erosion, because the roots are deep but not spread out, and without brush to hold the soil, it washes away.

The heartwood grows best with frequent heavy thinning to allow development without competition over resources. There is high variability regarding certain wood properties among young stages of teak plantations. Teak wood itself is desirable for several reasons including its mellow color as seen in Figure 8, its strength and durability. The wood is often used as a luxury, for aesthetics in furniture, railings, floors, or construction, and exists in the niche markets of other precious hardwoods. The heartwood itself can be preserved for a very long time and is resistant to fungus and insects. This preservation allows large plantations to be able to flourish, unlike other species of valuable tropical hardwood species (Perez et al., 2002; Floors, 1997; Pandey & Brown, 2000).

Figure 8: Teak Wood (Estratto, 2003)

COATLAHL

In Honduras, a forest cooperative is working with fifteen tree species to bring them to market, because their resistance to fungi, ease of drying and workability makes them highly valuable. The cooperative, called COATLAHL was granted one of the first FSC community forestry certifications. The company is certified with an international eco-label, which is a major marketing opportunity. However, they are having trouble monitoring payments and work plans. Another challenge was finding markets for the certified, but lesser known timber. The group faces challenges from illegally harvested timber and better-known species, however established a

relationship with a specific retailer and built client confidence. A visit from their principal investor, led to a display of product samples, quality requirements and a demonstration of the high quality of their products. The ability to build up credit with investment plans and loan fulfillment was also crucial to build trust with the investors. A study showed that in order to become efficient and to develop trust, communication, on an individual level, was the key factor (Vlosky & Aguirre, 2001; Furniture-producing Cooperative in Honduras).

Ipe

Ipe is a type of wood that is in the lapacho group, but not a single species. It has a wide color range. It can have a red color, a yellow or olive color, or a dark brown. It is a naturally occurring species in the tropical Americas and grows between one hundred and two hundred feet tall and two to three feet in diameter. The wood has a texture varying from straight to irregular grain. It is an extremely durable wood that is resistant to decay, rot, and insect attack. It is dense and extremely hard, with ratings of 3680 in the Janka hardness test, where Teak received a rating of 1155, showing it is over two hundred and fifty percent harder. Qualities that make it challenging to work with include its strength and toughness. The wood is often used in flooring, decking, and exterior lumber and for tools because of its hardness and ability to be in most environments. It is fine in water, and also has the same fire rating as concrete. It is a very hard wood that found its niche because of its hardness (Sanches, 2012; Tropical Hardwoods, 2011; Ipe, 2012).

2.7 Summary

The literature reveals a complicated history of deforestation in Costa Rica. The subsequent re-planting and sustainable harvest of timber is one way to help protect and bring back the forests. With alternative methods of harvesting other than the harvesting of specific popular trees from the forests of the area, the forests should escape some of the harm, which was exceedingly imposed upon them at the

end of the last century. The pochote, a native species to the area would be beneficial to the environment instead of the great utilization of foreign species.

Chapter 3: Methodology

The purpose of this project is to develop a marketing plan to support the sustainable introduction of pochote timber in Sámara, Costa Rica. Successful marketing of this new source of lumber has the potential to stimulate the local economy and create jobs pertaining to the preparation and use of the wood. This goal will be fulfilled by implementing the following objectives: understanding the past uses and future potential for pochote lumber, identifying existing local artisanal or commercial markets for the wood, and developing a marketing strategy for integrating this lumber into the local market.

3.1 Objective 1

It is important to consider the perspectives of the local residents by inquiring about the past uses of the pochote and evaluating the level of interest in the wood. In an effort to uncover this valuable information, we will conduct interviews, assisted by a translator, with both members of the local community as well as with professionals in the lumber industries. By speaking with both demographics, we will gain insight into topics including the value of the wood historically as well as its future uses in the market.

The strategy of interviewing is better suited to our needs as opposed to surveying. A simple survey, while insightful, lacks the additional benefit of engaging in an actual discussion that may yield deeper, more personalized information. Interviews are most useful when the information being collected provides insight that is unique from any past publication or research project. The information that is currently available will not provide us with the explicit data that is required by our project. The information that is currently available will not provide us with the explicit data required by our project. Qualitative in-depth interviews are used as an approach in which the interviewer is flexible and is able to change the direction of the questions upon hearing past responses from an individual. This is a very open-ended method that would assist us in gathering a breadth of data (Doyle, 1994).

To better understand the past uses of pochote wood in the area, we will conduct interviews with members of the local community. We will be utilizing the process of interviewing in an effort to foster a more natural conversation with each person. During the interviews, we will discuss topics including the participant's recollection of the past use of pochote wood and their interest in using or buying products produced from the lumber source. Appendix A represents the broad questions that will guide these conversations. With information obtained from these interviews, we will be able to better formulate a marketing plan later in our project timeline.

Another facet of understand the pochote involves exploring the potential uses for the lumber in the future. We will be conducting interviews with individuals in the area who have previously worked with pochote and have a deeper understanding of the wood and how it could be used for products. They will be able to provide us with more insight into the qualities that distinguish this type of tree from other wood sources that currently comprise the wood market in the local region. Possible interview questions to assist us in obtaining this information are listed in Appendix B. By compiling the information we collect exploring the past uses of the tree in Sámara and investigating the possible future uses of the wood, we will be better able to create successful marketing strategies.

While interacting with the local community will provide us with useful information, we would like to target a more select group of interviewees. We will choose a sample that will include participants from various demographic groups, representing a mix of ages, occupations, and gender among other defining characteristics. Our approach to finding specific individuals that are part of a representative sample to interview will be refined upon arriving in Sámara. Furthermore, with a better view of the environment in which we will be working, we will be able to select the best public locations from which to draw these interviewees (Berg, 1989). While reviewing a project completed in this area in 2011, part of the team's approach to surveying a sample pool was addressed by randomly selecting residents from the town's cluster of houses. They collected data from a sample of 48 participants, comprised of 18 males and 30 females; a sample size they

estimated to represent approximately half of the households found in that community (Anderson et al., 2011).

3.2 Objective 2

Our second objective addresses the need to identify local commercial or artisanal markets for the pochote wood. By speaking with local wood mill owners and wood shop owners, we can better understand topics like their understanding of the pochote as a wood source, current wood use and practices, as well as their level of interest in expanding their supply to include the influx of pochote lumber into the market. The questions that we can select to pose in interviews are included in Appendix C.

Essentially, speaking with these professionals in the industry will provide us with a deeper understanding of the setting of the local lumber market, which will allow us to better draft strategies to assist in the sale of the pochote tree into the community's wood market. Our primary steps in this process, which include exploring the impact and presence the pochote after having been in the community and the potential it holds in the future, as well as the identification of the primary points of the current lumber market, will all be integrated into the creation of the proposal to our sponsor.

3.3 Objective 3

Our last step in the progression of our project is the analysis of the data that we have collected to successfully create a market strategy for the lumber in the market. We will evaluate the information collected through the three facets of interviews. We will also assess elements such as the level of community interest, previous uses for wood in the community, the benefits and defining characteristics for using pochote as a source. We will then, finally define where the potential lies for this tree in the future of the market.

After conducting interviews, we will better understand the product and be more knowledgeable about the ways to increase the marketability of the product and the selling points of the wood. One such approach to increasing the desirability

of the pochote in the local region will be evolved from advising for the publication of its heritage factor by emphasizing that it was once a traditional product in the area. We will also investigate possibility of labeling the harvested pochote lumber for different sustainable certifications through both national and international organizations that address this (MINAET and FSC.) By investigating this possibility, we will be working with not only increasing the product's marketability, but we will also be working towards keeping this process of harvesting from the plantation a more sustainable one.

3.4 Projected Timeline

The Gantt chart, shown below, demonstrates our expected course of action in chronological order. In weeks one and two, we will be enrolled in language classes to help us further develop our Spanish-speaking skills. We will also meet our sponsors and continue our research prior to field work, including designing and setting up interviews for our time in Sámara. In the following weeks (3, 4, and 5) we will complete our in depth interview process with members of the community as well as forestry experts, mill operators, and other professionals that will be able to assist us. Finally, in the remaining weeks, we will analyze the data collected to assist us in creating the most optimal marketing proposal plan for the pochote. After finalizing our report, we will be presenting our project to the public in our final presentation before departing from San Jose.

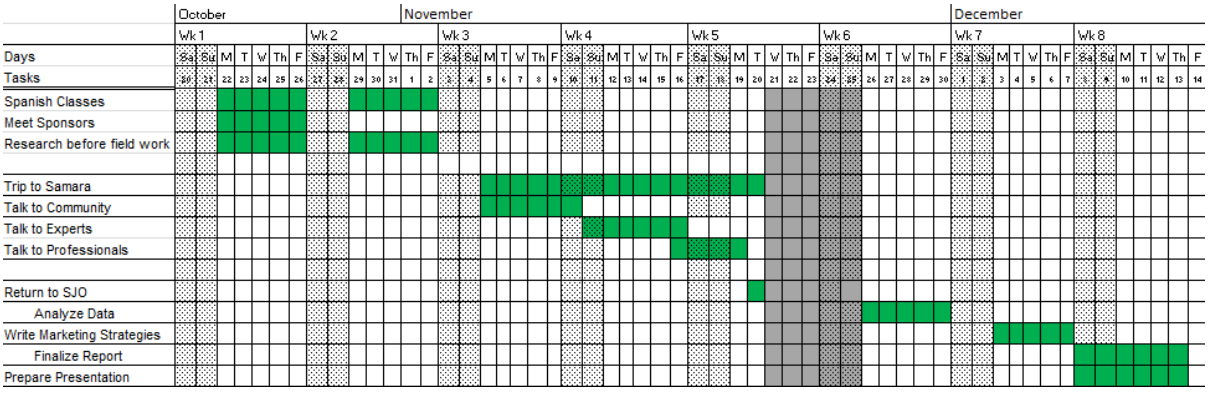

Figure 9: Gantt Chart

Chapter 4: Conclusion

Many species native to Costa Rica have become less prevalent due to the exploitation of the forests. Massive deforestation, for uses of agriculture and timber, has caused tropical dry forests to become one of the earth's most threatened ecosystems. Because of this, the dry forests in existence now are all secondary forests. One of the native trees, the pochote, had been felled to such an extent that they became nearly obsolete to the area. This over-harvesting led to the decline of the pochote lumber industry. With the recent establishment of plantations however, the native species is now being brought back into the market.

To successfully reintroduce an old product back into the market, both the producer and the consumer must be well informed. In regard to our project, the producer of the wood must be familiar with the previous uses of the pochote, as well as its strengths and weaknesses. To obtain this information, we are going to conduct interviews with specialists of the pochote, including plantation owners, workers, and naturalists. We are also going to engage the local community to gain more insight about the lumber. Older members of the community may remember working with the pochote, while younger ones may have possessions, or be interested in products made of pochote. The sales person must be able to communicate to potential buyers the comparability of the pochote with more commonly used trees and the qualities that set it apart. The pochote is unique in that it is being sustainably harvested and it is a native species therefore it holds traditional value. Information regarding the level of interest in the pochote will be collected through talking to mill owners, artisans, and people in the timber industry. These experts will provide insight to help shape our marketing approach. The people of Costa Rica must be convinced that there is reason to bring the pochote back into the lumber market. With a clear marketing plan, we can better facilitate the reintroduction of pochote into the lumber market.

We are very excited to be working with Sr. Sauter and the team from Sámara to develop a market for the pochote timber, and help increase the local economy.

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Appendices

Appendix A: Questions to Community

Disclaimer: Thank you for participating in our interview. Please note that any and all answers provided by any participants will be kept confidential. No information provided to us by participants will be used against the participant. The purpose of this interview is to learn more about the wood from pochote trees.

Gender: Age:

1. Do you remember when the pochote was used for lumber?
2. Do you have anything made of pochote that you are aware of?
3. What are/were defining characteristics of the wood?
4. Was/is it highly valued?
5. Would you purchase products made of pochote wood?
    a. What kinds of products?
6. Do you have more interest in products created sustainably?
7. How dedicated to are you to the environment?

Appendix B: Questions for Professionals in the Lumber Industry

Disclaimer: Please note that no answers received during this interview will be affiliated with your company. All information will be kept confidential and is just used for us to familiarize ourselves with the process of introducing and using a new lumber supply in the market.

1. What do you usually make out of the wood that you purchase?
2. Who are your primary buyers of the wood products?
3. When do you usually buy your wood?
4. How much wood do you usually buy?
5. What are some characteristics you look for in the wood that you purchase?
6. Do you need wood that can absorb preservatives?
7. Would you expand your supply to include comparable species if people were interested in purchasing it?
8. Are you aware of the pochote tree?
9. Do you know its defining qualities?
10. If a large supply of pochote wood recently became available, would you be interested in purchasing it?

Appendix C: Questions for Professionals Working with Pochote

Disclaimer: Thank you for participating in our interview. Please note that any and all answers provided by any participants will be kept confidential. No information provided to us by participants will be used against the participant. The purpose of this interview is to learn more about the wood from pochote trees.

Gender: Age:

1. Professionals with knowledge of the pochote
2. What has been the most common use for pochote wood?
3. How resilient is the pochote?
4. How susceptible to insects is the wood?
5. How long does the wood last before it rots?
6. How long does it take to process?
7. How much of the tree can you use?
8. How easy is the pochote to work with?
9. Is it hard wood or soft wood?