ESTABLISHING A NEW-GENERATION EXPORT COOPERATIVE FOR MISSOURI FORESTRY PRODUCT PRODUCERS
FY 2008

Forestry products are important in the Missouri agricultural economy. Over 32 percent of the state's acreage is forested, equivalent to 14.5 million acres of forest land of the total 44.1 million Missouri acres. This vast resource supports a large forest products industry that is vital to many of Missouri's rural areas. Most Missouri companies sell their product in the regional domestic market, with some larger companies making sales nationwide, and ever fewer select mills making international sales through third-party export brokers. Until recently the domestic market has been strong enough to sustain the large number of Missouri mills, however two recent changes in the domestic market have lead to very tough times for many mills: 1) the downturn in the domestic housing market; and 2) the movement of many large forest product users, like furniture companies which have moved their production facilities to foreign markets.

Many Missouri mills have begun exploring international markets. Exports of forestry products from Missouri amounted to nearly $34 million in 2006, up from $28 million in 2005, but the majority of those exports were made by a handful of large to very large Missouri companies. The small companies that have explored export markets have found that in order to be successful a company needs a sizable quantity of product, favorable shipping arrangements, and the monetary and personnel resources to devote to exploring, marketing and servicing the market. Few Missouri companies have these components individually; however acting collectively, export success could become a reality.

This project researched the feasibility and functionality of establishing a regional, new-generation export co-operative to manage, process, market and service collective forestry products in international markets. This study will be used as a pilot program with a vision of expanding the operation statewide.

FINAL REPORT
FEASIBILITY STUDY
SITE ASSESSMENT REPORT

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Wood Products Export Facility: A Summary

Value Ag, LLC was hired by the Missouri Department of Agriculture to prepare a feasibility study titled: Wood Products Export Facility. This study focused on exporting primary hardwood products produced in the south central region of Missouri to the Asian market place and Mexico. After visiting the region and several local processors, Value Ag, LLC was able to outline a strategy for a establishing and operating a collective action wood exporting firm. The study was completed in November, 2009.

An industry analysis was provided in the study. Current issues facing the industry, as well as participants, buying patterns and competitors were specified.

The study provides international market data and outlooks for the Asian market place and Mexico. Market trends and needs were analyzed and reported on. A Political, Economical, Social, and Technological (PEST) analysis was provided for each country of interest. Typical exporting requirements and an overview of how international transactions occur was also included.

The structure and organization of the export firm was also discussed. A proposed ownership structure and plan for how the firm would operate is detailed within the report. This information includes how current firms in the region could work collectively to supply larger volumes to domestic and international buyers. By working together, cost efficiencies could also be experienced and are outlined in the study. Also, a scenario of allowing for outside investors (either in the timber industry but not involved with wood processing or external to the timber industry) to invest, deliver, and have decision rights was incorporated.

A full site assessment for a location is southeast Missouri can be found in the study. This assessment details potential locations, access to transportation, sources for utilities, potential investment incentives (grants and Chapter 100 bonds), and economic development potential. The potential kiln drying facility structure is also outlined and discussed.

A financial plan was created for a potential collective action firm of the size and scale that could be expected of southeastern Missouri. The financials indicate the cooperative purchasing FAS grade red oak lumber, kiln drying, sorting by size, containerizing, and exporting. Steps were outlined for best export practices.

Obstacles to the structuring and operating of the potential firm were discussed throughout the study. Key considerations were outlined and a plan for going forward with the establishment of a firm can be generated from the information in the study.

Establishing a New-Generation Export Co-operative for Missouri Forestry Product Producers

Federal State Marketing Improvement Program (FSMIP)

Report of Progress—Final Report

February 2010

Report Developers:

Mark Hitt

and

Dr. Joe Parcell

Issue

Missouri is an incredibly diverse agricultural state; of which forestry products play an important role. Over 32 percent of Missouri's acreage is forested, equivalent to 14.5 million acres of forest land of the total 44.1 million Missouri acres. Missouri's timberlands contain over 7 billion trees, a massive volume of 14 billion cubic feet. This vast resource supports a large forest products industry that is vital to many of Missouri's rural areas.

According to an October 2007, study completed by the Missouri Economic Research and Information Center, total direct employment from the forestry industry is over 27,000 Missourians. The nearly 400 primary wood product producers directly employ over 3,600, with secondary forest-based processors employing over 24,000 people. Indirect employment resulting from the forestry industry is nearly another 40,000 workers. In total forest products and supporting industries generate over 67,741 jobs in Missouri, paying $2.8 billion in annual salaries. The USDA Forest Service ranks Missouri third based on economic impacts of forestry.

Most Missouri companies sell their product in the regional domestic market, with some larger companies making sales nationwide, and ever fewer select mills making international sales through third-party export brokers. Until recently the domestic market has been strong enough to sustain the large number of Missouri mills; however two recent changes in the domestic market have lead to very tough times for many mills.

The first change is the downturn in the domestic housing market. According to the U.S. Census Bureau, 2007 housing starts nationwide and Midwest, not seasonally adjusted, were down 24.8% and 24.7% respectively, from one year ago. The situation shows no immediate signs of improvement with December 2007, compared to December 2006 starts in the Midwest down 35.4%. Building permits, a sign of future construction, declined by the greatest amount in 12 years, suggesting the housing slump will deepen as it enters its third year. Experts at trusted, independent economic analyst, Moody's Corporation, are predicting the situation is likely to not improve significantly before 2010.

A second, a more permanent change is the movement of many large forest product users, like furniture companies have moved their production facilities to foreign markets. In terms of output and sales, the domestic U.S. furniture manufacturing industry has been a large and growing industry from 1990 and 2001. However, since that time, in most product classes, manufacturing employment has fallen, and has not recovered to the peak years around 2000. Domestic manufacturing employment has been most severely affected in the wood household furniture product class (case goods), where total manufacturing employment has fallen by almost half, from 130,000 to 70,000, since 2000. Large consolidators acquired many traditional manufacturers, closed and rationalized domestic plants, and shifted the focus to distribution and retail activities. This product class has been severely affected by imports, which now account for more than 50% of U.S. consumption.

In order to negate the downturn in the domestic housing and furniture markets, many mills have wisely begun exploring international markets. Exports of forestry products from Missouri amounted to nearly $34 million in 2006, up from $28 million in 2005, but the majority of those exports were made by a handful of large to very large Missouri companies. The small companies that have explored export markets have found that in order to be a successful exporter in the forestry industry a company needs a sizable quantity of product, favorable shipping arrangements and the monetary and personnel resources to devote to exploring, marketing and servicing export markets. Few Missouri companies have these components individually; however acting collectively, export success could become a reality.

For these reasons the Missouri Department of Agriculture proposed to research the feasibility and functionality of establishing a regional, new-generation export co-operative to manage, process, market and service their collective products in international markets. Structured in a co-operative Missouri primary forest product producers could amass large product capacity, hire management devoted to exports, take advantage of memberships in organizations like the American Hardwood Export Council, justify international travel and sales events, and recruit international buying delegations. Upon a report of positive feasibility, this study will be used as a pilot program with a vision of expanding the operation statewide.

Project Objectives

A consultant familiar with the forestry industry, logistics and new generation cooperatives was hired to prepare a full marketing and feasibility study. The consultant along with the Missouri Forest Products Association and the Missouri Department of Agriculture, held regional presentations for sawmill owners and operators. The purpose was to educate them on international barriers, export opportunities, domestic opportunities and explain the difference between cooperatives and cooperating. There are many cooperative models and the consultant did an excellent job explaining different cooperative models.

After the regional meetings, all the sawmill owners who indicated interest from the eight country targeted area were invited a second presentation. The presentation provided an opportunity to vet interest, answer questions and to identify steering committee members. With industry leaders in-mind, one-on-one meetings were arranged with potential industry leaders.

With industry input, the consultant prepared a detailed feasibility study. The study included facility needs, personnel needs, site location, investment, operating budgets, markets, purchasing, rules for membership, hiring the CEO and cooperative models.

Public or Private Agency Cooperation

The Missouri Department of Agriculture worked closely with the Missouri Forest Products Association. The Missouri Forest Products Association had the industry's trust. It was very important to have them at our side and the consultant's side during the presentations to give legitimacy to the concept of an export cooperative. The Executive Director of the Missouri Forest Products Association had recently traveled to Vietnam and he could explain, first hand, the size of Vietnam's furniture manufacturing sector and the species and volumes the customers required. We cooperated with Kyle Cunningham, a University of Missouri Industry Specialist who also had a forestry degree. Mr. Cunningham was an unexpected and welcomed partner.

Results, Conclusions and Lessons Learned

The grant concept was good but the timing was awful. The sawmills were laying off workers, owners were forgoing pay, buyers were not buying or offering low prices and the potential cooperative members were focused on surviving. Although there was interest in a cooperative they were not willing or unable to invest in a new business venture.

Missouri's sawmill owners are independent small business owners. The same could be said for Missouri corn producers yet the corn farmers found a way to investment millions of dollars in ethanol plants. We didn't expect the degree of independence.

We should have asked for a grant to hire a consultant to present preliminary information to the sawmill owners, identify the steering committee and then request a grant funding for a feasibility study. Throughout implementing the grant, we believed we found those leaders and yet, in the end, they were unwilling to assume a leadership role.

We were disappointed in the number of sawmill owners who attended our meetings, but we reminded ourselves the cooperative may only need six to nine members. Based on preliminary calculations, the investment would have been tens of thousands rather than millions of dollars to build an ethanol plant.

We were pleased with the consultant's enthusiasm and work on this project. He was able to clearly explain the difference between traditional cooperatives and New Generation Cooperatives and other models for working collectively. The consultant's final report provides a great resource for sawmill owners interested in forming an export cooperative. As well, the consultant did a good job with the site selection information.

Our greatest disappointment was the inability to form a steering committee. We thought we found our champions and then they pulled back to concentrate on their own business. As mentioned earlier, the economic downturn particularly harmed the hardwood lumber sector.

Current or Future Benefits

The meetings expanded the Missouri Department of Agriculture's knowledge of Missouri's sawmills and loggers. As a result, we were able to assist one of the loggers to a Missouri sawmill that does export. The logs were valued at $9,000.

The economy is improving and we remain hopeful Missouri's sawmill operators in the grant's targeted region will be willing and able to use the feasibility to form an export forestry cooperative.

Future Research

The sawmill owners in the grant target area now have access to a feasibility study and we will make the research available to the industry state-wide. It is now up to them to press forward.

Project Beneficiaries

The Missouri Forest Products Association indicated the grant research was extremely valuable to their organization. They believed there was a need for forestry cooperative. The grant allowed them to partner with Missouri Department of Agriculture to offer this opportunity. The interest in forming the cooperative, up to this point, was not successful but the opportunity was offered.

Information Generated

Missouri's Forest Products Association and the Missouri Department of Agriculture now have access to an Export Cooperative feasibility study. The Missouri Forest Products Association will make sawmills in and outside the grant target area aware of the research.

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VALUE AG, LLC

Innovating Tomorrow's Agriculture

Wood Products Export Facility

Prepared For:
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About Value Ag, LLC

Value Ag, LLC is an economic, market and financial consulting company with exceptional competencies in the in food, fiber and forest products value chains. Our work is primarily focused on helping clientele recognize and assess value creation opportunities in these chains through the use of feasibility studies, technological and logistical analysis and market research. For proven concepts, we have assisted our clients with capturing value through strategic and business planning, organizational and financial structure, and business and risk modeling. We take pride in our unbiased assessment of potential business opportunities. We assess a variety of business opportunities within the agricultural sector and draw upon some of the leading experts within these various fields.

The staff of Value Ag, LLC uses our agriculture-focused educations and personal experience in production agriculture and rural economies. The founders and staff of Value Ag have a strong agricultural base, which combined with our agribusiness and financial knowledge, allows us to better grasp drivers within the food, fiber and fuel value chain from farm to consumer. The staff uses tools from personal experience in production agriculture and private business, as well as their academic training and university roles involving teaching, extension and research in agribusiness. We have international experience and maintain an extensive list of global contacts.

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List of Exhibits

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1. Executive Summary

This feasibility study analyzed a proposed wood products export cooperative to be located in southern Missouri. This region contains several smaller sawmill operations that alone cannot easily fill large orders for exports, and the motivation for the study is to ascertain whether a group working cooperatively can tap into these export markets to capture further value. A strategy of utilizing the expertise of brokers to establish business relationships in key growth Asian markets for red oak, an abundant hardwood in southern Missouri, is recommended. This endeavor requires the cooperation of several sawmills to obtain enough critical mass to serve these markets with high quality FAS red oak. Southern Missouri is nicely situated to have export access through shipping out of St. Louis via Mississippi River to the Gulf of Mexico or by utilization of surplus containers in Kansas City that need to return to Asia via the west coast.

We positioned this business proposition as producer-owned, with producer-owners contributing 60% of start-up equity (investment and working capital) and with delivery obligations tied to an equal percentage of annual feedstock needs. The investments requirements pertain to the necessary equipment and facilities, such as drying kilns, a storage shed, and a semi truck, to operate the business proposition. Forecasted growth in red oak prices and US exports of red oak to Asian export markets make the proposition promising. This conclusion is based on these price and export projections and the estimated costs of capital investments in the summary of the financials below.

The financial projects were prepared under the assumption that the capital expenditures would be financed by 60% equity and 40% long and short term loans. Total capital costs are expected to be $663,500. This includes $250,000 of working capital. Total initial member-owner investment in capital costs and operating capital will be $398,100, leaving the firm to finance $265,400 in a combination of long and short term loans. A summary of capital expenditures can be seen in Exhibit 1.1.

Exhibit 1.1 Estimated Capital Expenditures

Capital Expenditure ***(Includes Labor/Construction Costs)***	**Amount**
Air Drying Shed--27x28x18	$ 6,000
Kiln--Nyle L1200S (360,000 BF/Year) x2	$ 250,000
Dry Storage/Loading Dock	$ 36,000
Office	$ 25,000
Land (Purchase and Preparation)	$ 17,500
Concrete (Floors of all Buildings)	$ 21,000
Equipment	$ 58,000
Operating Capital	$ 250,000
Total Capitalization Expense	**$ 663,500**

Due to a construction period, kiln operation and product sales do not begin in year one until July 2010 and August 2010, respectively. This, along with the long term loan, inventory, accounts payable, and accounts receivable assumptions, leads to a loss of $4,000 in 2010 before interest and taxes. However, in 2011, after a full year of operating, the firm is expected to see an EBIT of $130,000.

An operating line of credit will need to be used through the third quarter of 2011 (year two of operation). However, by the end of 2011, the facility should generate positive cash flows and allow for the pay off any short term operating loan balances from the previous years and begin building a positive cash balance.

No assumptions were made about dividend policy, new investments, or early long term debt retirement. Because of this, the cash balance grows by the annual net cash flow after 2011. Owner's equity grows over the period of the financials and reflects the profitable nature of the enterprise and the accumulation of unpaid dividends.

1.1 Key Findings

Strategic Approach

- Target high growth Asian export markets for red oak, particularly China.
- Establish cooperative as a supplier of consistently high quality FAS red oak lumber.
- Utilize brokers for market knowledge and time-intensive development of business relationships in the Asian marketplace.
- Utilize a modified just-in-time inventory to limit capital "tied-up" in inventory.
- Kiln-drying lumber adds value and limits unnecessary transportation of water.

Location and Feedstock Availability

- Sufficient availability of red oak.
- Two export container shipping alternatives
  - St. Louis down the Mississippi River to the Gulf of Mexico,
  - Surplus of containers in Kansas City that need to go back to Asia via west coast exports.
- Proposed site easily accessible for deliveries and out-loading.
- Lower wages in southern Missouri provide relatively cheaper labor.

Industry and Market Assessment

- Asian export market projected to continue to grow, particularly China.
- Red oak prices should rebound with the economy and consumer sentiment.
- High quality FAS red oak is needed particularly for furniture produced in China for US and EU consumers.

Financial Assessment

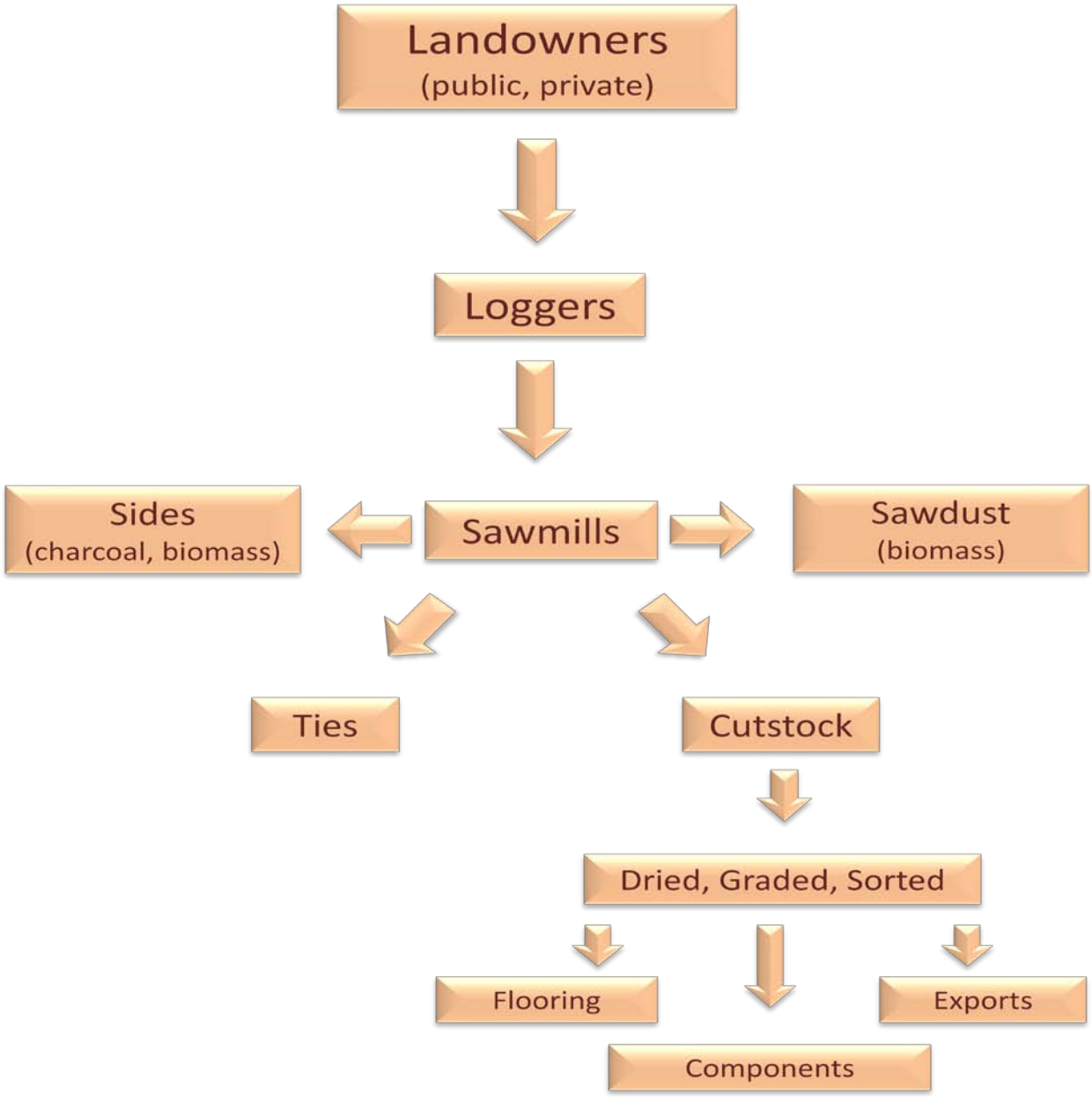
- Substantial positive cash flow by year three of operation.
    - A short term line of credit will be necessary for the first two years of operation.
- As output is fixed at the maximum, gross margin is most sensitive to selling prices.
    - A 5% increase in FAS dried Red Oak (selling price) increases gross margin by $56,000
    - A 5% increase in FAS green Red Oak (purchasing price) decreases gross margin by $44,000.
- Managing the margin is critical, and thus, hiring a broker to manage international sales will be advantageous to mitigate risk.

2. Industry Overview and Trends

2.1 Value Chain

The value chain for the forest products industry can be seen in Exhibit 2.1.1. Value is added at each successive step along the flow diagram. While logs can be exported, this study looks at exporting dried and graded cutstock—pieces that can be used in cabinets and flooring.

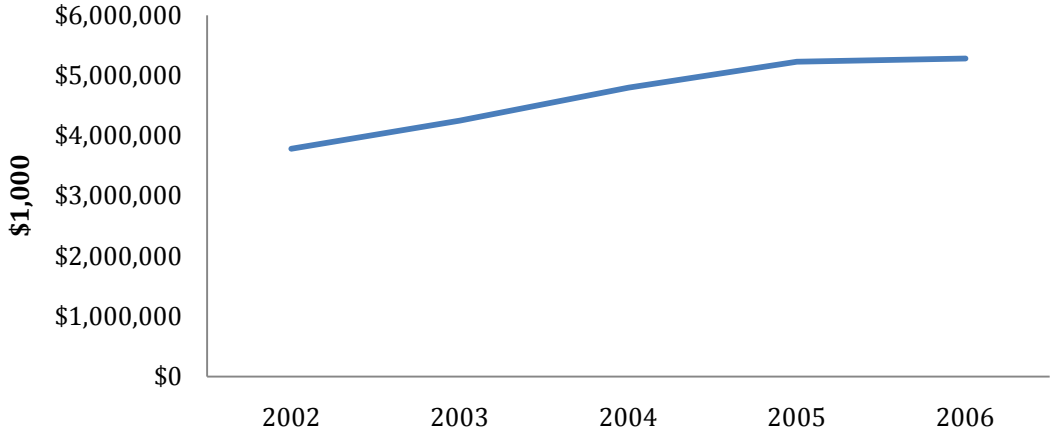
Exhibit 2.1.1 Current Supply Chain



2.2 Supply and Demand

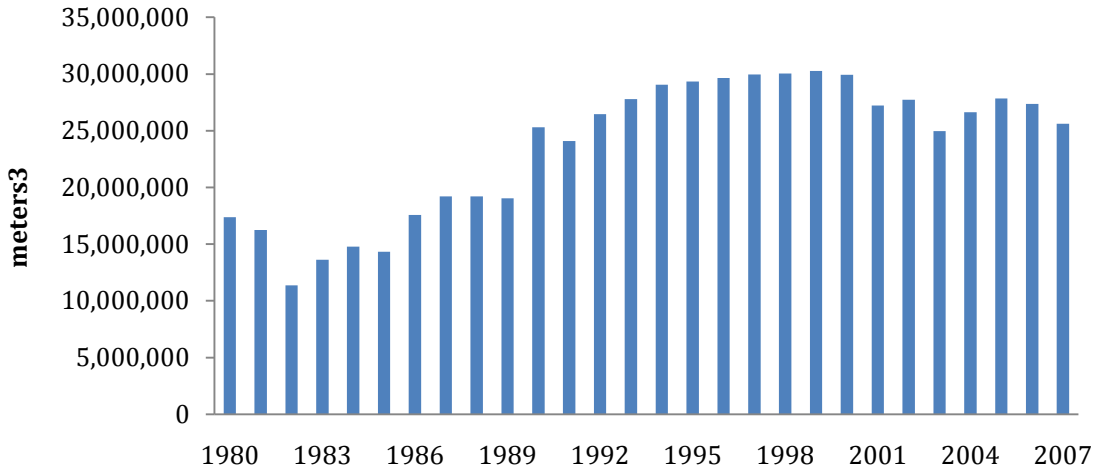
Recently, production of hardwood lumber by US sawmills has been over a five billion dollar industry (Exhibit 2.2.1). Industry growth reached a plateau in 2005 that is also reflected in the quantity of non-coniferous sawn-wood produced (Exhibit 2.2.2). Lower production in 2007 marks the declining economy and housing markets, as hardwoods make fine cabinets and flooring.

Exhibit 2.2.1 Value of Annual Shipments of Hardwood from U.S. Sawmills ($1,000)



Source: U.S. Census Bureau: http://www.census.gov/manufacturing/asm/index.html

Exhibit 2.2.2 Quantity of Non-Coniferous Sawn-wood Produced in the U.S. (meters^3)



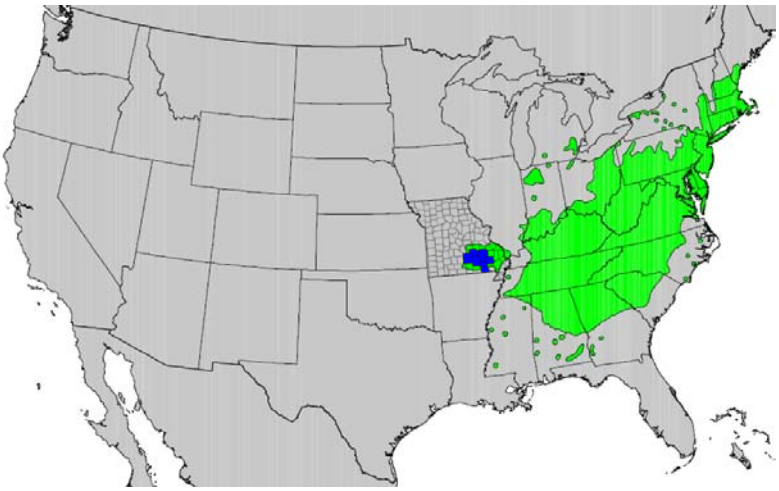
Source: Food and Agriculture Organization of the United Nations:
http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626#ancor

Note: Non-coniferous lumber includes all species of origin other than tropical and the following products: sawnwood, unplaned, planed, grooved, tongued, etc., sawn lengthwise, or produced by a profile-chipping process (e.g. planks, beams, joists, boards, rafters, scantlings, laths, boxboards, "lumber", sleepers, etc.) and planed wood which may also be finger jointed, tongued or grooved, chamfered, rabbeted, V-jointed, beaded, etc. **Wood flooring is excluded**. With few exceptions, sawnwood exceeds 5 mm. in thickness.

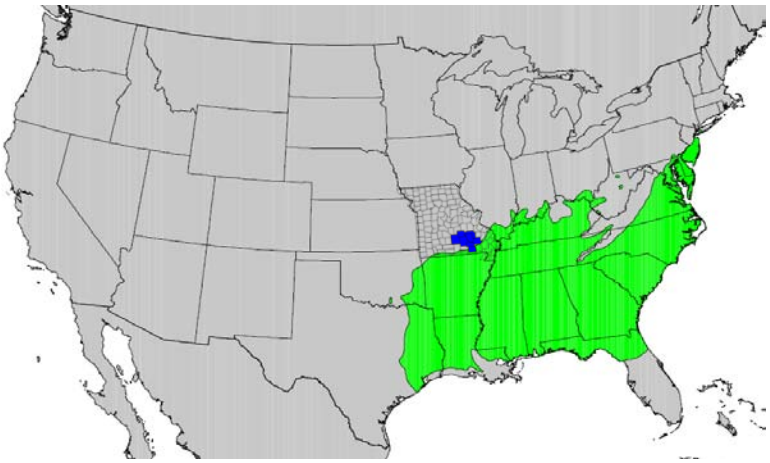
Red oak is a prominent hardwood in the southern US. Exhibit 2.2.3 is comprised of several maps showing where various species of "Red Oak" can be found throughout the United States. Green shaded areas display where the species listed above the map grows. The species in each of these maps can be found within the eight-county region, which is shaded blue in the exhibit. (This report focuses on Dent, Carter, Shannon, Texas, Ripley, Iron, Wayne, and Reynolds counties.) Shaded areas do not reflect, however, species' density within regions.

Exhibit 2.2.3 Red Oak Tree Species Found within the Eight-County Region

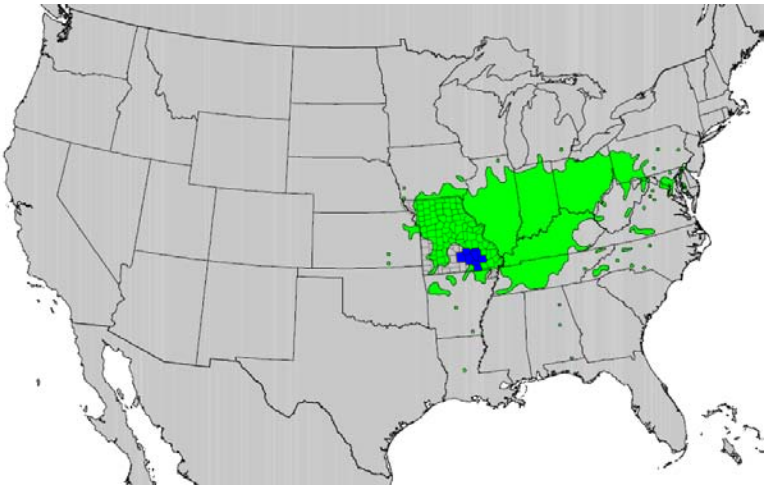
Quercus coccinea – Scarlet Oak



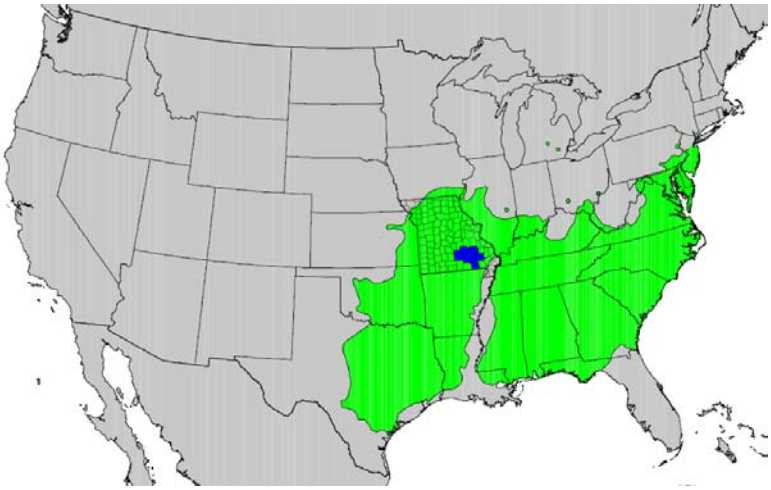
Quercus falcata – Southern Red Oak



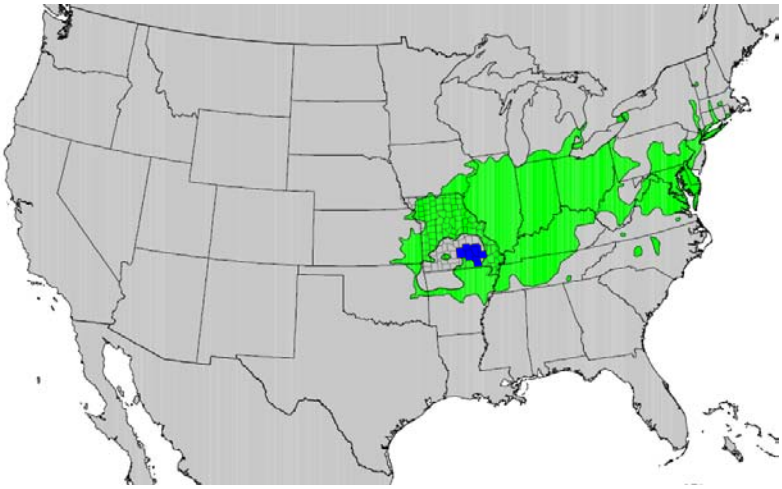
Quercus imbricaria – Shingle Oak



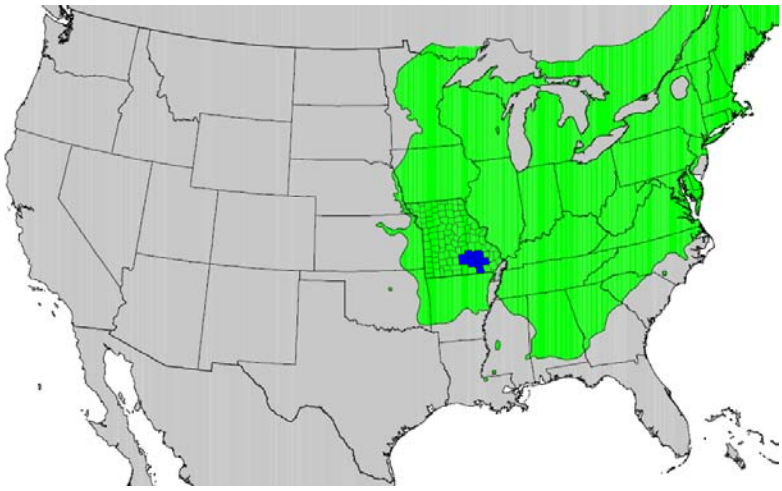
Quercus marilandica – Blackjack Oak



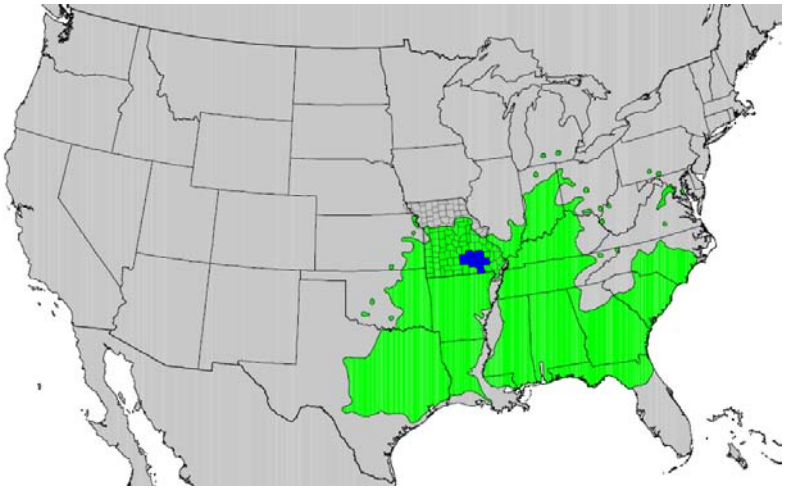
Quercus palustris – Pin Oak



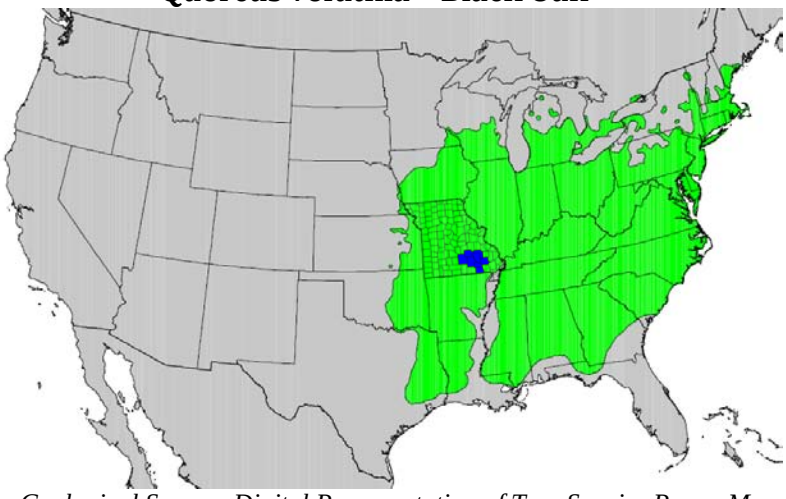
Quercus rubra – Northern Red Oak



Quercus shumardii – Shumard Oak



Quercus velutina – Black Oak



Source: United States Geological Survey; Digital Representation of Tree Species Range Maps from "Atlas of United States Trees" by Elbert L. Little, Jr.; http://esp.cr.usgs.gov/data/atlas/little/

Exhibit 2.2.4 displays the production of treated wood products by category from 1984 through 2005 for the United States. Total production has increased by 1.3 billion bf since 1984. Like several domestic wood product markets, treated ties, a major end-product use for many variants of the red oak species, increased in the mid 1990s and have remained stable since then. According to discussions with saw-millers, ties have remained one of the few stable markets for their hardwood products during the recent economic decline spanning 2008 and 2009.

Exhibit 2.2.4 U.S. Production of Treated Wood Products by Product, 1984–2005[a]

Volume by Product *(thousands of board feet)*										
Year	**Total[b]**	**Lumber**	**Timbers**	**Poles**	**Pilings**	**Fence posts**	**Crossties**	**Switch and bridge ties**	**Plywood** *(thousand sq.ft.)*	**Other[c]**
1984	3,980,729	948,965	324,492	931,896	142,068	235,800	1,064,640	98,376	179,936	234,492
1985	4,032,820	1,025,956	350,496	921,972	126,348	149,232	1,030,728	97,608	267,072	330,480
1986	4,136,740	1,173,628	387,348	880,092	125,784	208,092	965,316	70,884	297,664	325,596
1987	4,118,679	1,290,567	542,376	903,288	97,440	135,024	715,128	111,672	408,064	323,184
1988	4,136,768	1,417,868	540,204	854,292	116,388	148,848	693,240	75,780	406,560	290,148
1989	4,054,037	1,207,913	527,412	887,700	116,136	172,524	696,264	75,612	422,048	370,476
1990	4,240,101	1,290,657	576,012	882,012	86,232	178,488	755,856	85,980	392,736	384,864
1991	4,129,285	1,220,053	630,372	860,808	81,240	166,020	731,664	74,760	415,936	364,368
1992	4,236,767	1,284,479	622,284	812,592	93,012	165,504	747,348	77,052	430,368	434,496
1993	4,344,226	1,348,906	614,196	764,376	104,772	164,988	763,032	79,332	444,800	504,624
1994	5,146,279	1,084,470	970,867	903,974	121,390	246,946	756,648	120,036	651,267	941,949
1995	4,698,187	990,043	886,332	825,264	110,820	225,444	690,768	109,584	594,560	859,932
1996	4,470,363	1,160,247	667,572	762,792	101,028	281,208	669,948	68,880	681,088	758,688
1997	5,287,364	1,543,748	1,032,313	774,235	108,062	181,375	911,537	72,042	772,963	664,053
1998	5,287,364	1,543,748	1,032,313	774,235	108,062	181,375	911,537	72,042	772,963	664,053
1999	5,287,364	1,543,748	1,032,313	774,235	108,062	181,375	911,537	72,042	772,963	664,053
2000	5,287,364	1,543,748	1,032,313	774,235	108,062	181,375	911,537	72,042	772,963	664,053
2001	5,287,364	1,543,748	1,032,313	774,235	108,062	181,375	911,537	72,042	772,963	664,053
2002	5,287,364	1,543,748	1,032,313	774,235	108,062	181,375	911,537	72,042	772,963	664,053
2003	5,287,364	1,543,748	1,032,313	774,235	108,062	181,375	911,537	72,042	772,963	664,053
2004	5,287,364	1,543,748	1,032,313	774,235	108,062	181,375	911,537	72,042	772,963	664,053
2005	5,287,364	1,543,748	1,032,313	774,235	108,062	181,375	911,537	72,042	772,963	664,053

[a]Wood Preservers Institute; American Plywood Association, The Engineered Wood Association.

[b] Excludes plywood.

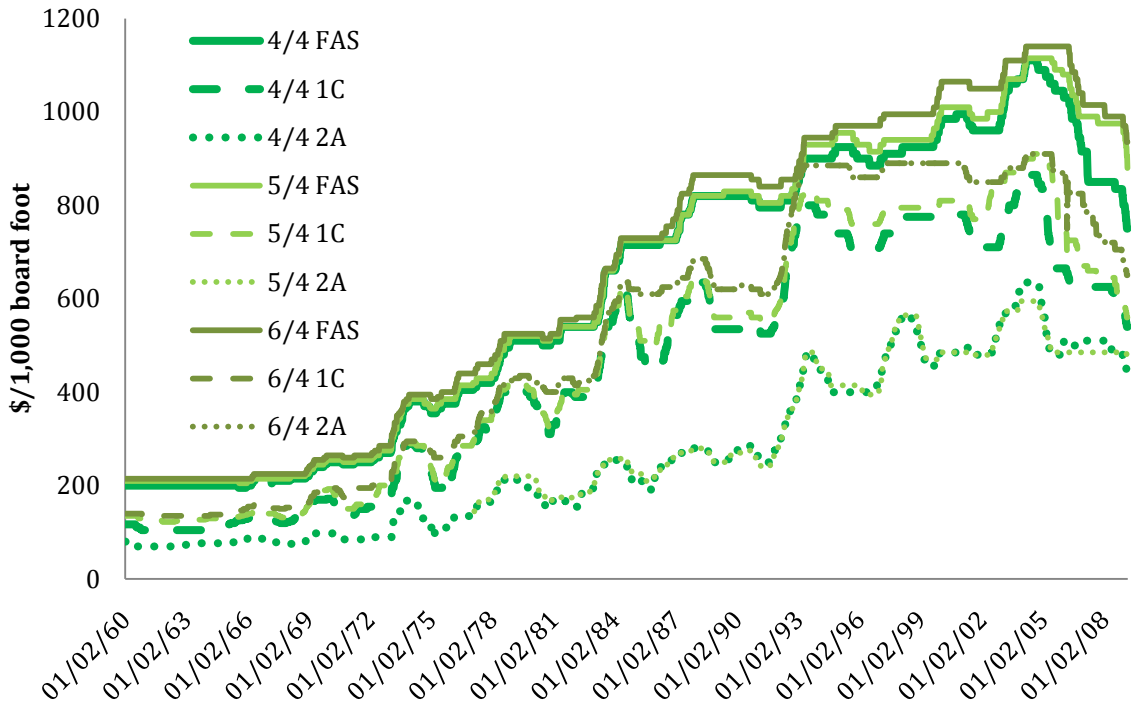
[c] Crossarms, landscape timbers, highway posts and guardrails, mine ties and timbers, crossing planks, and other misc. products not listed above. Lumber taken from General Technical Report GTR-199 update, table 11 Hardwood Recovery Factor. Plywood taken from GTR-199 update, Hardwood Plywood Lumber Conversion table B-7. All Other taken from GTR-199 update, table B-10.

Source: Howard, J.L. "U.S. Timber Production, Trade, Consumption, and Price Statistics 1965 to 2005." USDA, Forestry Service, Forest Products Laboratory Research Paper FPL–RP–637. Online. Accessed Nov 11, 2009. http://www.fpl.fs.fed.us/documnts/fplrp/fpl_rp637.pdf

2.3 Pricing

Exhibit 2.3.1 displays prices for various grades and dimensions of green (not dried) Appalachian Red Oak. While there have been some minor dips and rebounds, historically, the price of red oak lumber has risen with growth in the US economy. The market peaked in July 2005 and began to decline as the value and quantity of lumber produced leveled off (Exhibits 2.2.1 and 2.2.2). The more recent downturn in the economy has caused a further decline in prices that has left several sawmills in financial distress. These events point to a need to further develop international markets for premium US hardwood products to limit the effects of fluctuations in the domestic economy on this industry.

Exhibit 2.3.1 Historical Prices for Green Appalachian Red Oak



Source: Historical prices were sourced from Hardwood Market Report.

3. Company/Cooperative Summary

3.1 Proposed Company Ownership Structure

Potential business structures that enable collective action include Limited Liability Partnership, Limited Liability Company, corporation, and cooperative. The following paragraphs provide a definition and highlight the general characteristics for each type of potential business structure. Although the final business structure will be determined by a group pursuing collective action within the industry, a Limited Liability Company or Limited Liability Partnership is recommended for this type of venture.

Limited Liability Partnership: The Limited Liability Partnership (LLP) is essentially a general partnership in form, with one important difference. Unlike a general partnership, in which individual partners are liable for the partnership's debts and obligations, an LLP provides each of its individual partners protection against personal liability for certain partnership liabilities. In Missouri, an LLP has to be registered with the state and the filing requirements have to be met annually. In Missouri, the liabilities that partners are responsible for are limited to the amount that each partner invested. However, there has to be at least one general partner who is responsible for all debts, liabilities, and other obligations of the partnership.

Limited Liability Company: The limited liability company (LLC) is a legal entity that has both the characteristics of a corporation and of a partnership. An LLC provides its owners with corporate-like protection against personal liability. It is, however, treated as a noncorporate business organization for tax purposes. This structure also provides the flexibility in capital and management structure that can be found in a partnership. In Missouri, a person(s) wanting to form an LLC will have to have an operating agreement—a plan on how the business will be operated—and file Articles of Organization with the Secretary of State's Office.

Corporation: A corporation is a legally created entity with rights, duties, powers and responsibilities in and of itself. The ownership of property, the incurrence of debt, and the performance of services and sales of goods are the responsibility of the corporation rather than the individuals in the corporation. Shareholders contribute capital to the company and are the owners of the corporation. Shareholders are not responsible for the debts or liabilities of the corporation. Advantages of the corporate structure are that shareholder liability is limited to the loss of the shareholder's investment unless a shareholder accepts additional responsibility and the ability to bring other individuals into ownership of the business to raise additional funds. Disadvantages include the costs incurred for incorporating and meeting the requirements (state and federal) for filing reports.

There are four types of corporations—Close Corporation (C Corp), Subchapter S Corporation (S Corp), Not-For-Profit Corporation, and Professional Corporation. This

type of venture would not be suitable for a Not-For-Profit or Professional Corporation. The distinguishable characteristics of a C Corp are the options to not have a board of directors, annual meetings, or bylaws if so stated in the article of incorporation. A C Corp is designed to allow the option for a small amount of persons to operate a business as a corporation. An S Corp functions like a general business corporation, but the income or loss of the corporation is passed on to the shareholders for tax purposes.

Cooperative: Generally, cooperatives are corporations. A cooperative corporation, however, is different from an investor-owned corporation in that a cooperative is owned by those who conduct business with it—its purpose is to benefit its owners as investors. An investor-owned corporation's owners do not usually conduct business with the corporation. Two statutes govern the creation and operation of agricultural cooperatives in Missouri. Missouri Statutory Chapter 274 provides for the incorporation and operation of a nonstock cooperative, while Chapter 357 provides for the incorporation and operation of a stock cooperative. For this type of venture, a Chapter 357 (stock) cooperative would not be an option. As with a corporation, Missouri requires that articles of incorporation be prepared and filed by the group wanting to form the cooperative. A minimum of 11 agricultural producers, a majority of whom are Missouri residents, is required in order to form a 274 cooperative.

An additional form of cooperative that has gained in popularity is the New Generation Cooperative. A New Generation Cooperative is used as a term to describe the operations of an agricultural business, including how it is financed and delivery rights. This is a "closed" cooperative, which limits use to member-owners. Capitalization occurs through the initial sale of delivery rights and debt. Per the delivery rights, this requires member-owners to deliver a set unit of a commodity per share. Earnings are distributed in proportion to shares owned. There are four differentiating factors in the bylaws and operating of a section 274 and section 375 cooperative that justify the title "New Generation Cooperative:"

1. Defined membership, or closed cooperative, where member-owners deliver a set number of units per share. Expansion may allow for increased membership.
2. Delivery rights, an obligation to deliver according to the signed marketing agreement. Signature of marketing agreement requires membership interest, which allows for voting privileges.
3. Upfront equity, producer-owners pay a fee, used to capitalize the business, for delivery rights.
4. Delivery rights are transferable.

Other than these characteristics a new generation cooperative follows procedures similar to a section 274 or 375 cooperative.

Exhibit 3.1.1 displays the key characteristics of the most common producer owned value added organizations. A table discussing the more in-depth details of the different business structures can be found in Appendix 3.

Exhibit 3.1.1 Key Characteristics of Potential Business Structures

	Owner	Equity Ownership	Governance
Corp	Shareholders	Shares	Directors Officers
LLC	Members	Units or Membership Interests	Governors Managers
LLP	General Partner & Limited Partner	Units or Partnership Interests	Flexible
Co-op	Members	Shares	Directors Officers

3.1.1 Delivery Requirements of Members

Exhibit 3.1.1.1 displays an example of how the firm could potentially operate. This example is intended to portray the workings of the prospective firm. However, for simplicity, the numbers used for the example are not the exact numbers found in the financial analysis of this report. In this example, the firm would sell shares to capitalize 60% of the project. The firm would need to decide how many shares they want to offer. Based on that and the amount of lumber they expect or wish to export annually, a price and delivery requirement will be computed for each share. A producer would then buy a share(s) for the set price with the understanding that for each share he or she is required to deliver a set amount of lumber annually (likely in monthly installments). Delivery should rotate, by member, annually to allow farmers-owners to share equally in storage costs.

The financial projections provided in this study assume a capitalization rate of 60%. The firm would therefore sell shares to capitalize 60% of the project (see Exhibit 3.1.1.2).

Exhibit 3.1.1.1 Potential Operating Structure (below example differs from study financials)

Example Kiln Dried Based on Feb 2009 Price

Suppose it is determined to take $700k to capitalize the project

1) Goal of 60% equity, or $420,000 (40 shares)
   a) Shares sold for $10,500 per share
      i) Requires delivery of 18,000 bf per share annually
   b) Membership is open to anyone in the wood products industry
2) Sell 40 shares in the entity, with any entity having the ability to own as many share as needed
3) The goal is to export 720,000 bf per year, or approximately six containers per month
   a) One container holds approximately 11,300 bf (8% moisture)
   b) If there is demand for more than 720,000 bf, then membership has right of first delivery (on a revolving member basis).
4) Each share represents 1/40 of each container
   a) For the month, each share will represent 1,500 bf of red oak for the six containers to be shipped.
   b) The cooperative has the right to set delivery rights such that individual members may deliver more frequently, or in greater quantity if making practical business sense.
5) The cooperative takes ownership of the wood by making a transfer price payment to the delivering party.
   a) The transfer price is a domestic (local) pre-prep and pre-export price.
   b) For simplicity, assume the transfer price (or market price) is set at $0.785/bf for 4/4 green FAS Red Oak.
      i) Each share requires the monthly delivery of 1,500 bf
      ii) The payment to the member for delivery from the cooperative is $1,177.50 for each share.
   c) For a shareholder without direct access to 4/4 FAS dried Red Oak there are two options
      i) Pay to toll process by membership (or owned)
         (1) Coordinated by Export cooperative
      ii) Export cooperative buys (from buying pool) 4/4 FAS Red Oak on behalf of shareholder
         (1) Shareholder pays a 5% fee for this service
            (a) Shareholder pays $0.03925/bf for export cooperative to source 1,500 bf on the members behalf
            (b) Would pay a total of $1,236.38 for the 1,500 bf
         (2) Shareholder directly sells to cooperative for $0.785/bf for the 1,500 bf
            (a) Would receive $1,177.50 for the 1,500 bf
         (3) Shareholder pays out $58.88 (or 5%) for the month
         (4) Coordinated by export cooperative
6) If the cooperative can earn $0.10/bf of net income
   a) $72,000 net income (note: could be paid out monthly, quarterly, annually)
   b) Each ownership share receives a dividend of $1,800 ($72,000/40 shares)
      i) Any member
         (1) Has a new market for their lumber/logs
         (2) Earns a return on their investment in the export cooperative
         (3) Avoids the risk of "going it alone"
         (4) Increase demand in the local region
         (5) Helps regional economy
      ii) A member without access to 4/4 FAS dried Red Oak has
         (1) Paid out, for the example above, $706.56 to receive $1,800 per share for the year
            (a) But, did not have to be in the lumber business
         (2) Earned a return from the export cooperative
         (3) Increase demand in the region for their relative business
7) It is important to note that the same model explained above holds for a multiple species marketing arm, where each shareholder can contribute their through their own species, or purchase through the transfer price.
   a) A member can always purchase from the buying pool regardless of their ability to deliver.

***Shares are transferrable and/or leasable.*

Exhibit 3.1.1.2 Matrix of Shares and Annual Board Foot Deliveries for Various Share Prices

% Equity	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%
Investment	*$199,050*	*$232,225*	*$265,400*	*$298,575*	*$331,750*	*$364,925*	*$398,100*	*$431,275*	*$464,450*	*$497,625*
Share Price	**Number of Shares Necessary to Sell at a Given Price and Given Equity Requirements**									
$10,000	20	23	27	30	33	36	**40**	43	46	50
$9,000	22	26	29	33	37	41	**44**	48	52	55
$8,000	25	29	33	37	41	46	**50**	54	58	62
$7,000	28	33	38	43	47	52	**57**	62	66	71
$6,000	33	39	44	50	55	61	**66**	72	77	83
$5,000	40	46	53	60	66	73	**80**	86	93	100
$4,000	50	58	66	75	83	91	**100**	108	116	124
$3,000	66	77	88	100	111	122	**133**	144	155	166
$2,000	100	116	133	149	166	182	**199**	216	232	249
$1,000	199	232	265	299	332	365	**398**	431	464	498
Share Price	**Annual Board Foot Delivery Requirement per Share at Given Price and Given Equity Requirements**									
$10,000	28,937	24,804	21,703	19,292	17,362	15,784	**14,469**	13,356	12,402	11,575
$9,000	26,044	22,323	19,533	17,362	15,626	14,206	**13,022**	12,020	11,162	10,417
$8,000	23,150	19,843	17,362	15,433	13,890	12,627	**11,575**	10,685	9,921	9,260
$7,000	20,256	17,362	15,192	13,504	12,154	11,049	**10,128**	9,349	8,681	8,102
$6,000	17,362	14,882	13,022	11,575	10,417	9,470	**8,681**	8,013	7,441	6,945
$5,000	14,469	12,402	10,852	9,646	8,681	7,892	**7,234**	6,678	6,201	5,787
$4,000	11,575	9,921	8,681	7,717	6,945	6,314	**5,787**	5,342	4,961	4,630
$3,000	8,681	7,441	6,511	5,787	5,209	4,735	**4,341**	4,007	3,721	3,472
$2,000	5,787	4,961	4,341	3,858	3,472	3,157	**2,894**	2,671	2,480	2,315
$1,000	2,894	2,480	2,170	1,929	1,736	1,578	**1,447**	1,336	1,240	1,157

3.1.2 Who pays Receiving, Inventory, Billing, and Delivery Costs?

The firm will be responsible for paying any costs associated to receiving, inventory, and billing. Delivery costs will need to be negotiated between the firm and the seller.

3.1.3 Who pays the Producers and When?

The firm will be responsible for purchasing the lumber needed to export from primary processors. The producers supplying the firm will be paid as the lumber is delivered to the firm. This price is known as the transfer price and will be the local pre-prep and pre-export price.

3.1.4 Advertising/Marketing Responsibilities

Asian companies tend to have different expectations of their suppliers than do companies in the United States. In most of the countries of Asia, companies prefer to form a relationship with their supplying companies and business is often done over social outings and gatherings. The persons responsible for procurement want to have met and formed a relationship with a representative of any company that will become a potential supplier. These companies also expect to have the relationship that was built with a supplier maintained. Because of this, the American companies that have had the most success in exporting to Asia have personnel dedicated to spending time in Asia with potential and current buyers.

As Missouri wood products are not as well known in the Asian marketplace as they are domestically, the firm—once established—would want to arrange three to five trips to various cities and countries after identifying the potential target markets. These trips would be spent performing initial marketing duties such as product education and awareness, as well as identifying and building relationships with potential buyers. After securing buyers and initial orders, the firm would want to have an employee or consultant continue to travel to Asia multiple times throughout the year on behalf of the firm to further build already established relationships, as well as cultivate new ones.

The firm should pay special attention to the person hired to perform this task. A person with culture specific knowledge, product and industry knowledge, as well as a willingness to travel would be ideal. As will be discussed in the exporting section of this document, a measurable dedication to the Asian markets will be necessary. A way that this dedication can be portrayed to potential buyers is through having a skilled representative available.

3.1.4.1 International Broker

The firm could also arrange international sales through a broker. The terms of the relationship would have to be arranged between the broker and the firm. For the

financial analysis found in this study, the use of a broker for international sales was used instead of having an in-house international marketing manager.

3.1.5 Product ID System

3.1.5.1 Grader

As multiple processors will potentially be delivering product to the firm, the use of a grader by the firm will be the best way to guarantee that a certain quality of product is always supplied to the firm and therefore to its buyers. This will also assure that all of the processors are receiving a fair price for their product and combat the threat of exporting a product of varying quality. Depending on the ultimate business and management structure, the firm will need to decide whether to hire a grader as an employee or contract with an independent grader as needed.

Unlike softwood lumber, hardwood lumber does not require a certified or licensed grader. This is due to the fact that the grading system for hardwood lumber has nothing to do with its strength or load carrying capacity/safety when used in construction, which is reflected in the softwood lumber grading system. Although anyone can grade hardwood lumber, a trained grader will likely be more accurate and timely at grading lumber. The steps for grading may be straightforward, but the use of a trained grader that is knowledgeable will provide more certainty when it comes to selling the classified lumber. Exhibit 3.1.5.1.1 shows the estimated expense of sending an employee to be trained as a grader.

Exhibit 3.1.5.1.1 Expense Related to Training an Employee as a Grader

Lumber Grading School *(National Hardwood Lumber Association)*	
14wk tuition	$2,000
Supplies	$200
Lodging (extended stay)	$2,500
Meals	$3,000
Wage Compensation	$5,600
Total	**$13,300**

Since the firm will be exporting, the buyer will likely never see the product being purchased until it arrives, after an agreement has already been made. If a grader makes a mistake and grades a shipment of lumber too high, the buyer will be unhappy and may reject the shipment based on the fact that the actual product quality does not meet the expected product quality that the price was negotiated on. Or, if the agreement prevents the buyer from rejecting the shipment, the buyer will be unsatisfied, and it is highly unlikely that the buyer will be willing to make a purchase from the firm again. On the flip side, if the shipment is graded too low, the buyer may be satisfied, but the

firm will have lost revenues as it would have been able to sell the shipment at a higher price if the shipment had been correctly graded.

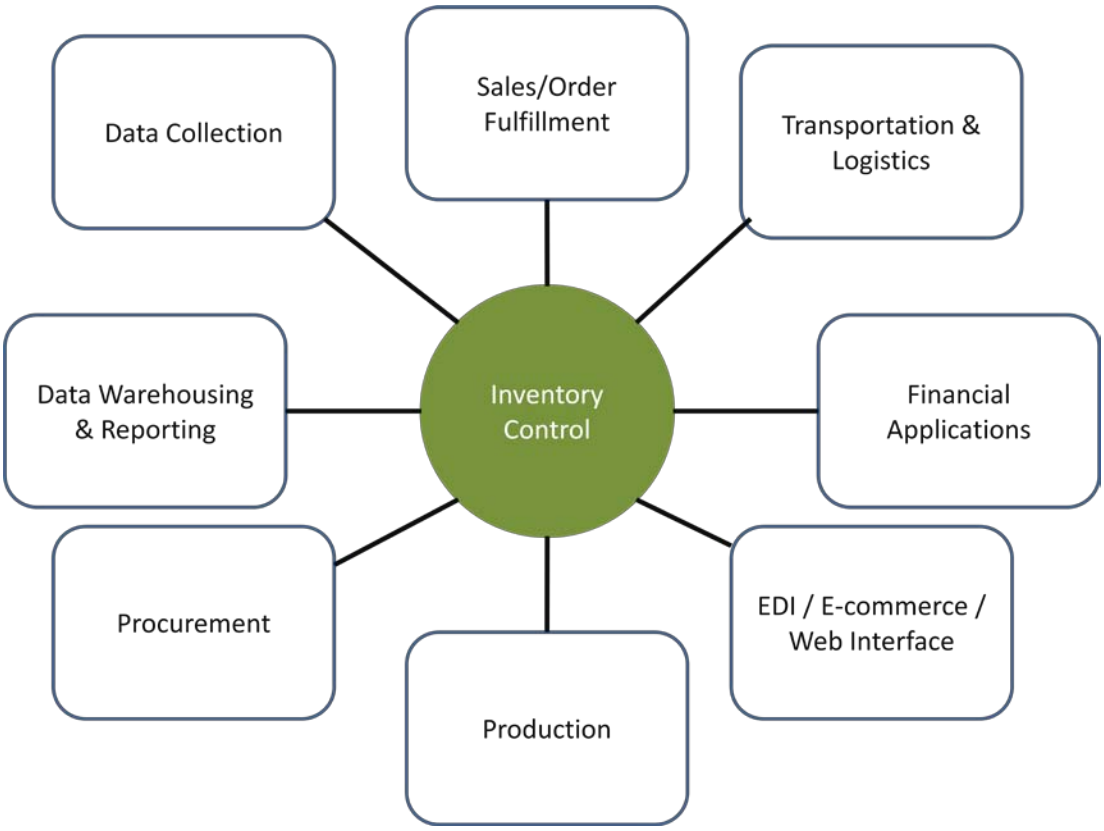
3.1.5.2 Tracking System

To enable the firm to easily and efficiently track their entire inventory, a software program would be would be beneficial. A recommendation would be Lumber Track. This software is targeted to hardwood and softwood sawmills, panel mills, value-added remanufacturers, distributors, wholesalers, and brokers. It provides real-time inventory control, as well as quick and easy access to all critical business information. This, in turn, allows the firm to automate paperwork and offer internet-based customer service. Benefits of the Lumber Track software include:

- Accurate inventory information
- Complete order-to-invoice tracking
- Better visibility of product costs, margins and sales trends
- More efficient sales and administrative staff
- Non-redundant data entry and reduced errors

Exhibit 3.1.5.2.1 displays how the inventory control found in the Lumber Track software provides efficiencies in various aspects of the business.

Exhibit 3.1.5.2.1 Lumber Track Software



3.1.6 Inventory Program

A "just-in-time" inventory system will likely work best for this firm. No more than one month's worth of production will be held in green lumber inventory. No matter the legal business structure, it is thought that investors will have the first right of delivery. This will function as a rotating delivery system in which investors have rights in proportion to their investments to deliver their product. An order will be established at the firm's start-up and will continue to rotate through each investor as orders are filled.

3.1.7 Product Quality Standards and Guidelines

There are recognized quality standards within the hardwood lumber industry on a national and international level. Hardwood lumber is graded according to rules that are developed and maintained by the National Hardwood Lumber Association (NHLA). Although this is an association of the United States, its rules form a basis for international trade. Lumber is classified by a grader into one of the categories seen in Exhibit 3.1.7.1. The grades seen in this exhibit are ranked from highest to lowest in quality with FAS being considered the best or highest quality and #3B Common being the worst or lowest quality. Most of the hardwood lumber that is exported is of FAS quality. Therefore, the firm would need to be able to source FAS quality hardwoods for most of its shipments.

Exhibit 3.1.7.1 NHLA Hardwood Lumber Grading System

Name	Description
FAS	The highest grade of hardwood lumber. Most FAS lumber is exported rather than cut in the U.S. as its value, kiln-dried, is often more than $2 per board foot on the wholesale market.
FAS 1-Face (1F)	A Select piece of lumber that is 6 inches and wider.
Select	A No. 1 Common piece of lumber (the poorer side grades No. 1 Common) and the reverse side (the better side) grades FAS. The price of Selects and 1-Face is usually the same as FAS. Much of this grade is also exported, but if exceptionally long, wide, and clear on both faces and cuttings are required, then Select lumber is often used. Often, Select grade lumber is used in the Northern U.S., while 1-Face is used in the South.
No. 1 Common	Often called Common or just No. 1, is the standard furniture grade lumber, and provides a good selection of long, medium length, and short cuttings at a reasonable price.
No. 2A Common	Often just called No. 2 Common, has become the standard grade for cabinets, millwork, and other uses requiring medium to short cuttings. Often current prices favor using No. 2 Common instead of No. 1 Common for furniture, even through yields are lower with No. 2.
No. 2B Common	The same as No. 2A Common, except that stain and other sound defects are admitted in the clear cuttings. It is an excellent paint grade.
No. 3A Common	Often combined with No. 3B Common and the combination is sold as No. 3 Common. It is widely used for flooring and pallets.
No. 3B Common	Graded on a basis of sound cuttings rather than clear cuttings. It is widely used for pallets and crating.

Two additional grades have evolved from the standard NHLA definitions. As they are not standard definitions, they fall outside the range of the official NHLA grading rules. However, the additional grades can be seen in the following exhibit.

Exhibit 3.1.7.2 Additional Hardwood Lumber Grades

Name	Description
Prime Grade	This grade has evolved from the NHLA grade FAS for the export market. It is square edged and virtually wane free. The minimum clear yield will be select and better with appearance being a major factor. Minimum size of boards varies, depending on the species, region, and supplier.
Comsel Grade	This grade has evolved from the NHLA grades of Number 1 Common and Selects. For the export market the minimum clear yield should be Number 1 Common or slightly better with appearance a main factor. Minimum size of board varies, depending on the species, region, and supplier.

3.2 Key Findings from Outreach Meetings

In March of 2009, six outreach meetings were held within the eight-county region. These meetings were held in Salem, Houston, Van Buren, Piedmont, Centerville, and Doniphan and were open to any processor within the region. In total, thirty persons representing fifteen firms were present at these meetings. Those present were given information pertaining to exporting, collective action, and foreign markets. After the information was presented, round table discussions were held with those in attendance and a survey was given to all participants. Survey results can be seen in Exhibit 3.2.1, and a copy of the survey can be found in Appendix 1.

Over 30% of the attendees own or are involved in sawmills. Slightly fewer than 25% of the attendees were owners or employees of logging firms and almost 20% are members of the lumber industry. Red Oak is the primary species handled by almost 70% of the firms, with White Oak being the second most handled species. Of the firms present, all reported that they have never previously embarked on international marketing. However, 50% of the respondents stated that they did have an international marketing plan.

As several producers showed interest in being a part of a wood products export cooperative[1], a follow up meeting was held in Van Buren in May. The meeting was once again open to all processors within the region; however, the content was geared towards the producers that had been at a previous meeting and expressed interest in a wood products export cooperative. Due to some unfortunate weather, only ten were in attendance at the follow up meeting. Speakers included a representative from FCS Financial discussing financing options, an employee of Missouri Department of Agriculture providing information on the Asian markets, a founder of Missouri

[1] The term cooperative was used to describe multiple businesses working together—collective action. However, this does not mean that the business structure has to be organized as a cooperative.

Northern Pecans explaining the formation of a collective action group, and a staff member of Value Ag, LLC discussing grant opportunities. A meeting schedule for both the outreach meetings and follow up meetings can be found in Appendix 2.

Exhibit 3.2.1 Survey Results

Primary Business						
Lumber	Sawmill	Logging	Pallet	Flooring	Cabinetry	Other
15%	40%	20%	5%	5%	0%	15%
Secondary Business						
Lumber	Sawmill	Logging	Pallet	Flooring	Cabinetry	Other
23%	23%	31%	8%	0%	0%	15%
Primary Species Handled						
Red Oak	White Oak	Hickory	Other			
67%	19%	10%	5%			
Secondary Species Handled						
Red Oak	White Oak	Hickory	Other			
6%	65%	0%	29%			
Concern Level Pertaining to Cooperative Management Setting the Lumber Price						
Very Concerned	Concerned	Slightly Concerned	No Concern at all			
20%	50%	0%	30%			
Amount Willing to Invest in a Wood Export Cooperative						
Nothing	$2,500	$5,000	$10,000	$20,000	$30,000 to $50,000	More than $50,000
20%	40%	20%	0%	0%	20%	0%
Amount Willing to Invest in a Wood Export Cooperative If There was a Delivery Requirement of 30,000 bf/year (2,500 bf/month)						
Nothing	$2,500	$5,000	$10,000	$20,000	$30,000 to $50,000	More than $50,000
60%	0%	20%	0%	0%	20%	0%

Question	**No**	**Yes**
Company Previously Embarked on International Marking	0%	100%
Company has an International Marketing Plan	50%	50%
Interested in Wood Products Export Cooperative	100%	0%
Require a Bank Loan to Invest in Wood Products Export Cooperative	50%	50%
Interested in Being a Part of the Steering Committee for a Wood Products Export Cooperative	70%	30%
Interested in Traveling Abroad to Observe and Promote Missouri Wood Products	50%	50%
Interested in Hosting International Visitors with an Interest in Missouri Wood Products	67%	33%

Some visits were also made to forest product firms within the region. Exhibit 3.2.2 outlines the key findings from these visits. These findings were used to outline the strategy proposed in this feasibility study.

Exhibit 3.2.2 Key Findings from Regional Visits

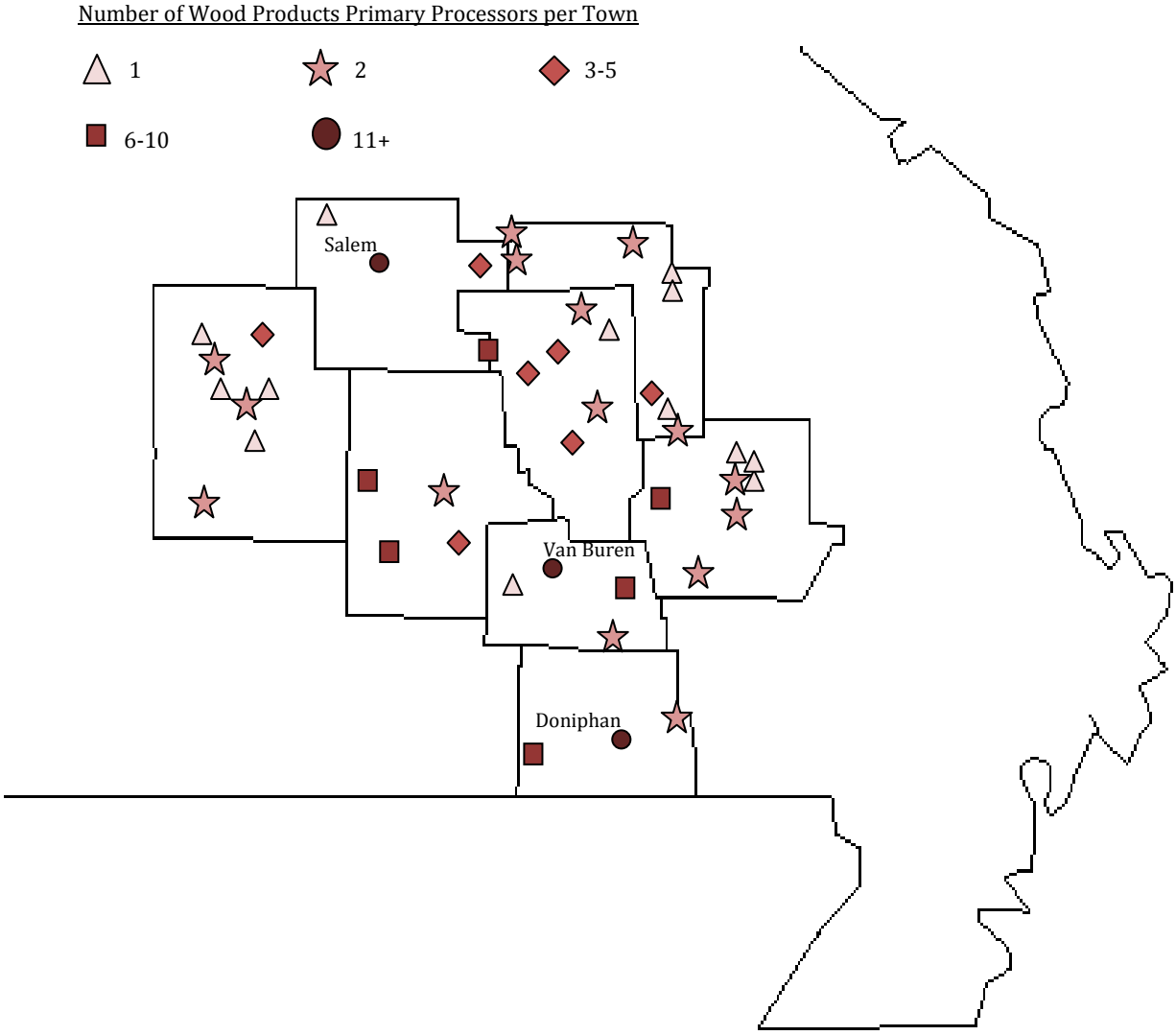
- Breakdown from a typical saw mill:
  - FAS between 5 & 10% of lumber yield, likely closer to 5%.
  - #1 and 1c between 10 and 15% of lumber yield,
  - The remainder is 75% at 2 or lower grade (pallet and ties)
- The cooperative should focus on FAS and #1.
- Bluing is an important fact in green wood, which may lead to discounts.
  - For example, a mill turning out 1/3 of a flat bed load of FAS a week will need three weeks of cutting to get at a full load. This means the earlier cut product will be susceptible to bluing and possible discounts.
- May be an opportunity to have one truck make rounds to co-mingle the wood on a regular basis to avoid bluing, improve cash flow (no waiting for an individual load), and improve marketing ability (larger volumes).
- Most saw mills will be between 500k and 1 mill bf/year.
- Four issues we continually heard:
  - Trust
  - Timing is not right b/c there is no money out there
  - Pooling quality - even for domestic markets - has value
  - Grading is a formidable issue, but not with FAS because everyone knows a FAS board

3.3 Proposed Company Locations and Facilities

Initially, the firm will want to have one location within the eight-county region. Exhibit 3.3.1 displays the number of primary processors located in each city within the eight-county region. As can be seen, a significant number of processors can be found in and around Salem , Van Buren, and Doniphan. The actual number of processors found in or around each city can be found in Appendix 4.

Although, the site location will ultimately be determined by those involved in the venture, as Van Buren is more centrally located than Salem or Doniphan, it is one of the proposed locations for the facility. However, the location will need to be based on logistical factors as well. This will be discussed in more depth in the site assessment portion of this study (Section 5).

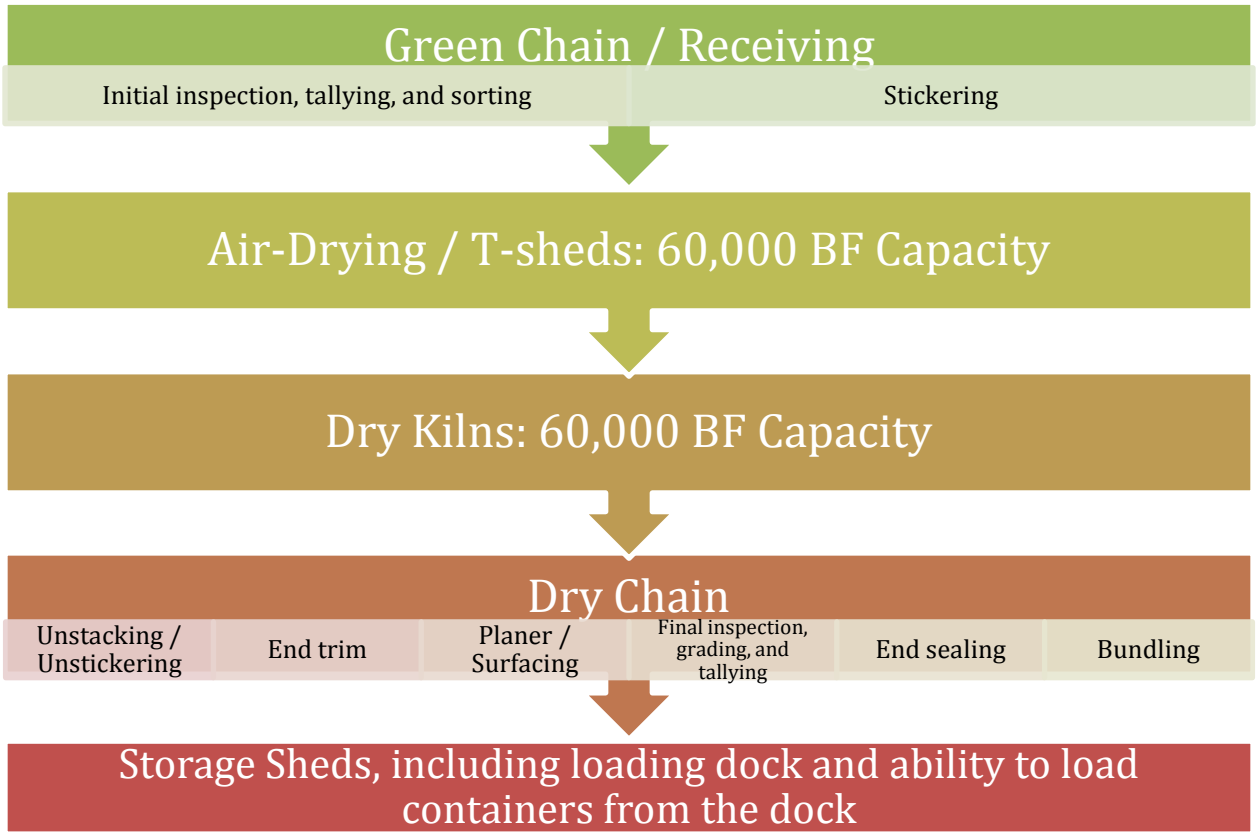
Exhibit 3.3.1 Location of Primary Processors within the Eight-County Region



Due to the nature of shipping (cost is based on the weight of the shipment), the firm will want to export kiln dried lumber instead of green or air dried lumber. Having the lumber kiln dried first will prevent the firm from paying additional shipping costs due to water weight. The firm will ultimately need to decide whether to build its own kiln drying facility or to have the lumber toll dried for a negotiated, per unit fee. An example displaying the weight difference based on oak can be seen in Exhibit 4.2.1.

If the firm chooses to build a kiln drying facility, the export facility will be comprised of the parts shown in Exhibit 3.3.2. The exhibit displays the facility parts in order of receiving/purchasing through shipping/selling.

Exhibit 3.3.2 Proposed Company Facilities



This operation would be very similar to what North Pacific has at Raymondville. They buy in green lumber from small mills in the area and inspect it via a trained grader as it comes in so that they know what to pay their suppliers. The lumber is then inspected again after drying, since damage during drying can cause a drop in grade.

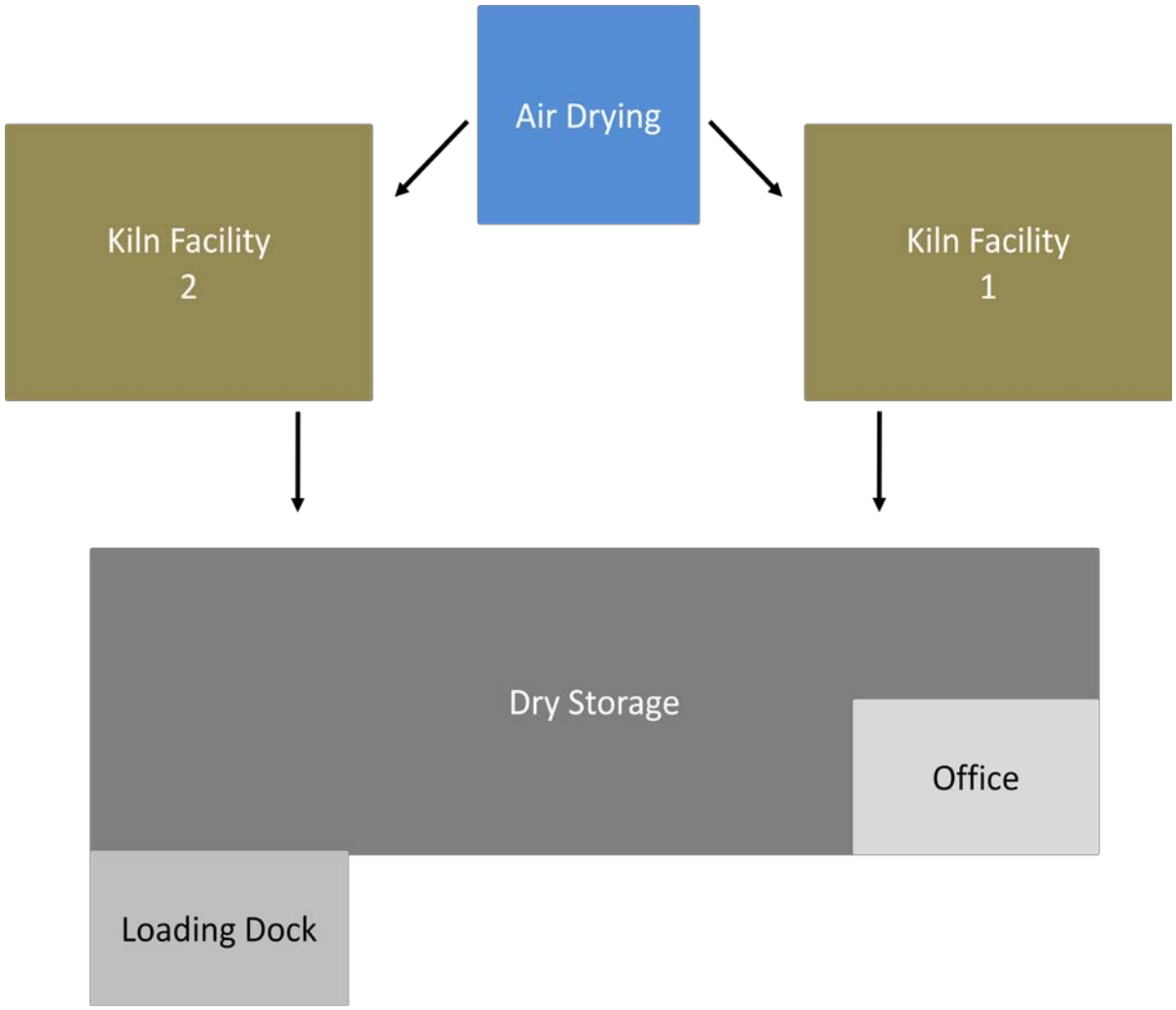
Ideally, the firm will operate with a just in time inventory strategy. They will receive green lumber as it is needed instead of carrying an inventory of green lumber. Storage shed capacity could vary and will ultimately depend on the firm's management decisions, since the idea would be to push the dry lumber out as quickly as possible, rather than carrying a lot of inventory.

4. Engineering

4.1 Load Out Facility

Exhibit 4.1.1 displays a simple load out schematic suggested for the firm.

Exhibit 4.1.1 Load Out Facility Schematic (*Seven Acre Yard)*

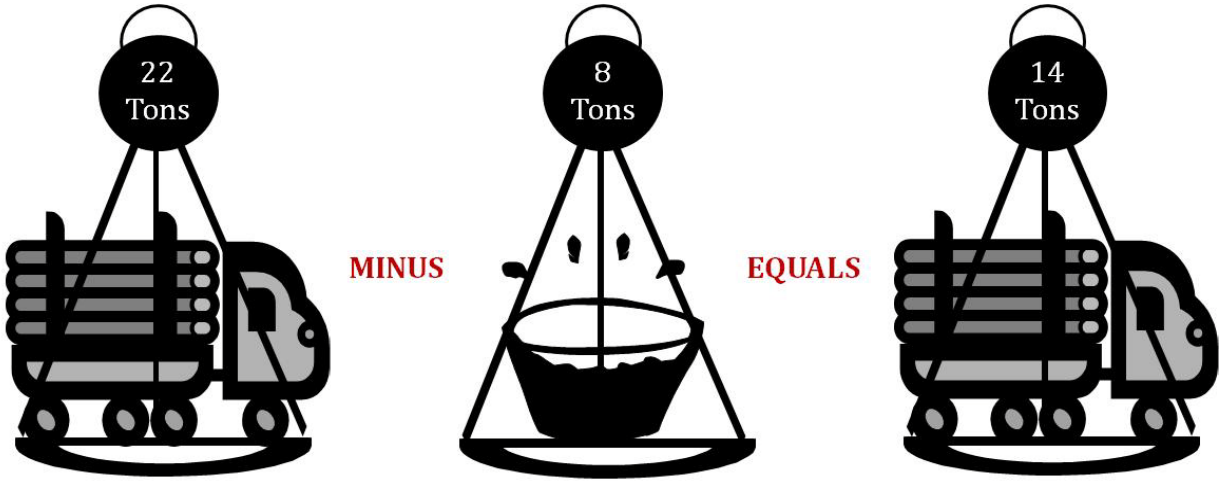


4.2 Kiln Drying

As mentioned previously, the firm will want to avoid exporting green lumber if possible. Exhibit 4.2.1 displays the difference made in shipping before and after kiln drying using an example based on oak. Fresh cut oak weighs about 5.4 pounds per board foot. So a truckload of 8,000 board feet weighs approximately 43,560 pounds—just under 22 tons. Once you remove enough water through kiln drying to get the moisture content of

the oak down to a range of six to eight percent, it weighs about three and a half pounds per board foot. So that same truckload now weighs 28,000 pounds, or about 14 tons versus the original 22 tons. A completely dry truckload of 8,000 board feet of oak equates to removing 15,560 pounds of water—almost eight tons.

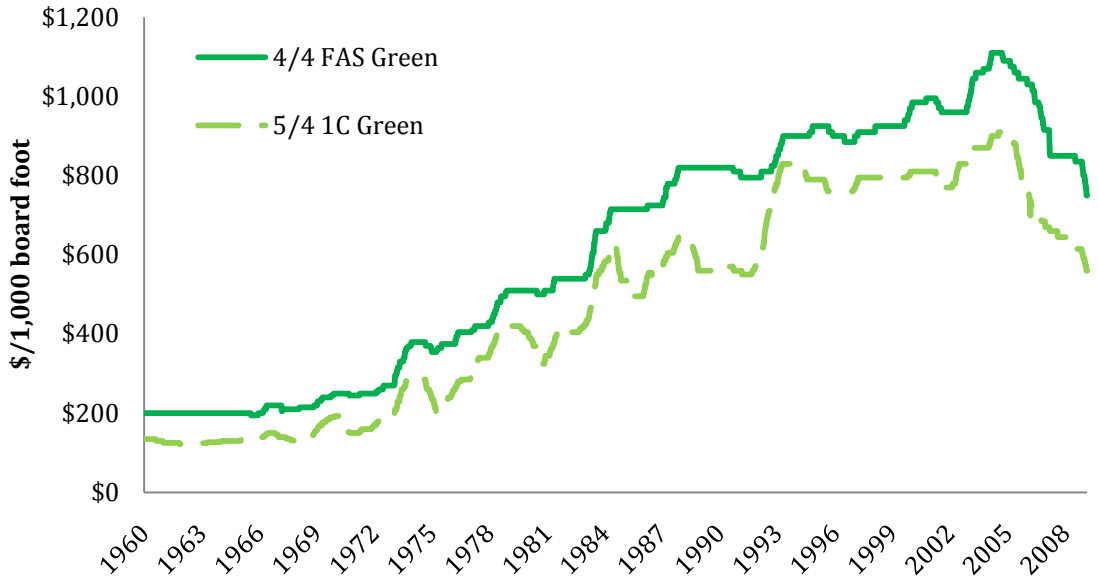
Exhibit 4.2.1 Difference in Shipping Weight Due to Kiln Drying



1 load Fresh Cut Oak: 22 Tons → 8 Tons of Water → 1 load Dried Oak: 14 Tons

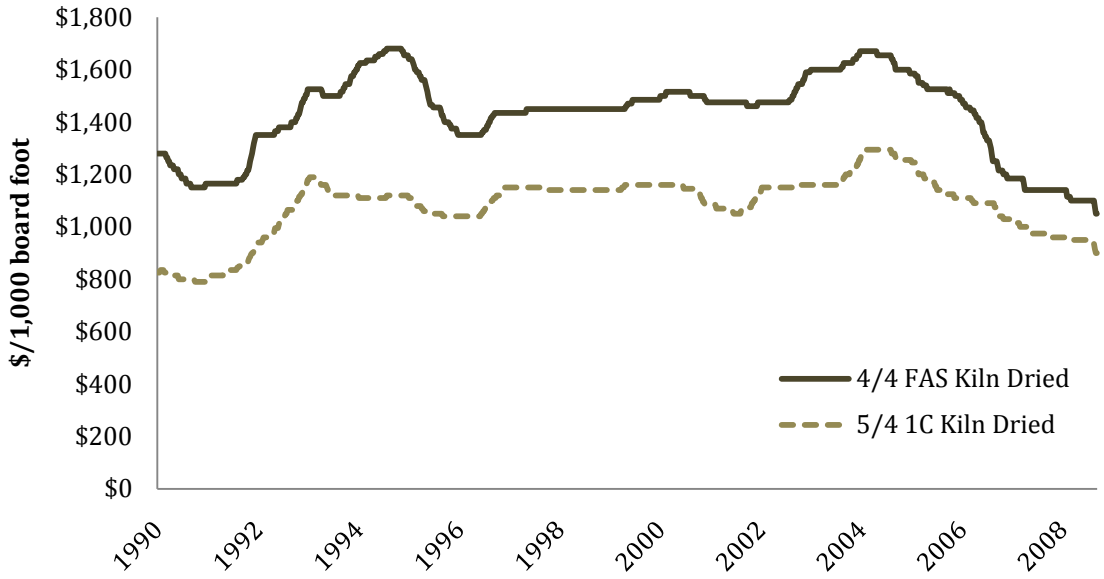
The value that can be obtained from kiln drying for various sizes and grades of red oak can be seen in the following figures (Exhibit 4.2.2 through Exhibit 4.2.6).

Exhibit 4.2.2 Value of Green Red Oak (4/4 FAS and 5/4 1C)



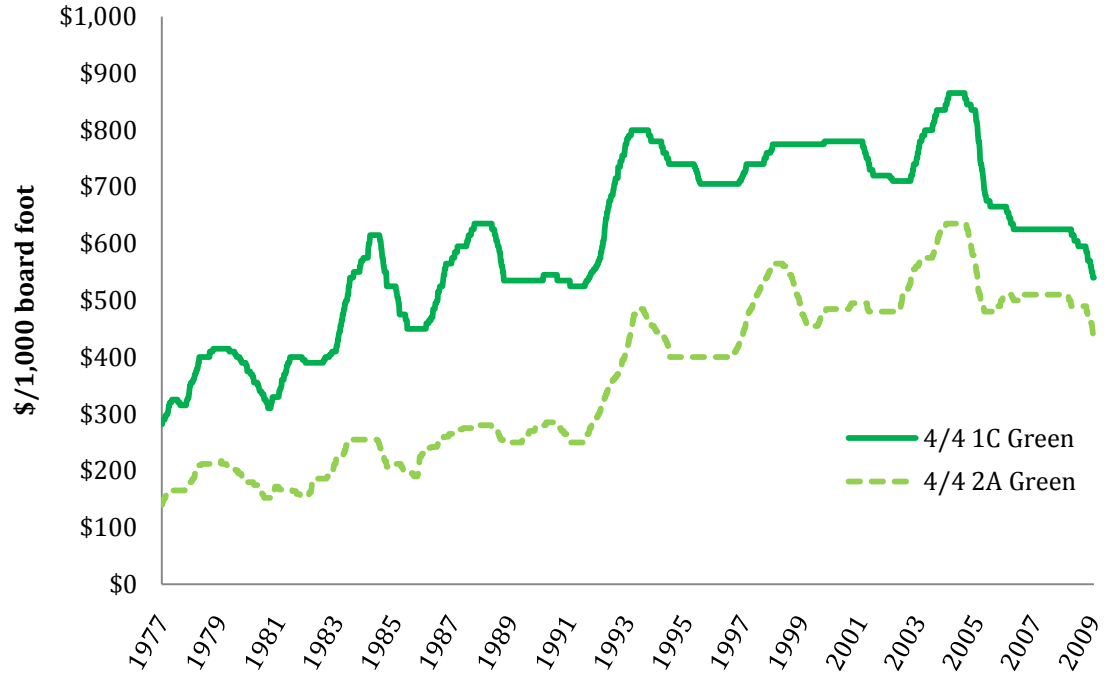
Source: Hardwood Market Report

Exhibit 4.2.3 Value of Kiln Dried Red Oak (4/4 FAS and 5/4 1C)



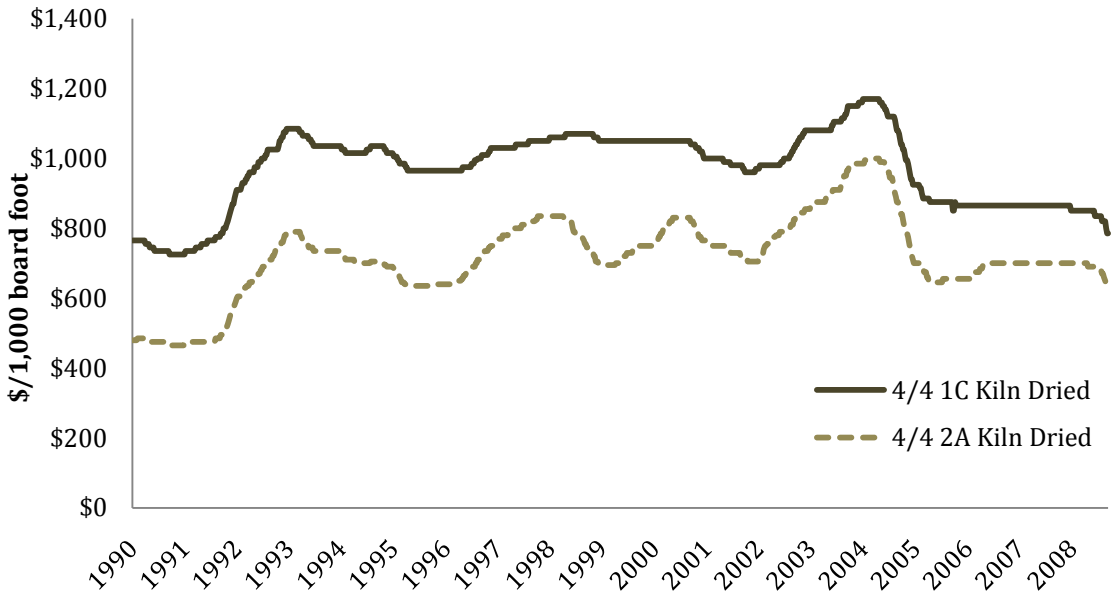
Source: Hardwood Market Report

Exhibit 4.2.4 Value of Green Red Oak (4/4 1C and 4/4 2A)



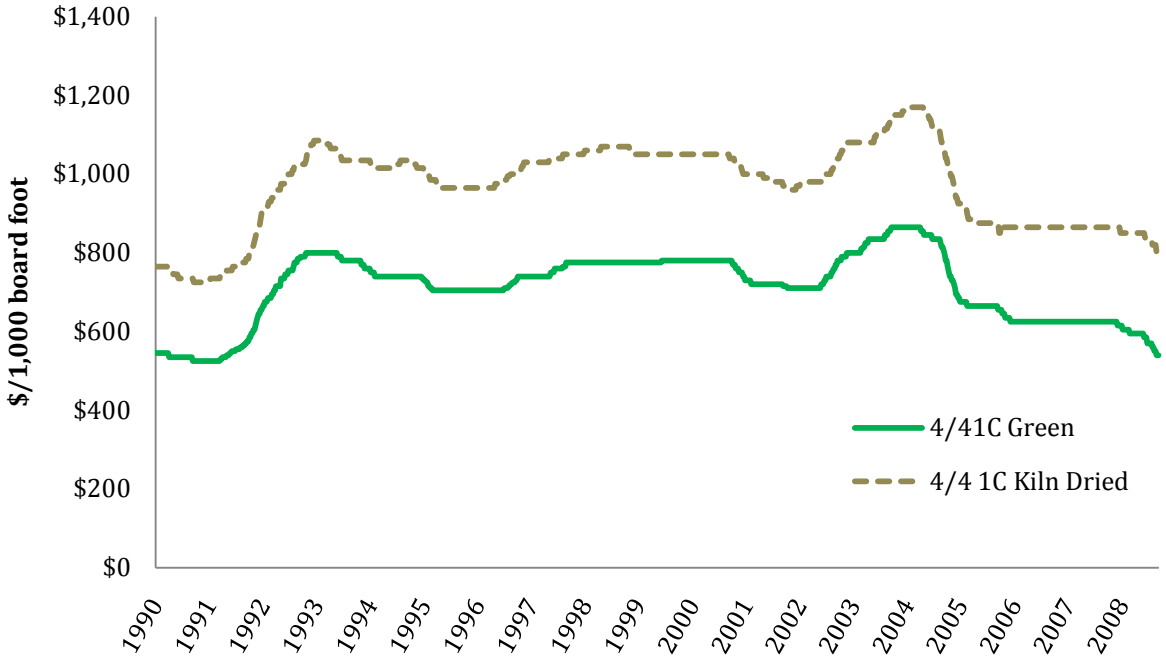
Source: Hardwood Market Report

Exhibit 4.2.5 Value of Kiln Dried Red Oak (4/4 1C and 4/4 2A)



Source: Hardwood Market Report

Exhibit 4.2.6 Value of Kiln Dried Red Oak vs. Green Red Oak (4/4 1C)



Source: Hardwood Market Report

Although there are other types of drying methods, kiln drying is the recommendation for this firm. The other types of drying methods and their definitions can be found in Appendix 5. It is possible that the firm will choose to combine drying methods, possibly air or shed drying prior to kiln drying. This will allow for the lumber entering the kiln to have a reduced moisture content, which will in turn shorten the length of time the lumber will need to spend in the kiln.

If the firm decides to build a kiln drying facility, they will need to take into account the amount of wood it wants to export. Capacity will be one of the biggest determinants of selecting a kiln drying system and model. Exhibit 4.2.7 shows a capacity chart for each model produced by the Nyle Corporation, along with the number of days needed for drying and the approximate drying cost per MBF (thousand board foot)[2].

Exhibit 4.2.7 Kiln Capacity, Drying Time, and Drying Cost (Nyle Corporation)

			Moisture Content Green to 7%			Moisture Content 30% to 7%		
Model	**Wood Group**	**Load Size BF**	Annual Production BF	Drying Days	Drying Cost per MBF	Annual Production BF	Drying Days	Drying Cost per MBF
L50	**1**	300	7,800	13	$41.67	27,000	4	$11.83
	2	600	12,000	18	$39.60	43,800	7	$14.74
	3	1000	10,000	36	$39.78	24,000	15	$16.57
L200	**1**	1500	43,500	12	$39.84	180,000	3	$10.40
	2	3000	48,000	22	$37.14	135,000	8	$14.09
	3	4000	40,000	35	$39.88	88,000	16	$17.31
L300	**1**	2000	80,000	9	$39.76	20,800	3	$11.86
	2	6000	114,000	19	$29.63	198,000	11	$16.46
	3	8000	96,000	30	$34.72	192,000	15	$17.65
L500	**1**	3000	135,000	8	$38.89	360,000	3	$15.00
	2	8000	320,000	22	$40.72	264,000	8	$15.41
	3	12000	144,000	30	$41.50	312,000	14	$17.65
L1200S	**1**	10000	400,000	9	$37.64	1,200,000	3	$13.26
	2	20000	400,000	18	$39.32	1,040,000	7	$14.63
	3	30000	360,000	28	$42.25	900,000	12	$17.42

Group 1--Pine, Fir, Cedar, Poplar, Aspen (softwoods and fast drying hardwoods)
Group 2--Cherry, Birch, Maple, Ash, Beech, Walnut, Elm (medium drying hardwoods)
Group 3--Oak (Red and White), Rock Elm (slow drying hardwoods)
MBF = 1000 Board Feet (2.36m^3)

This chart is based on 9 cents/kWh electricity, 50°F. Outside temperature, building sized for the load size listed and as a separate building. This chart assumes electric pre-heat. The drying times are based on drying 4/4 (1", 25mm) lumber. Thicker lumber generally will take longer to dry, and has to be dried slower.

[2] This study is only presenting this information as an example and is not suggesting that the firm use or avoid equipment from Nyle Corporation. This information, as well as other information, should be researched for the various kiln drying equipment manufacturing companies.

The pros and cons of different types of kilns are discussed in the following exhibit. These issues, as well as others, should be taken into consideration by the firm when building the kiln drying facilities.

Exhibit 4.2.8 Types of Kiln Dryers

Solar Kiln	
Pros	*Cons*
• Use solar energy	• Heat requirement to dry lumber can't be changed • Drying times are dependent on weather and thus, unpredictable • Often use electric-powered fans to circulate air through lumber (expensive because of the long drying times) • Electricity used is more than running a Dehumidification kiln, as the drying time is longer
Conventional Kiln	
Pros	*Cons*
• Provide a very good quality of lumber	• Takes a great deal of heat and requires constant heating of air (not as energy efficient)
Vacuum Kiln	
Pros	*Cons*
• Water boils off quickly • Better for drying thicker hardwoods than other lumber types • Achieves faster drying times	• Small chambers • Necessary to provide heat to the lumber continuously (extremely expensive systems) • Costs are usually 3 or 4 times higher than cost for dehumidification kilns (capital and handling costs are high) • Uneven drying is a problem
Dehumidification Kiln	
Pros	*Cons*
• Recycles heat continuously instead of venting away heated air • More energy efficient and operating costs are usually lower • If temperature gets too high, the operator can vent surplus heat to the outside • Easy to operate and very popular	• Depending on the system, drying times may be longer than those of conventional kilns

5. Site Assessment

5.1 Land Characteristics and Cost

Ideally, the facilities will be located on a five to ten acre plot that is mostly flat. Exhibit 5.1.1 displays the land values per acre by county as of July 2008. These values are sourced from the MU Land Values Opinion Survey and based on timbered acreage not yet cleared. The three counties that are in bold correspond to the three cities discussed earlier—Salem (Dent), Van Buren (Carter), and Doniphan (Ripley).

Exhibit 5.1.1 Land Values per Acre *(MU Land Values Survey, July 2008)*

County	Land Values per Acre for July 2008
Dent	**$1,238**
Iron	$1,405
Reynolds	$1,583
Ripley	**$1,583**
Shannon	$1,583
Texas	$1,487
Wayne	$1,405
Carter	**$1,583**
Missouri Average	*$1,725*

As the land in this area is likely to be timbered, it will need to be clear cut before the facilities are put in place. The rate for clearing timbered land is $800/acre (based on the MU 2006 Custom Rates for Farm Services in Missouri Guide). We estimate a five to seven acre area is sufficient to conduct business activities. Based on this, the total cost of the land purchase and preparation is estimated to be $17,500.

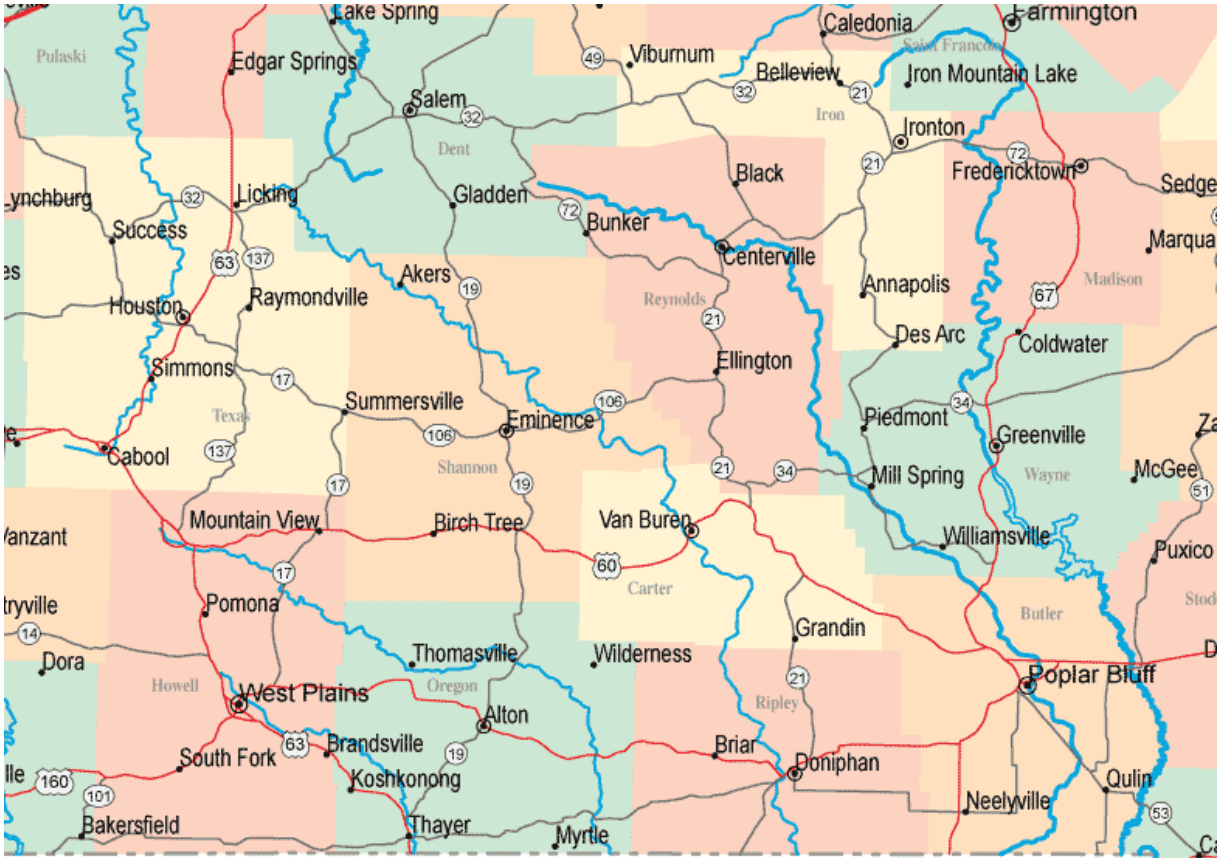
5.2 Access to Transportation

Adequate access to transportation of various types will be key in keeping costs at a minimum. When choosing the location for the facility, highway and railway access will need to be considered.

5.2.1 Highway Access

Highway access throughout the eight-county region can be seen in Exhibit 5.2.1.1. Highway access will be important as deliveries to the firm will be trucked in from the surrounding processors and shipments to be exported will be trucked from the firm to an intermodal facility in Kansas City or St. Louis.

Exhibit 5.2.1.1 Highway Access

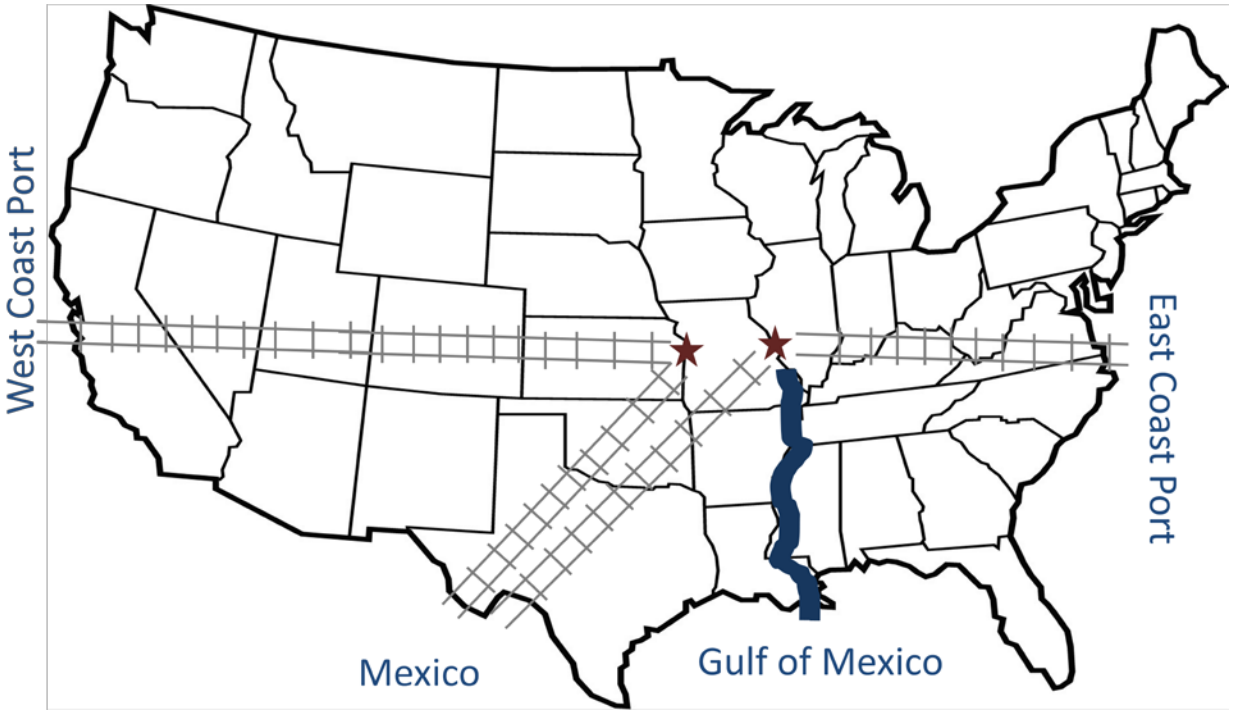


5.2.2 Railroad Access

An intermodal facility is a location where transportation systems come together. Missouri has two intermodal facilities. One is located in Kansas City and the other is in St. Louis. The Kansas City facility brings together air, truck, and rail transportation routes, while the St. Louis facility provides an intersection for truck, rail, and water transportation routes.

The firm will want to truck the lumber to either of these intermodal facilities. Ultimately, this will likely be determined by the freight forwarder that the firm selects. Another option the firm will need to give thought to will be the SmartPort found in Kansas City. The SmartPort will allow goods to go through customs in Kansas City before they are shipped out of the state. However, the SmartPort will only be an option for shipments bound to Mexico. Exhibit 5.2.2.1 displays the potential routes for the Kansas City and St. Louis Intermodal Facilities.

Exhibit 5.2.2.1 Possible Intermodal Facility Routes



5.3 Sources for Utilities

Information for sourcing the utility requirements for the facility can be found in the following sections.

5.3.1 Water Source and Rates

As the location for the facility will likely be rural, it is suggested that the firm sink a well and source its water from there. All costs associated with using a well as a water source will be incurred when the well is initially dug and constructed. There will be no usage rate. If this is not an option, the firm will need to contact the water provider for the location and negotiate a rate with them based on usage levels.

5.3.2 Sewer Source

An onsite septic tank is the only necessary waste removal. The cost for a sufficient system is approximately $2,500.

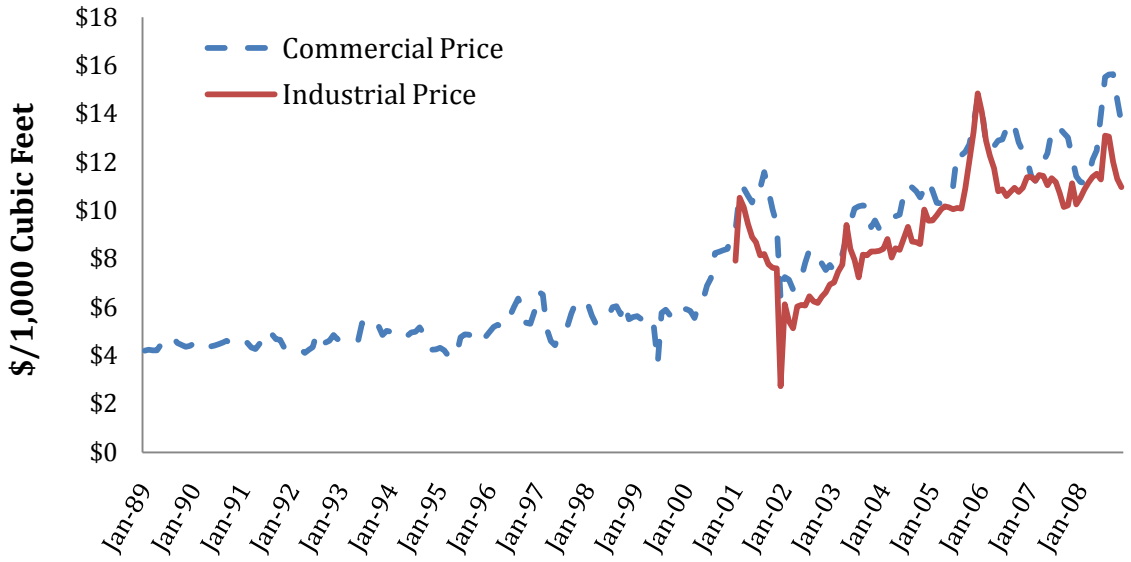
5.3.3 Natural Gas/Propane Source and Rates

Depending on the kiln dryer chosen by the firm, natural gas or propane may be needed. Some kilns are manufactured to use either propane or natural gas. If the firm would like to use a kiln that uses natural gas, this will have an impact on the final location

selected for the operation of the kiln, as not all rural areas have access to natural gas. However, if the location selected does not have a natural gas provider, the firm will need to select a kiln system that uses propane.

Natural gas prices have tended to be more volatile over the past two decades, ultimately trending upward (Exhibit 5.3.3.1). Once a location and kiln system is selected by the firm, if natural gas is needed, the firm will want to contact a natural gas supplier within the region and negotiate a price based on usage levels with the supplier.

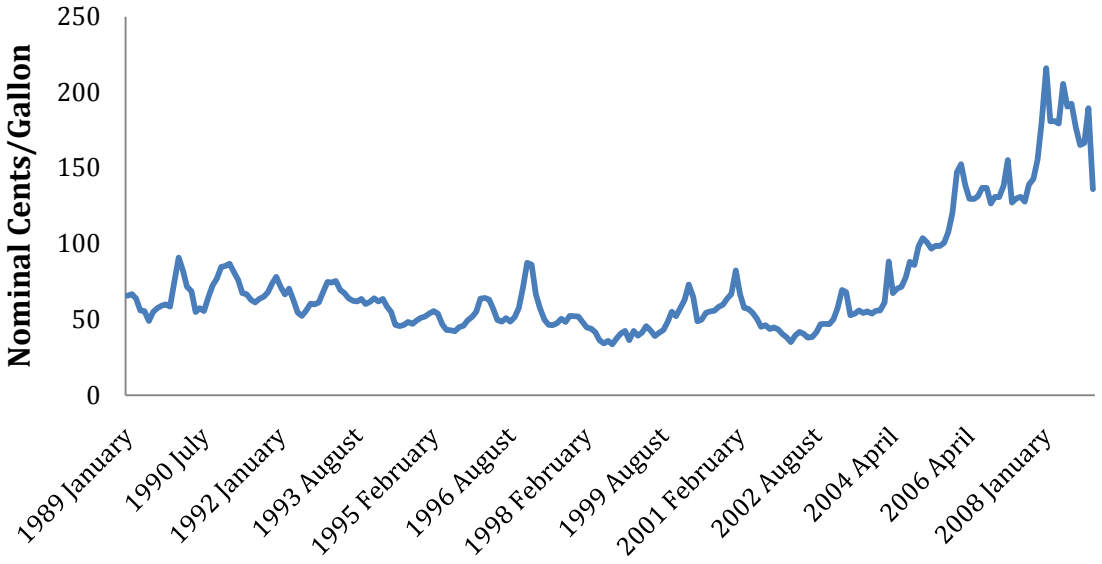
Exhibit 5.3.3.1 Historical Monthly Natural Gas Rates for Missouri



Source: *U.S. Department of Energy. http://tonto.eia.doe.gov/dnav/ng/ng_pri_sum_dcu_nus_m.htm.*

Exhibit 5.3.3.2 displays the historical monthly national average price for propane. While propane prices remained below one dollar per gallon through the nineties, a somewhat volatile incline in the national average price per gallon has been seen since late 2002. However, the price has begun to fall again since January of 2009. If propane is used, the firm will receive the local rate.

Exhibit 5.3.3.2 Historical Monthly Propane Rates for the US (Consumer Grade)

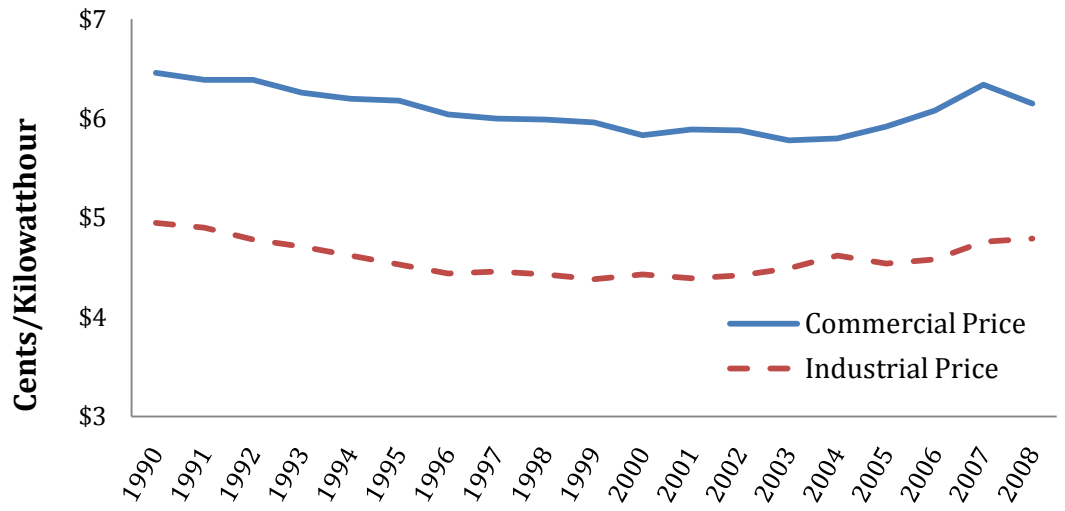


Source: Energy Information Administration

5.3.4 Electricity Source and Rates

Throughout the state of Missouri, electricity rates have remained fairly stable for the past twenty years (Exhibit 5.3.4.1). Ultimately, utility rates will be negotiated between the firm and the electricity provider. Once a location is selected, the firm will need to research the potential provider(s) for that area and negotiate a rate with the selected provider.

Exhibit 5.3.4.1 Historical Annual Electricity Rates for Missouri



Source: U.S. Department of Energy. http://www.eia.doe.gov/cneaf/electricity/epa/epa_sprdshts.html.

5.4 Tax Abatement and Chapter 100 Bonds Summary

It is expected that the firm will bear a large capitalization cost when building and purchasing the materials for a facility. While loans will need to be secured for most of the costs, there are two options that could potentially offer financial assistance to the firm—Tax Abatement at the county and state level and Chapter 100 Bonds.

5.4.1 Tax Abatement

A tax abatement refers to a property tax relief, in whole or in part, as an incentive for new project start-up or project expansion. County government would likely offer a tax abatement incentive, and is common for such analysis. A tax abatement allowance is included in the pro forma financial projections.

5.4.2 Chapter 100 Bonds

Chapter 100 bonds are provided by the county to the firm. However, the county commissioner has to petition to be able to offer Chapter 100 Bonds to the firm. 100 Bonds essentially allow the project to be owned by the county commissioner. Therefore, the county officially has at least part ownership of the project until it is paid off. The benefit of this arrangement is that the project cost will not have a sales tax cost, as the county is tax exempt.

If able, the county commissioner will offer Chapter 100 Bonds for sale to the firm. The firm will buy an amount of these Chapter 100 Bonds that is equal to the approximated total material cost for the project. In exchange, the county will buy all materials needed for the project free of sales tax. Once the project is paid off, the firm retains ownership of the facilities.

The only concern in this arrangement is if the project gets sued before it is paid off. If that occurs, the county will be sued as well as the firm on behalf of the project. Although this is usually a very low risk, it does suggest some exposure of risk to the county.

5.5 Economic Development Potential

Exhibit 5.5.1 displays the economic development potential for the years 2010-2012 via the firm's sales and jobs created. The drastic growth in sales from 2011 to 2012 is due to the firm only being able to operate for six months out of 2011, as a construction phase will take up the first half of the year.

Exhibit 5.5.1 Economic Development Potential

	Sales	Jobs Created
2011	$425,000	2.5
2012	$1,078,000	2.5
2013	$1,120,000	2.5

6. Forest Products Assessment

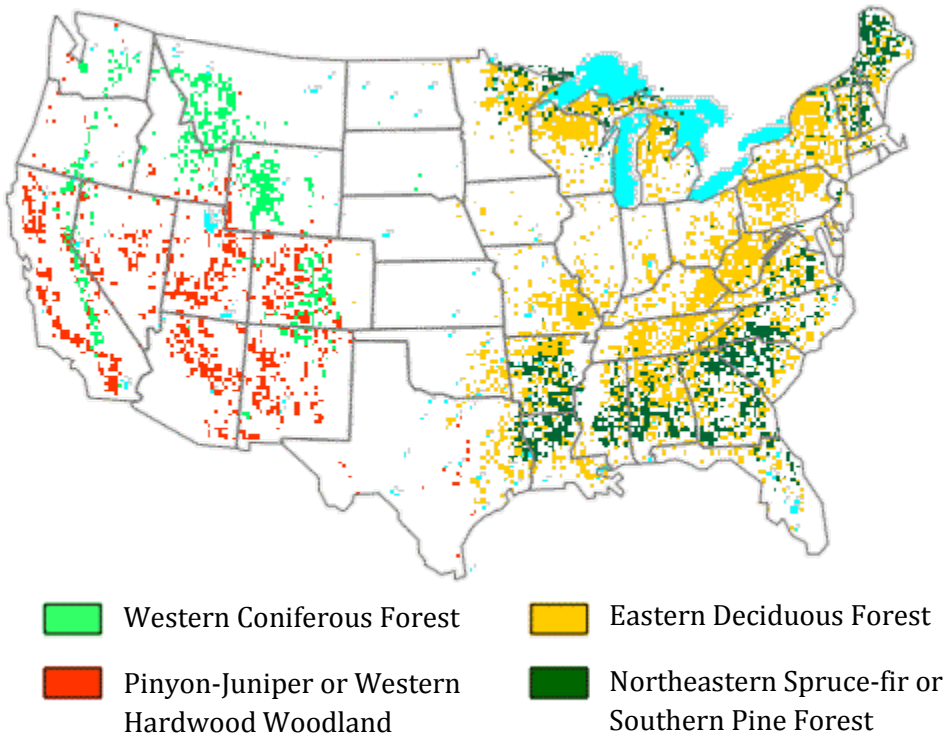
6.1 Product Requirements

The firm will want to focus on FAS grade lumber. Not only is this grade the easiest to distinguish, but it is also of the highest value. A high value product will likely be more successful in a foreign market than a lower grade product.

6.2 Availability of Basic Resources

The map in Exhibit 6.2.1 shows a map of the forest cover in the United States. As can be seen, southeastern Missouri has adequate supply of Eastern deciduous forest products.

Exhibit 6.2.1 Forest Cover in the United States, 1993



Source: World Resources Institute. 2005. "Challenges to sustainability in the U.S. forest sector." Washington, DC. http://archive.wri.org/page.cfm?id=2301&z=? Accessed 9 Aug. 2005.

6.2.1 Regional Forest Product Production

Within the eight-county region, the predominant tree species is Red Oak. Exhibit 6.2.1.1 displays the number of saw mills in the area. Using a conservative average production of 400,000 board feet per mill of red oak, we were able to estimate the total production

for the region. Additionally, five percent of the total production was assumed to be FAS grade and usable for export by the firm. To obtain its export goals, the firm would have to capture thirty percent of the FAS grade Red Oak production in the region.

Exhibit 6.2.1.1 Regional Red Oak Production Estimation

Number of Saw Mills in the Region	120
Average bf Production/ Mill (Red Oak)	400,000
Total bf Available within Region (Red Oak)	48,000,000
Percent of Red Oak Production that is FAS Grade	5%
Total bf FAS Grade Red Oak Available	**2,400,000**

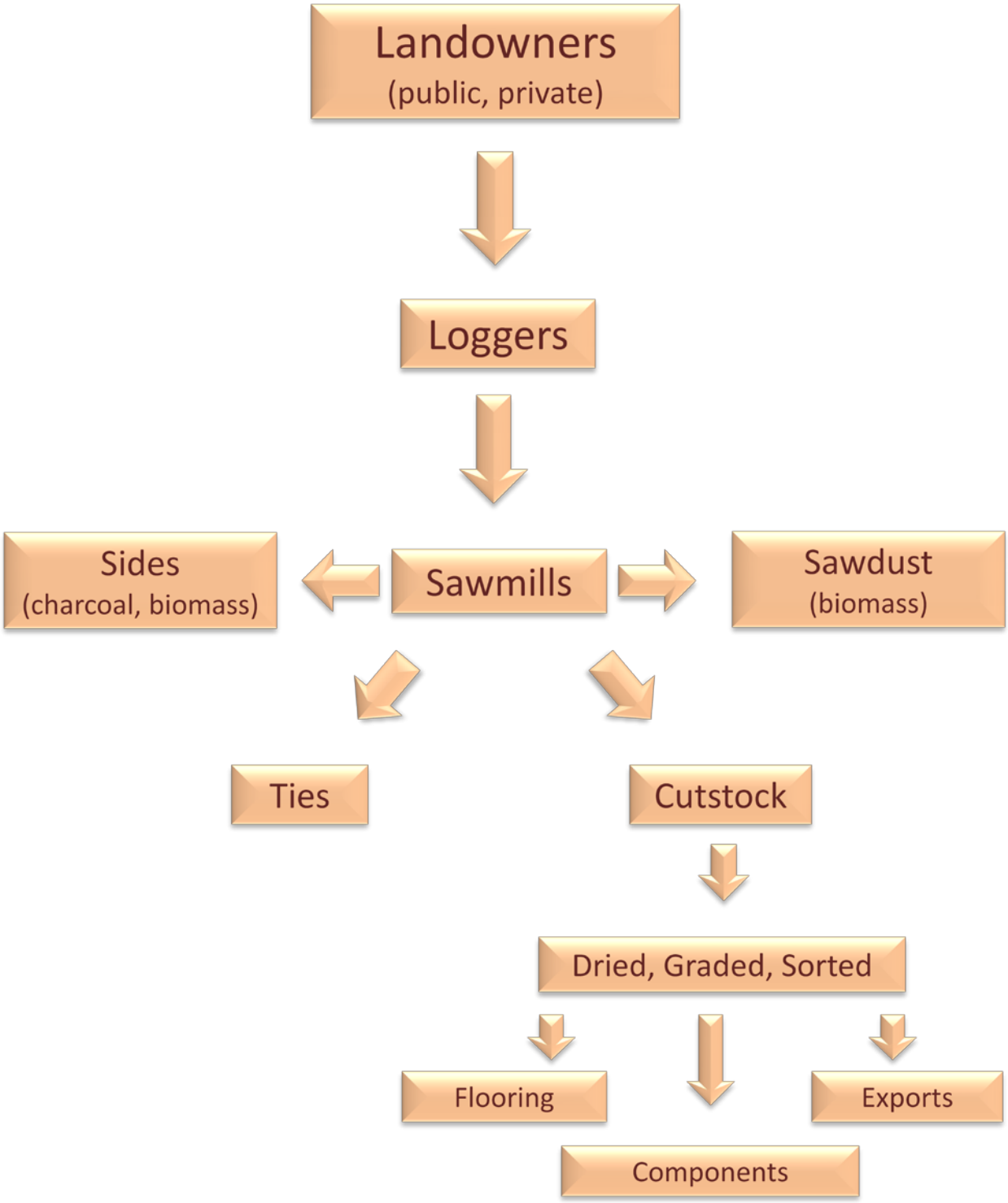
6.2.2 Available Labor Force and Reliability

The labor force within the eight-county region is plentiful.

6.3 Impact on Local Market

Exhibit 6.3.1 displays how the current local market works. It demonstrates how the product (lumber) flows through the supply chain. This firm will not affect the amount of product that moves through this supply chain. It will however reshuffle what parties are performing what duties. The firm will allow for primary processors to remain in the supply chain through exporting an end product instead of selling their preprocessed product early in the supply chain. This "reshuffling" due to the lengthened ownership potentially allows for the primary processors to add and capture additional value for their product.

Exhibit 6.3.1 Current Supply Chain



7. Asian Market Analysis Summary

7.1 Market Segmentation

Hardwood destined for export markets is used in production of conventional hardwood products, like furniture, flooring, and cabinetry. Whether these products are consumed domestically or re-exported depends on the economic status of the countries' citizens, since products made from American hardwoods are generally considered of premium quality relative to similar products made from composite materials. Appendices 6 and 7 contain a pest analysis and graphical representation of each pest analysis, respectively, for selected Asian countries and Mexico. China is of particular interest due to growing imports from the US and consumption as shown later in Section 7.

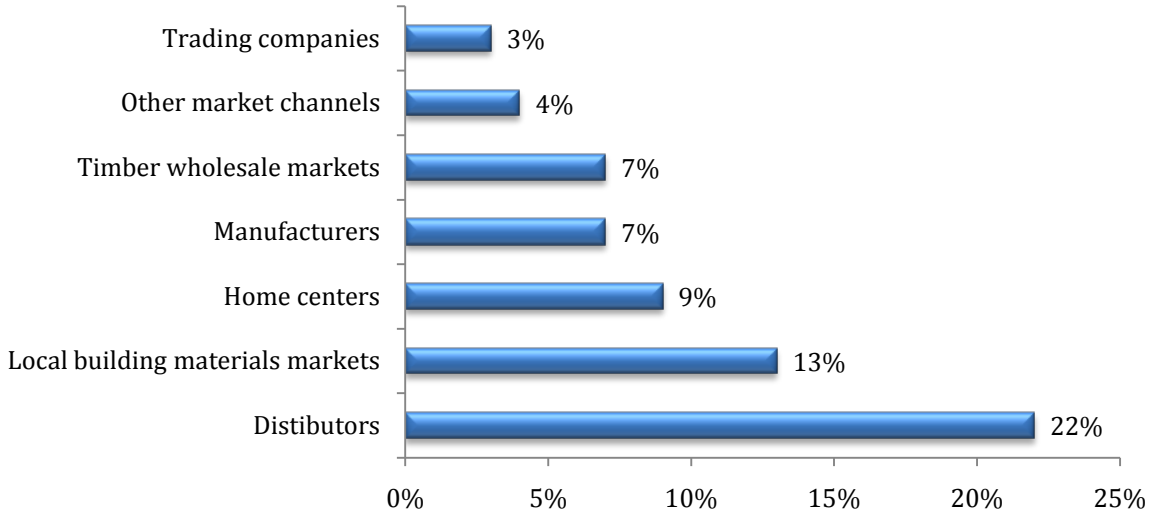
7.2 Target Market Segment Strategy

While China is clearly a growing export market for red oak lumber, the end-uses of the lumber is difficult to ascertain as international markets are constantly evolving. Brokers are helpful in identifying timely market segments to target. Hence, the recommendation is that brokers be employed to identify these opportunities and secure business relationships, as lumber dimensions can easily be adjusted over time to fit the different needs of changing high-growth segments.

7.2.1 Market Needs

The following three exhibits depict key factors of the Chinese marketplace concerning wood products. Sources of softwood lumber in China are summarized in Exhibit 7.2.1.1.

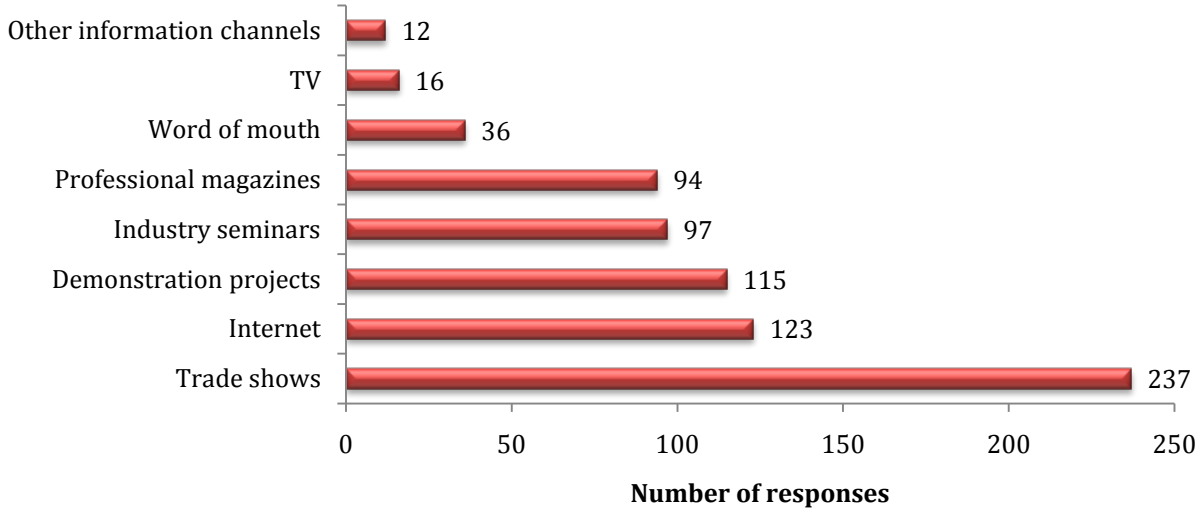
Exhibit 7.2.1.1 Sources of Treated Softwood Lumber in China



Source: CINTRAFOR Publications

Like in the US, these suppliers of softwood lumber will also likely be the primary dealers of hardwood lumber in China. Clearly, brokers developing relationships with local distributors will be important, as they handle about 22% of the lumber. In Asian countries, development of the business relationship is key, and it worthwhile to employ a broker in this endeavor. The broker will need to attend trade shows to make contacts and initiate these all important business relationships (Exhibit 7.2.1.2), and should be able to arrange for some sample product to be viewed by prospective customers. Obviously, targeting market segments based on needs varies even across regions within countries. Currently, red oak is mainly used for high level home use furniture, most of which is exported to US and EU markets. Hence, much of the furniture production in China is located in the South and East (instead of landlocked North and West regions), where it can more easily be exported (Exhibit 7.2.1.3).

Exhibit 7.2.1.2 Number of Respondents who Cited Various Advertising Outlets for their Information about Building Materials



Source: CINTRAFOR Publications

Exhibit 7.2.1.3 Key Furniture Production Regions in China

Region	Center Provinces / Cities	% of total production (by piece)	% of total export (by value)
South	Guangdong, Gujian	66%	51%
East	Zhejiang, Shanghai	14%	23%
North	Shandong, Hebei, Tianjin, Beijing	8%	10%
Northeast	Harbin (Heilongjiang), Dalian (Liaoning)	4%	4%
Southwest & Northwest	Chengdu (Sichuan), Chongqing, Xi'an (Shannxi)	1%	1%

Source: CINTRAFOR Publications

Exhibit 7.2.1.4 shows 2007 consumption of non-coniferous sawn-wood and US exports of red oak for selected countries. These statistics indicate the market needs of each country that could be met with red oak lumber. China is the leading export market followed by Mexico, with over half as much volume imported from the US. Domestic consumption is highest in China, followed distantly by Malaysia, Vietnam, and Mexico.

Exhibit 7.2.1.4 Consumption & US Exports for Selected Countries, 2007

Country	Consumption of Non-Coniferous Sawn-Wood (meters^3)	US Red Oak Exports (meters^3)
Mexico	965,180	46,316
China	21,367,835	78,169
Japan	624,000	1,950
Republic of Korea	464,000	2,461
Malaysia	4,039,000	4,274
Philippines	288,700	225
Singapore	60,700	19
Vietnam	3,254,500	5,891

Source: USDA Foreign Ag Service (FAS) at http://www.fas.usda.gov/ustrade/USTExFAS.asp?QI=. Food and Agricultural Organization of the United Nations database FAOSTAT at http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626.

Note: Consumption is computed as the sum of production and imports less exports. Non-coniferous lumber includes all species of origin other than tropical and the following products: sawnwood, unplaned, planed, grooved, tongued, etc., sawn lengthwise, or produced by a profile-chipping process (e.g. planks, beams, joists, boards, rafters, scantlings, laths, boxboards, "lumber", sleepers, etc.) and planed wood which may also be finger jointed, tongued or grooved, chamfered, rabbeted, V-jointed, beaded, etc. **Wood flooring is excluded**. With few exceptions, sawnwood exceeds 5 mm. in thickness.

7.2.1.1 Acceptable Product Form

The highest export value that can be obtained by the firm is in exporting FAS grade red oak products. This grade is often used for cabinetry and flooring, among other things.

7.2.1.2 Required Volume for International Retailers

Shipments to international buyers will be in containers. Therefore, the firm will want to be able to provide a minimum to that much to each buyer. Shipping containers that are less than full will be inefficient, and using a container to ship smaller orders of multiple clients could lead to several time consuming issues and a higher risk.

7.2.1.3 Contracts or Long-Term Delivery Structure

It is unlikely that the firm will be able to enter in to any kind of long-term delivery structure with international buyers due to providing a relatively small amount of product on an annual basis. Letters of credit will likely be used in negotiations with foreign buyers instead of delivery contracts. Prices will need to be negotiated based on market factors for every shipment.

7.2.2 Market Trends

While Mexico remains an important export for US red oak, much of the growth in exports is in Asia and China in particular. Exhibits 7.2.2.1 and 7.2.2.2 show the value and quantity, respectively, of US exports of red oak to Asia. These statistics suggest that China is by far the most important export market, followed by Hong Kong, Indonesia, Taiwan, Vietnam, and Malaysia. However, exports vary considerably over time, reflecting variation in prices and domestic economies. This section delves deeper into trends in exports, including the quality of exports (that is, value relative to quantity) and trends in consumption in these markets.

Exhibit 7.2.2.1 Value of US Red Oak Exports to Asia, 2007

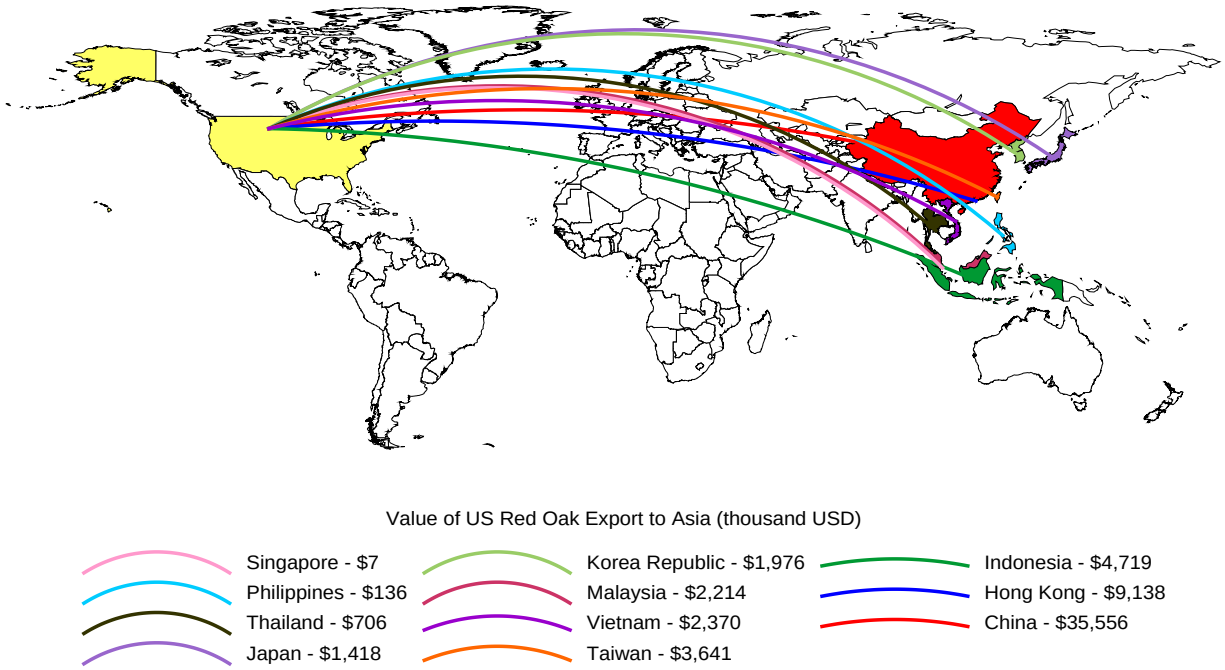
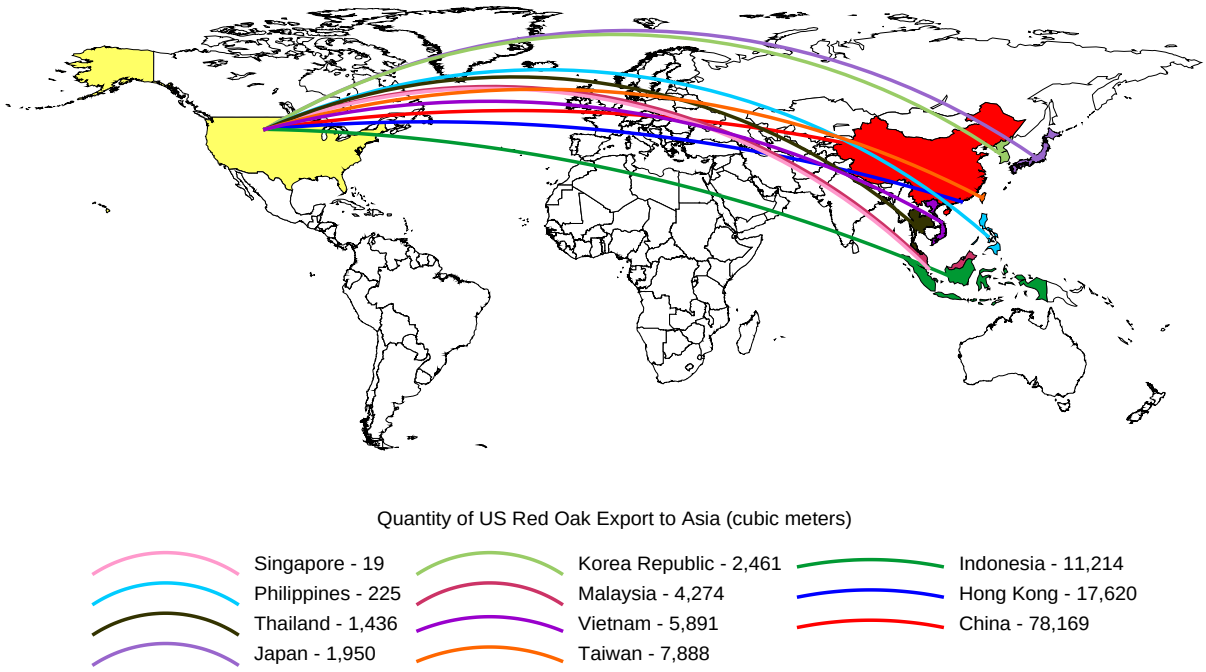


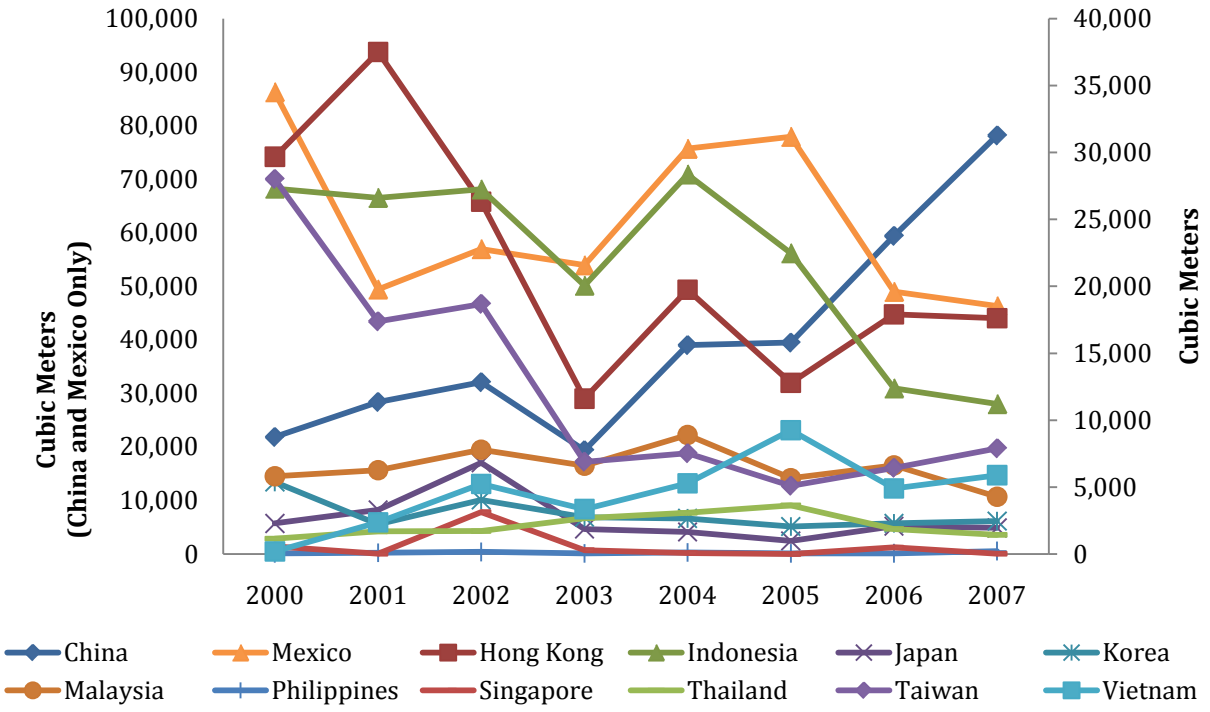
Exhibit 7.2.2.2 Quantity of US Red Oak Exports to Asia, 2007



7.2.2.1 Export Trends

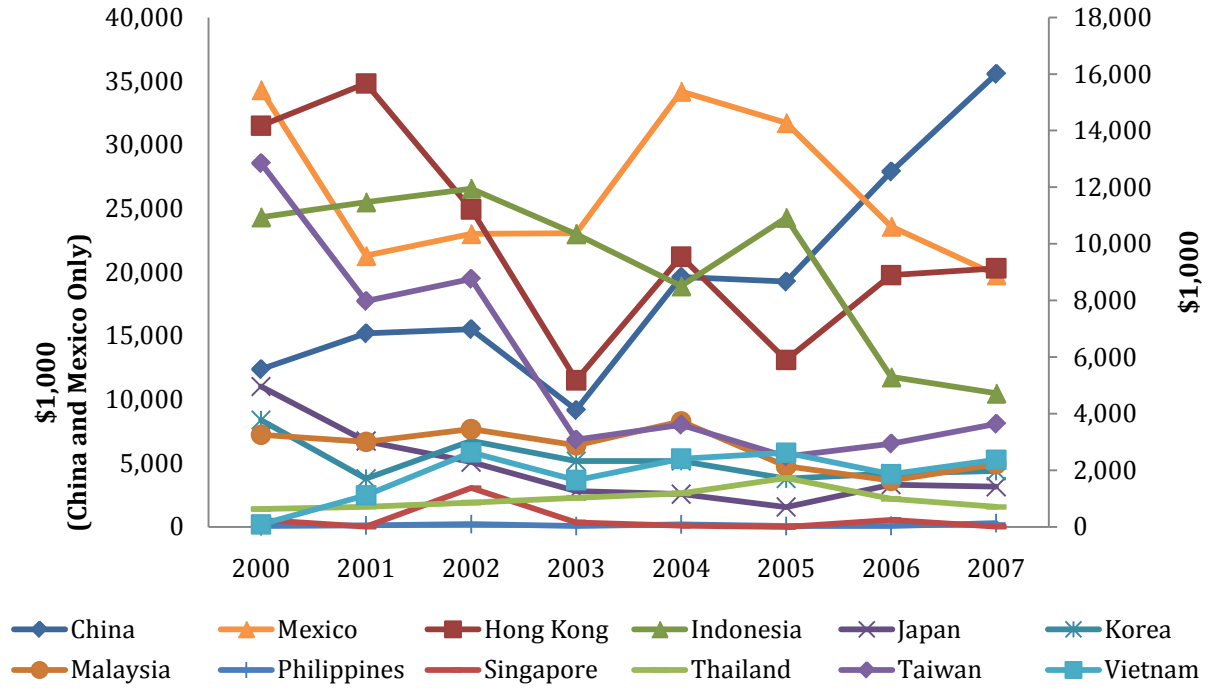
Asia has become an important export market for U.S. lumber. Exhibits 7.2.2.1.1 and 7.2.2.1.2 respectively show the quantity and value of red oak lumber exports to selected Asian nations and Mexico. China is by far the top Asian country in terms of quantity and value, followed by Hong Kong, Indonesia, and Taiwan. Of these four countries, only China's imports of U.S. red oak lumber is growing. However, these countries may differ in terms of the quality of lumber they import in general. Similarly, Mexico, which once exceeded China in quantity and value of red oak exports from the U.S., is declining in more recent years.

Exhibit 7.2.2.1.1 Quantity of U.S. Red Oak Lumber Exports to Selected Countries



Source: USDA Foreign Ag Service (FAS) at http://www.fas.usda.gov/ustrade/USTExFAS.asp?QI=.

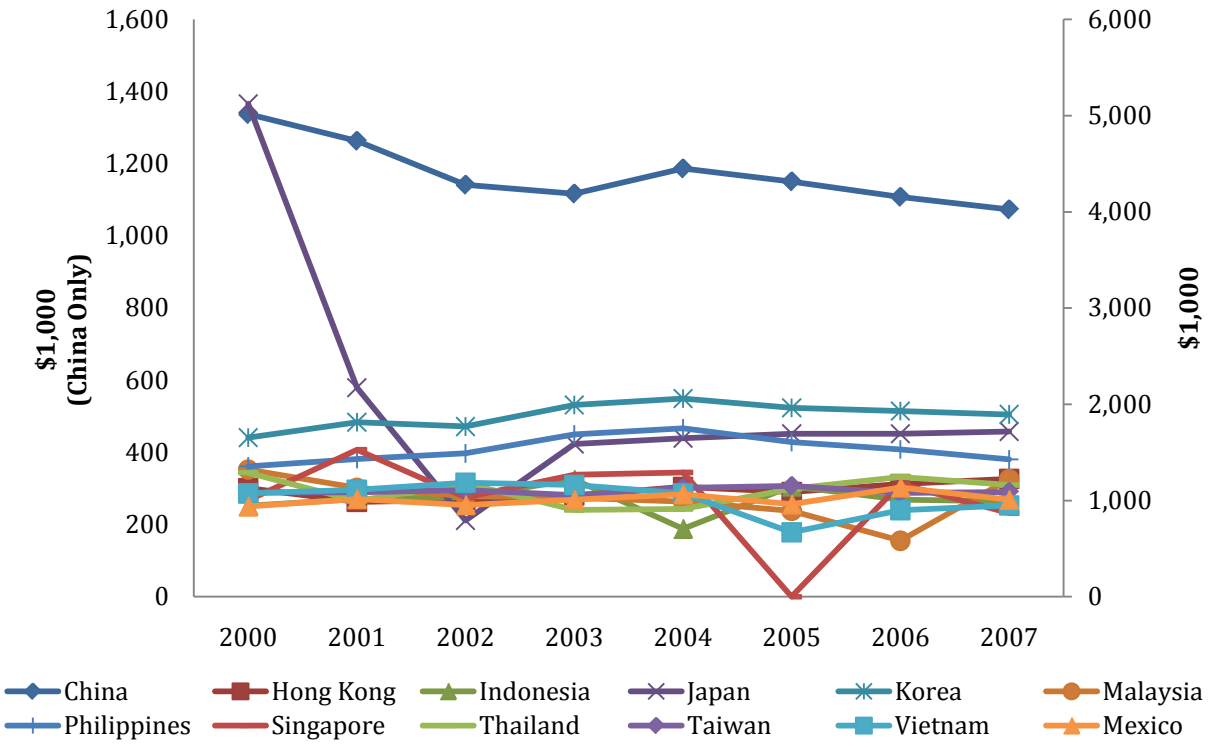
Exhibit 7.2.2.1.2 Value of U.S. Red Oak Lumber Exports to Selected Countries



Source: USDA Foreign Ag Service (FAS) at http://www.fas.usda.gov/ustrade/USTExFAS.asp?QI=.

Exhibits 7.2.2.1.3 and 7.2.2.1.4 pertain to the quality of the exported lumber on average (value divided by quantity). This information is useful for identifying appropriate export markets for the quality of wood to be shipped. Exhibit 7.2.2.1.3 shows the per unit value ($/meters^3) of U.S. red oak exports to the selected Asian countries. Exhibit 7.2.2.1.4 illustrates the construction of an export quality index that is also based on the values and quantities of exports. Both approaches to measuring the quality of lumber that these countries import from the U.S. on average yield similar implications. Again, China is by far the top country, but the quality rankings differ from the quantity and value rankings otherwise. For other countries that were ranked highly in terms of value and quantity (Indonesia, and Taiwan), the value of U.S. red oak lumber exports was driven by the quantity. Relative to Korea and Japan, these countries are ranked lower in terms of the average quality of red oak lumber imported from the U.S.

Exhibit 7.2.2.1.3 Quality of U.S. Red Oak Lumber Exports to Selected Countries



Source: USDA Foreign Ag Service (FAS) at http://www.fas.usda.gov/ustrade/USTExFAS.asp?QI=.

Exhibit 7.2.2.1.4 Red Oak Export Quality Index & Rankings of Selected Asian Countries

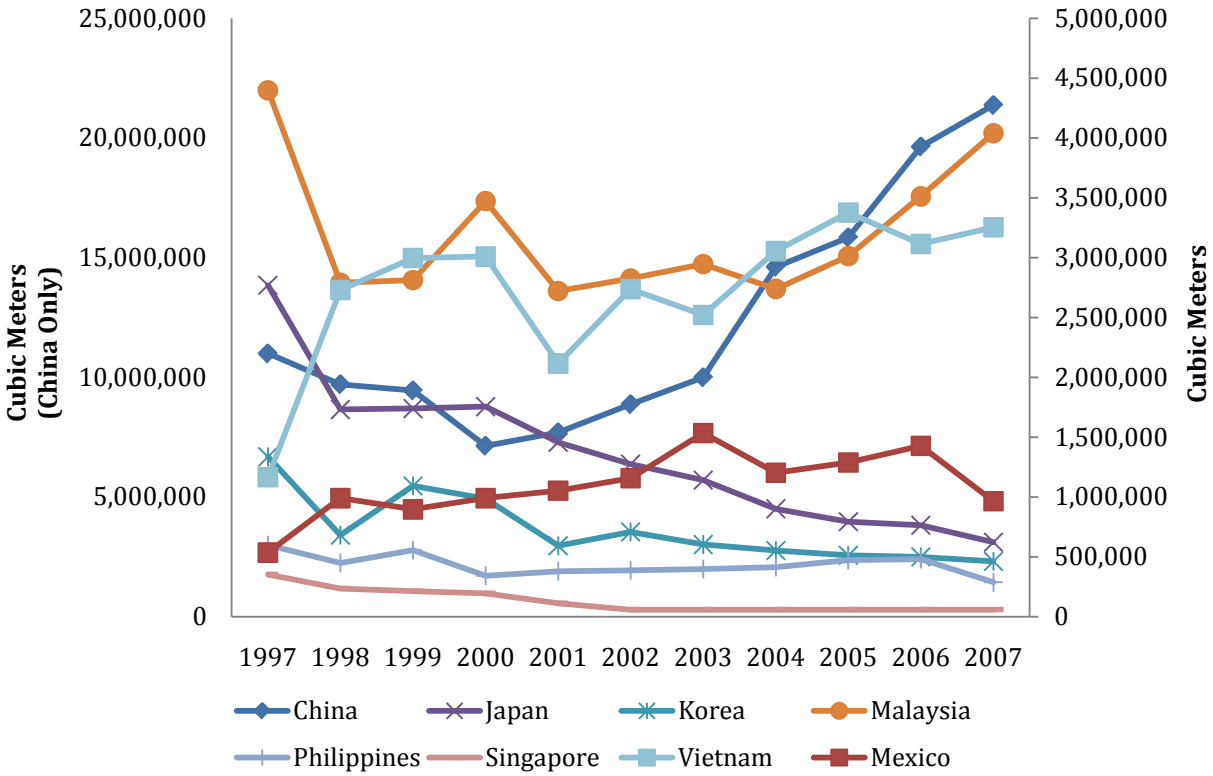
Country	2000-2007 Average Value†	Value Rank	2007 Meters³ Imported from U.S.	Quantity Rank	Quality Consensus Index (value + quantity ranks)	Quality Rank‡
China	$1,161,359	4	78,169	1	5	1
Hong Kong	$1,098,212	7	17,620	2	9	3
Indonesia	$1,024,444	11	11,214	3	14	7
Japan	$1,752,051	2	1,950	8	10	4
Korea	$1,894,669	1	2,461	7	8	2
Malaysia	$1,052,143	9	4,274	6	15	8
Philippines	$1,528,767	3	225	10	13	6
Singapore	$1,106,018	5	19	11	16	9
Thailand	$1,101,520	6	1,436	9	15	8
Taiwan	$1,095,857	8	7,888	4	12	5
Vietnam	$1,045,376	10	5,891	5	15	8

Source: USDA Foreign Ag Service (FAS) at http://www.fas.usda.gov/ustrade/USTExFAS.asp?QI=.
† Average price computed throwing out high and low values for the period.
‡ Based on consensus values from lowest to highest.

7.2.2.2 Demand Trends

Consumption of hardwood lumber is growing in several Asian countries (Exhibit 7.2.2.2.1). Notably, China is again in a class by itself. Malaysia and Vietnam also exhibit increased consumption. However, consumption of hardwood lumber in other Asian countries is stagnant or on the decline. For the Philippines, the trend reflects increases in their lumber exports in recent years. For Japan and Korea, the trend reflects markedly lower imports. Consumption in Mexico has an overall upward trend, with a drop in 2007. Likely, the overall trend will resume in the near future.

Exhibit 7.2.2.2.1 Non-Coniferous Lumber Consumption in Selected Countries



Source: Food and Agricultural Organization of the United Nations database FAOSTAT at http://faostat.fao.org/site/626/DesktopDefault.aspx?PageID=626.

Note: Consumption is computed as the sum of production and imports less exports. Non-coniferous lumber includes all species of origin other than tropical and the following products: sawnwood, unplaned, planed, grooved, tongued, etc., sawn lengthwise, or produced by a profile-chipping process (e.g. planks, beams, joists, boards, rafters, scantlings, laths, boxboards, "lumber", sleepers, etc.) and planed wood which may also be finger jointed, tongued or grooved, chamfered, rabbeted, V-jointed, beaded, etc. **Wood flooring is excluded**. With few exceptions, sawnwood exceeds 5 mm. in thickness.

7.2.3 Market Growth

Exhibit 7.2.3.1 displays price forecasts for various grades and sizes of Appalachian Red Oak, based on trends in historical prices obtained from the Hardwood Market Report. Domestic prices for red oak lumber are expected to rebound from the 2008 slump as the domestic economy recovers. The projections for green and kiln dried red oak lumber reflect expectations for growth in economic indicators and trends in exchange rates with major export markets. As such, rising and declining projected prices reflect projected growth and contraction in the economy and in the global trade environment.

Exhibit 7.2.3.1 Projected Domestic Red Oak Lumber Prices (U.S.$/1,000 board feet)

Grade	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Appalachian Red Oak - Green										
Price/1000 bf										
4/4 FAS	$ 695	$ 812	$ 896	$ 957	$1,000	$1,026	$1,040	$1,043	$1,035	$1,018
4/4 1C	$ 485	$ 602	$ 686	$ 747	$ 790	$ 816	$ 830	$ 833	$ 825	$ 808
4/4 2A	$ 375	$ 492	$ 576	$ 637	$ 680	$ 706	$ 720	$ 723	$ 715	$ 698
5/4 FAS	$ 825	$ 942	$1,026	$1,087	$1,130	$1,156	$1,170	$1,173	$1,165	$1,148
5/4 1C	$ 505	$ 622	$ 706	$ 767	$ 810	$ 836	$ 850	$ 853	$ 845	$ 828
5/4 2A	$ 420	$ 537	$ 621	$ 682	$ 725	$ 751	$ 765	$ 768	$ 760	$ 743
6/4 FAS	$ 880	$ 997	$1,081	$1,142	$1,185	$1,211	$1,225	$1,228	$1,220	$1,203
6/4 1C	$ 595	$ 712	$ 796	$ 857	$ 900	$ 926	$ 940	$ 943	$ 935	$ 918
6/4 2A	$ 595	$ 712	$ 796	$ 857	$ 900	$ 926	$ 940	$ 943	$ 935	$ 918
8/4 FAS	$ 895	$1,012	$1,096	$1,157	$1,200	$1,226	$1,240	$1,243	$1,235	$1,218
8/4 1C	$ 675	$ 792	$ 876	$ 937	$ 980	$1,006	$1,020	$1,023	$1,015	$ 998
8/4 2A	$ 445	$ 562	$ 646	$ 707	$ 750	$ 776	$ 790	$ 793	$ 785	$ 768
Appalachian Red Oak – Kiln Dried										
Price/1000 bf										
4/4 FAS	$ 980	$1,097	$1,181	$1,242	$1,285	$1,311	$1,325	$1,328	$1,320	$1,303
4/4 1C	$ 720	$ 836	$ 921	$ 982	$1,024	$1,051	$1,065	$1,067	$1,060	$1,043
4/4 2A	$ 565	$ 682	$ 766	$ 827	$ 870	$ 896	$ 910	$ 913	$ 905	$ 888
5/4 FAS	$1,218	$1,334	$1,419	$1,480	$1,522	$1,549	$1,563	$1,565	$1,558	$1,541
5/4 1C	$ 827	$ 944	$1,028	$1,089	$1,132	$1,158	$1,172	$1,175	$1,167	$1,150
5/4 2A	$ 582	$ 699	$ 783	$ 844	$ 887	$ 913	$ 927	$ 930	$ 922	$ 905
6/4 FAS	$1,582	$1,698	$1,783	$1,844	$1,886	$1,913	$1,926	$1,929	$1,921	$1,904
6/4 1C	$1,177	$1,293	$1,378	$1,439	$1,481	$1,508	$1,522	$1,524	$1,517	$1,500
6/4 2A	$ 739	$ 855	$ 940	$1,001	$1,043	$1,070	$1,083	$1,086	$1,078	$1,061
8/4 FAS	$1,723	$1,839	$1,924	$1,985	$2,027	$2,054	$2,067	$2,070	$2,062	$2,045
8/4 1C	$1,257	$1,373	$1,458	$1,519	$1,561	$1,588	$1,602	$1,604	$1,597	$1,580
8/4 2A	$ 799	$ 915	$1,000	$1,061	$1,103	$1,130	$1,143	$1,146	$1,138	$1,121

Projections computed based on models of relationships between Appalachian Red Oak prices from Hardwood Market Reports and domestic economic indicators and exchange rates with export markets.

Mexico and China are major export markets for U.S. red oak with Mexico's declining and China's increasing in importance in recent history (Exhibit 7.2.3.2). A number of other Asian countries are notable export markets as well. These trends mostly reflect trends in exchange rates and economic growth in the countries. If similar relationships hold in the future, several Asian countries, such as Japan, Taiwan, and Vietnam, will become more substantial buyers of U.S. red oak than Mexico. Others, such as South Korea, the Philippines, and Singapore, will no longer be substantial buyers of U.S. red oak. China is expected to continue to be the dominant buyer of U.S. red oak.

Exhibit 7.2.3.2 Historical & Projected U.S. Red Oak Exports, Selected Countries (Meters³)

Year	Mexico	China	Hong Kong	Indonesia	Japan	South Korea	Malaysia	Philippines	Singapore	Thailand	Taiwan	Vietnam
1990	27755	553	3288	425	61299	2200	5121	1730	168	2223	105255	.
1991	45907	2521	7918	723	49056	4913	4788	1396	409	2368	161196	.
1992	54208	1739	6777	607	38818	4864	4449	883	411	2870	127278	.
1993	54274	1020	8609	1039	26018	6177	3802	1514	341	4167	90862	0
1994	60990	1232	17097	2589	17944	15573	1176	1044	448	1316	91794	0
1995	77227	3902	28655	2355	22776	15354	117	571	318	2485	75012	0
1996	70622	6812	31179	1858	14165	19790	910	1025	626	2317	54427	155
1997	62708	6840	33100	2106	16977	20465	1807	706	580	1712	53488	0
1998	61776	7119	34566	2295	6576	3296	2095	88	78	1384	42190	288
1999	63904	13225	37242	2259	6932	9776	3130	83	20	1065	36150	559
2000	86265	21855	29677	3406	6562	5385	5810	47	584	1153	28010	498
2001	49434	28395	37504	2959	3999	2218	6263	89	17	1694	17374	702
2002	56976	32096	26317	5516	3539	4047	7786	160	3139	1711	18679	900
2003	53945	35429	18935	1244	1874	2755	6602	42	2765	1018	14276	375
2004	75698	43638	18570	1830	1657	2664	8894	120	82	1486	13303	963
2005	77939	63494	9630	2177	980	2052	5666	47	0	1185	7728	1521
2006	48995	96612	10581	1653	2079	2300	6618	57	0	825	7509	4286
2007	46316	63882	7563	1768	1950	2461	4274	225	0	600	5401	2638
2008	37681	81897	4164	2414	1880	1424	1897	176	88	545	3058	2092
2009	56332	97936	12378	3134	2102	1202	4644	271	0	604	4882	2208
2010	56386	110741	11080	3279	2323	881	4324	301	0	707	8422	3172
2011	53760	123302	9504	3364	2323	559	3937	342	0	875	11646	4434
2012	49582	137413	8252	3532	5383	237	3639	392	0	1099	14965	5948
2013	44804	152241	7085	3694	8997	0	3346	461	0	1348	18276	7662
2014	38824	167961	5923	3860	13126	0	3027	543	0	1623	22384	9446
2015	31434	184500	4786	4027	17766	0	2705	637	0	1927	27019	11228
2016	24828	201860	3628	4204	22908	0	2335	739	0	2267	32283	13092
2017	18011	220031	2350	4391	28539	0	1947	849	0	2639	38026	15035
2018	10926	238933	1055	4591	34690	0	1511	969	0	3049	44213	17055

Export projections based on relationships with Foreign Agriculture Service estimates of U.S. red oak exports and economic indicators and exchange rates for the respective countries.

Note: International retailers use meters instead of board feet. The export firm will need to keep this in mind when dealing with international buyers.

7.3 Industry Analysis

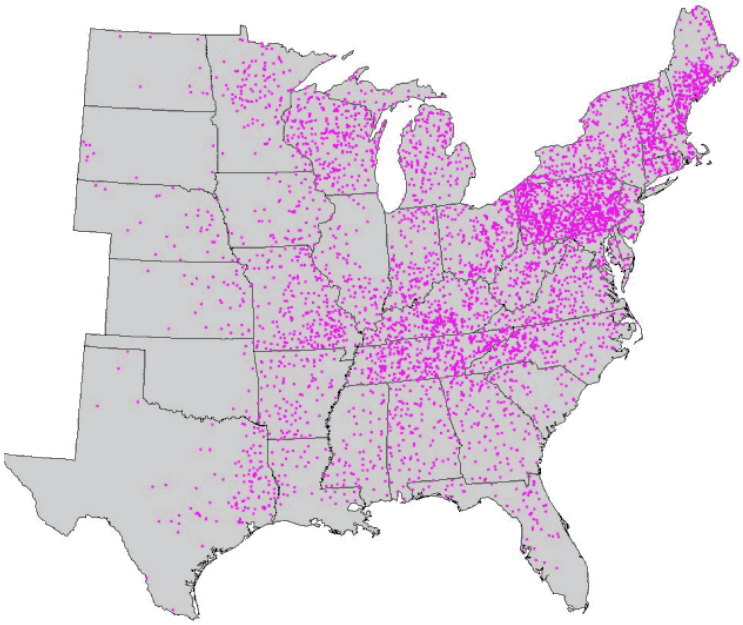
Currently, the exporting in the industry is dominated by larger players. Small, independent firms do not have the resources (capital, inventory, human) to be able to export. Often times, an international buyer will want larger shipments than can easily be provided by a small firm. Exporting can also cause cash flow issues for smaller firms, as international sales have a longer transaction period than domestic sales.

7.3.1 Industry Participants

The partial map in Exhibit 7.3.1.1 shows the locations of hardwood and softwood mills. The map in Exhibit 7.3.1.2 shows the locations of mills, coded by the type of mill. Sawmills across the US compete indirectly by serving regional buyers, and thereby, contributing to the availability of lumber and price discovery through direct competition among sawmills in their own regions. Any of these sawmills could also be competitors in export markets by forming an export market cooperative or entering export markets individually if their scale of operation is large enough to fill export orders. The later possibility of individually entering export markets is unlikely for most sawmills, however due to the scale constraints.

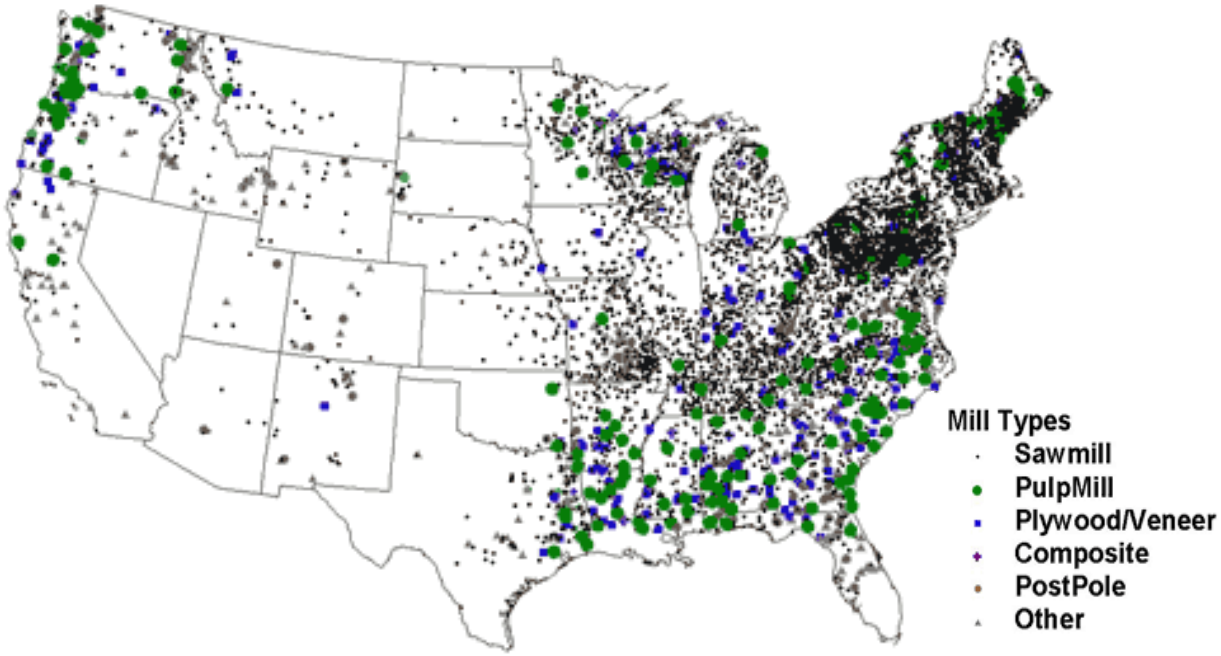
In addition to sawmills, there are several other industry participants/stakeholders that contribute to the production of hardwood lumber in the US, such as landowners, loggers, and various buyers. As discussed in Section 3 of this document, a hardwood export cooperative could be structured so that these participants could also be members. The concentration or relative number of each of these participants is discussed below in terms of competition and buying patterns along the supply- or value-chain.

Exhibit 7.3.1.1 Hardwood and Softwood Mill Locations



Source: Pye, J., J. Prestemon. 1999. "Hardwood and Softwood Mill Locations – 1999" http://www.srs.fs.usda.gov/econ/present/mills99/

Exhibit 7.3.1.2 Hardwood and Softwood Mill Locations Coded by Type of Mill

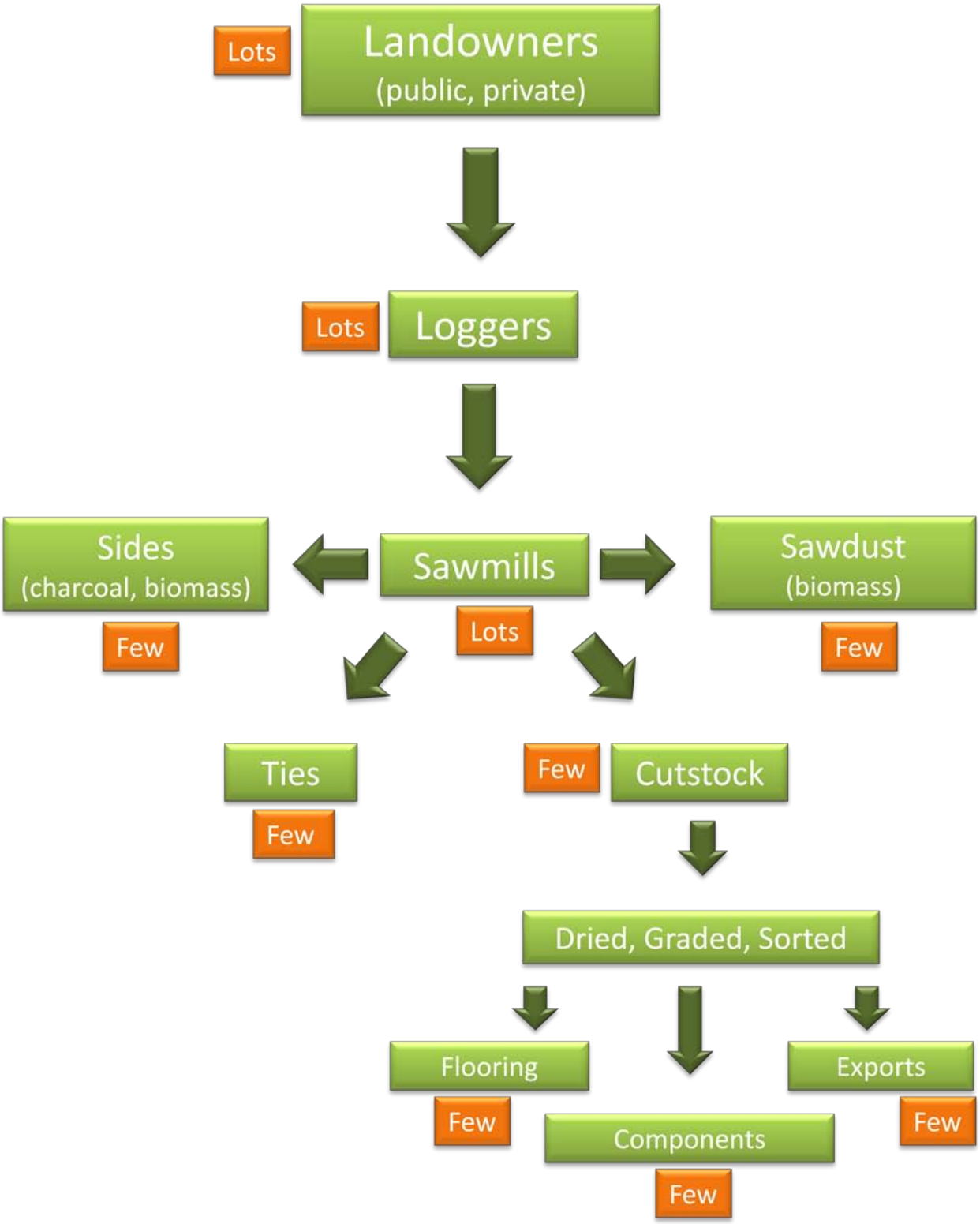


Source: Prestemon, J., J. Pye, J. Barbour, G.R. Smith, P. Ince, C. Steppleton, and W. Xu. 2005. "U.S. Wood-Using Mill Locations – 2005" http://www.srs.fs.usda.gov/econ/data/mills/mill2005.htm

7.3.2 Competition and Buying Patterns

Exhibit 7.3.2.1 shows the different levels of the value chain and the number of participants found at each level. As the value chain continues, the number of players found at each level decreases. Arguably, greater downstream concentration may be indicative of relatively greater market/bargaining power. According to discussions with saw-millers, bids for standing timber remain competitive, while demand for cut-stock has nearly dried up, and mostly tie markets are what is keeping product moving, since the economic downturn in 2008.

Exhibit 7.3.2.1 Number of Participants found at Each Level of the Value Chain



7.3.3 Main Competitors

Exhibit 7.3.3.1 displays a summary of data pertaining to companies based in Missouri, Illinois, Arkansas, Indiana, Kentucky, and Tennessee that export hardwoods. This data was collected from the National Hardwood Lumber Association and summarized into the exhibit. The total number of companies from these states that export hardwood is 102. Some of these companies participate in more than one category for each attribute, and other may not participate in any of the categories within an attribute.

Exhibit 7.3.3.1 Summary of Companies that Export Hardwoods in Select States

Attribute	Category	Number of Participating Companies	Percent of Participating Companies
Business Type	Exporting	41	40%
	Sawmill	78	76%
	Kiln drying	63	62%
Products	Primary	90	88%
	Secondary	93	91%
Regions Exported	Asia	43	42%
	Europe	49	48%
	Australia/New Zealand	17	17%
	Mexico	36	35%
	Latin America	11	11%
	South America	12	12%
Sustainable Forestry Programs	SFI Participant	4	4%
	SFI Certified	3	3%
	FSC Certified	6	6%
	Other	4	4%

7.4 A Guide to Exporting Solid Wood Products[3]

7.4.1 Introduction

Market potential is a fundamental concern for a US company wanting to export wood products. Currently, China, among other Asian countries, provides the most opportunity for establishing a sizable, successful market. Since China entered into the World Trade Organization (WTO), it has undergone many years of rapid industrialization. Demand from various industries in China, especially the furniture, paper, and construction sectors, has fueled their import growth for raw materials, particularly logs. China's wood imports alone increased to $5.7 billion in 2005 from

[3] Information in this section is adapted from the 2006 USDA report: A Guide to Exporting Solid Wood Products.

$3.7 billion in 2000. Although China's wood imports continued to show growth through the first three quarters of 2008, they are starting to decline in comparison to the previous year, due to the world economic slowdown seen in the fall of 2008. Because of the uncertainty being demonstrated by the international economy, the expected future wood product imports of China cannot be easily determined. However, it can be assumed that they will continue to experience industrialization, even if at a slower pace, and are therefore considered a viable market for future exports by a US based company.

In 2005, the United States exported $5.9 billion of solid wood products. Until very recently, the export market has continued to provide greater income, new jobs, and increased profitability for US wood producers. However, as mentioned before, the current international economic slowdown may change available opportunities. A worldwide credit crunch is prohibiting the exchange of goods between trading partners, both domestically and internationally. The continued strength of the export market will depend on how individual countries are affected and their specific reaction to the current situation. While it is likely that the market will experience a decline in growth or even a standstill, it is unlikely to be a permanent issue. Now more than ever, a genuine commitment to exporting begins with a long-term attitude towards overseas markets. To be successful, producers must create and follow a foreign market strategy that is fundamentally connected to their overall business plan. Developing longstanding, working relationships with foreign importers will require maintaining commitments to them even when their markets are weak. Rather than use a scattered, "in-and-out" approach, a US company should determine one's competitiveness in selected overseas markets early on, understand the requirements of major importers, and then develop long-term relationships that are conducive to solving the supply problems and quality concerns of these key accounts.

7.4.2 Exporting Wood Products: Advantages and Risks

The decision to enter the export market requires a producer to commit sufficient managerial, personnel, and financial resources to the task. Each company must weigh the advantages and disadvantages of exporting to determine if projected profits, possible losses, and inherent risks justify a commitment to exporting. Exhibit 7.4.2.1 displays some of the common, most important advantages and disadvantages to be considered by a company contemplating export opportunities.

Exhibit 7.4.2.1 Advantages and Disadvantages of Exporting Wood Products

Advantages	Disadvantages
• New marketing and financial opportunities, allowing the firm to grow	• Tailoring wood products to foreign standards and specifications requires skilled personnel for production and shipping options
• Diversification of risk	• Manufacturing goods to foreign specifications can require a change in the production process that may be incompatible with existing high-speed, high volume manufacturing practices
• Increased financial leverage and credit	• Production costs per unit may be higher if new machinery and personnel are required
• Revenue derived from export sales permits spreading fixed costs over a greater number of production units	• If wood products designed for a foreign market need to be sold domestically, additional processing, such as resawing, planing, or sanding, may be required
• Wider margins may be realized on higher valued products	

Source: A Guide to Exporting Solid Wood Products, USDA 2006

Exhibit 7.4.2.2 displays common mistakes made by US companies when exporting. If a business wants to establish a stable and profitable export market for their goods, they will want to be aware of these possibilities and avoid making these mistakes if at all possible.

Exhibit 7.4.2.2 Common Mistakes made by Companies when Exporting

Common Mistakes made by Companies when Exporting

- Failing to obtain qualified export counseling (inability to understand market demand).
- Failing to develop an international marketing plan (inability to focus on best way to serve new markets).
- Insufficient commitment by the top management to overcome the initial difficulties and financial requirements of exporting.
- Insufficient care in selecting the overseas agents or distributors.
- Filling orders from around the world instead of establishing a basis for profitable operations and orderly growth by actively seeking customers in targeted areas.
- Neglecting the export business when the U.S. market booms.
- Failing to treat international customers on an equal basis with domestic counterparts.
- Failing to understand or respect foreign cultural differences relating to business practices and product usage.
- Unwillingness to modify products to meet the regulations or cultural preferences of other countries.
- Failing to print service, sales, and warranty messages in locally understood languages.
- Failing to consider the use of an export management company or other marketing intermediary knowledgeable in foreign distribution channels.
- Failing to consider licensing or joint venture agreements.

Source: A Guide to Exporting Solid Wood Products, USDA 2006

7.4.2.1 Trade Servicing: The Key to Success

International markets differ from domestic markets in that reputation, established through trade servicing practices, is valued over mainstream marketing practices. Trade servicing not only involves identifying crucial importers, distributors, and buyers, but also maintaining good working relationships with each of them. This is particularly significant as the traditional US wood exporters are currently thought to be nothing more than occasional suppliers, selling only when supplies permit. The most effective producers are those which have been willing to stay in the export market consistently, treating it with as much importance as their domestic market. Therefore, success in exporting hinges on an entity's willingness to allocate sufficient resources initially to research foreign demand and develop contacts, as well as providing a continuous, consistent supply of product. There is no substitute for a good, working relationship with an overseas buyer. These relationships are best established through a series of quality interactions, usually requiring face to face contact in the early stages. Also, it is vital that the exporter fully understand their buyer's needs and provide a product that will adequately fulfill these needs.

7.4.3 Supply Considerations

There are key supply considerations for US companies looking to export to foreign markets. These considerations are outlined in the following segments.

7.4.3.1 Deciding What to Sell Overseas

When considering which products to export, firms should conduct a thorough analysis of potential markets, as well as of their own capabilities. Items to be considered include:

- Current production
- Access to timber resources (species, quality, and quantity)
- Processing facilities
- Transportation
- Proximity to ports
- Willingness to cut special orders or schedule the mill to cut or produce for export markets

7.4.3.2 Deciding Where to Sell Overseas

Firms interested in exporting should take the time to thoroughly research potential markets. Not only should the research focus on current demand and likely trends, but also how business is conducted within these markets. Collecting pertinent information in respect to potential markets allows an exporter to successfully identify those countries most suited to the products they produce. Once target markets are selected, a consistent pattern of trade contacts with importers in those countries should be developed. Also, committing to and focusing on one or two countries before branching out can help a firm to determine its strengths, weaknesses, and limitations in serving export markets.

7.4.3.3 Pricing Products for Export

Exhibit 7.4.3.3.1 outlines the elements that should be contained in a price quote for various terms of sale. The terms of sale (i.e. free on board—FOB— or cost, insurance, and freight—CIF) will depend on the arrangement made with the importer. A price quote that adequately reflects the cost of goods delivered to the importer's yard has a much better chance of being negotiated and accepted by an international buyer than a quote based solely on delivery to the US port prior to export.

Exhibit 7.4.3.3.1 Elements of Pricing Goods for Export

Elements of Pricing Goods for Export

Obligations and Charges	Terms of Sale: EXT Ex-works	FCA Free Carrier	FAS Free Alongside Ship	FOB Free on Board	CFR Cost Freight	CIF Cost Insurance & Freight	CPT Carnage Paid To	CIP Carnage Insurance Paid To	DAF Delivered at Frontier	DES Delivered ex Ship	DEQ Delivered ex Quay	DDU Delivered Duty Unpaid	DDP Delivered Duty Paid
Warehouse Services	S	S	S	S	S	S	S	S	S	S	S	S	S
Export Packing	S	S	S	S	S	S	S	S	S	S	S	S	S
Forwarder Fees	B	S	S	S	S	S	S	S	S	S	S	S	S
Loading at Point of Origin	B	S	S	S	S	S	S	S	S	S	S	S	S
Inland Freight	B	E	S	S	S	S	S	S	S	S	S	S	S
Port Receiving Charges	B	E	S	S	S	S	S	S	S	S	S	S	S
Export Clearance	B	S	S	S	S	S	S	S	S	S	S	S	S
Ocean/Air Freight	B	B	B	B	S	S	S	S	S	S	S	S	S
Marine Insurance	B	B	B	B	B	S	S	S	S	S	S	S	S
Charges in Foreign Port	B	B	B	B	B	B	B	B	B	B	S	S	S
Customs Clearance	B	B	B	B	B	B	B	B	B	B	B	B	S
Customs Duties	B	B	B	B	B	B	B	B	B	B	B	B	S
Delivery Charges to Final	B	B	B	B	B	B	B	B	B	B	B	S	S

B: Buyer Pays **S: Seller Pays** **E: Either May Pay**

Source: First National Bank

Price quotes should also include information on shipping arrangements and dates, payment terms, and total weights and/or volumes (in metric units). The actual price quote will be influenced by current foreign import demand, freight rates, insurance costs, domestic supplies, and proximity to exporting facilities and ports. Quotes based solely on domestic US prices plus additional transportation, handling, and insurance costs may or may not be acceptable in international trade, depending on negotiations with the foreign buyers.

7.4.3.4 Certified Wood

Certified wood allows consumers to make the distinction between wood products that come from forests managed using sustainable practices versus forests managed with less consideration for the full environmental implications of their practices. The global market for certified wood has remained small. However, in more developed countries, where environmental awareness is significant, retailers, not consumers, often create a significant demand for certified wood products.

The cost of certification presents a great burden for small forest owners, and in an attempt to avoid unacceptable certification requirements, forest product producers have created their own certification and certification-like mechanisms. Therefore, several certification schemes are now competing for support and recognition. Exhibit 7.4.3.4.1 displays some of the different certification schemes available.

Exhibit 7.4.3.4.1 Different Certification Schemes

Global	Regional	National
➢ Forest Stewardship Council (FSC) ➢ International Organization for Standardization (IOS)	➢ Programme European Forest Certification (PEFC)	➢ Canadian Standard Association (CSA) ➢ Sustainable Forestry Initiative (SFI) ➢ Lembaga Ekolabel Indonesia (LEU) ➢ Malaysian Timber Certification Council (MTCC)

Source: A Guide to Exporting Solid Wood Products, USDA 2006

When getting involved with exporting, a company should consider how certification may or may not affect them. The decision to certify the wood products being sold largely depends upon the market they are being sold to. Not all countries are concerned with certification and would therefore not be willing to pay the premium associated with certified wood products. However, there are countries that may prefer certified

wood products and not providing a certified product would greatly hurt a company's chance to sell their products within these markets.

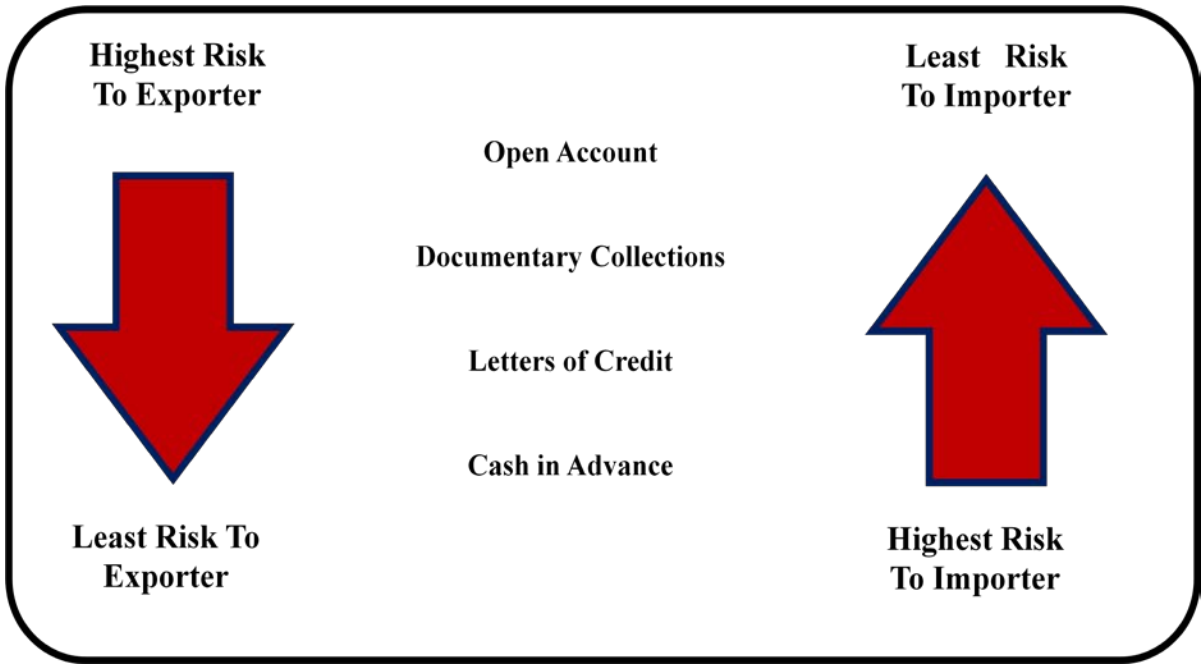
If certification is decided to be necessary, the following factors should be considered when selecting a certification system:

- Geographic coverage (i.e. global, regional, or national)
- Standards used
- Existence of on-product labels
- Use of independent, third-party certification organizations
- Forest industry and/or environmental group support

7.4.4 Payment Options for Export Shipments

The most popular methods of payment for exported goods are cash in advance, documentary letter of credit, documentary collection, and open account. A risk spectrum for these payment options can be seen in Exhibit 7.4.4.1. However, an exporter can not only consider their risk level when determining their acceptable terms of payment. Due to intense competition present in most export markets, the seller will likely have to offer attractive payment terms to the buyer in order to make a sale. Additional, less popular methods of payment for international trade can be found in Appendix 8. Also, options for financing export operations can be found in Appendix 9.

Exhibit 7.4.4.1 International Payments Risk Spectrum



Source: The TD Bank Crash Course in International Trade

7.4.4.1 Cash in Advance

Full payment, cash in advance, is the safest method of collecting payment for the seller. The buyer bears all the risk in this type of transaction because payment is received by the seller before the shipment is ever made. Additionally, advance payment has the potential to create cash flow problems for the buyer. Therefore, if another producer is willing to extend credit or accept another, more attractive form of payment, the buyer may purchase their goods elsewhere. Because of these potential complications, the percentage of trade conducted via cash in advance terms is very low. Typically only sellers of products in high demand or of products that are custom manufactured for the buyer are able to demand full payment, cash in advance terms.

7.4.4.2 Documentary Letter of Credit

Often international sales are conducted through letters of credit (LOC). A letter of credit is written and issued by a bank, referred to as the issuing bank, on behalf of their customer, the importer, promising to pay the agreed amount of money to the exporter upon receipt by the bank of certain documents within a specified time. However, banks deal only with the documents and not the actual goods. Therefore, the decision to pay under a LOC is based entirely upon whether the documents presented to the bank comply with the original LOC terms and conditions. The International Chamber of Commerce (ICC) publishes a list of internationally agreed-upon rules, definitions, and practices, called "Uniform Customs and Practice for Documentary Credits" (UPC), which governs all Letters of Credit.

A LOC may be revocable, irrevocable, confirmed, or unconfirmed. A Revocable LOC can be revoked without the consent of the exporter and is rarely used. An Irrevocable LOC cannot be cancelled or amended without the consent of all parties, and, unless otherwise stipulated, all Letters of Credit are irrevocable. For a Confirmed LOC, a bank, referred to as the confirming bank, adds its commitment to that of the issuing bank to pay the exporter, provided all the terms of the LOC are met. Often, the confirming bank is in the same country as the exporter. A Confirmed LOC is often requested if the exporter does not trust the financial strength of the issuing bank or if the country of the issuing bank is considered to carry a higher than comfortable risk level. An Unconfirmed LOC does not have the commitment of a second, or confirming bank; only the issuing bank.

Therefore, once an exporter and importer agree to a purchase and sales agreement, the importer will apply for and, once granted, present a LOC to the exporter. The exporter will review the LOC upon receipt to ensure that it corresponds to the terms and conditions in the purchase and sales agreement, that the documents required for payment can be produced, and that the terms and conditions of the LOC can be fulfilled. If the exporter finds the LOC to be satisfactory, arrangements for the shipment of goods are made. After shipment, the exporter presents the documents specified by the LOC to an advising bank (often the bank of the exporter and also the confirming bank, if a Confirmed LOC is used). The advising bank is then responsible for making sure the

documents do indeed comply with the LOC. If the documents comply, the advising bank will forward them to the issuing bank. The issuing bank will then examine the documents, and once found to be in compliance with the original LOC, the issuing bank will obtain payment from the importer. The payment will then be made from the issuing bank to the advising bank, which will in turn, supply the payment to the exporter.

While Letters of Credit are somewhat high risk for the importer, as they only ensure correct documentation versus correct goods, they are of fairly low risk for the exporter. The main drawback for the exporter exists in the potential for discrepancies in the documents provided and the documents required. If this were to occur, the buyer has substantial power over the seller due to their ability to then reject or renegotiate the trade. This creates the potential for the seller to receive a discounted price for their goods or to have to pay to have the goods returned or shipped elsewhere to a new buyer. Advantages and disadvantages to both the importer and exporter can be seen in Exhibit 7.4.4.2.1. Exhibit 7.4.4.2.2 and 7.4.4.2.3 display a checklist for reviewing letters of credit and a list of common discrepancies which can lead to nonpayment, respectively.

Exhibit 7.4.4.2.1 Letters of Credit Analysis

	Importer	Exporter
Advantages	• Importer is assured that, for the Exporter to be paid, all terms and conditions of the Letter of Credit must be met. • Ability to negotiate more favorable trade terms with the Exporter when payment by Letter of Credit is offered.	• An undertaking from the Issuing Bank that you will receive payment under the Letter of Credit provided that you meet all terms and conditions of the Letter of Credit. • Not obligated to ship against a Letter of Credit that is not issued as agreed. • Shifts credit risk from the Importer to the Issuing bank.
Disadvantages	• A Letter of Credit assures correct documents but not necessarily correct goods. • Ties up line of credit.	• Documents must be prepared in strict compliance with the requirements stipulated in the Letter of Credit. Non-compliance leaves Exporter exposed to risk of non-payment.

Source: The TD Bank Crash Course in International Trade

Exhibit 7.4.4.2.2 Reviewing a Letter of Credit

Exporter's Checklist for Reviewing a Letter of Credit

- ☐ Ask for a sample letter of credit to review.
- ☐ Has the credit been confirmed, if requested?
- ☐ Is the type of credit (revolving, transferable, ect.) as agreed?
- ☐ Is the amount of the credit sufficient to cover all cost permitted by the terms of the contract? Are the Incoterms correct? Have the terms "about" or "approximately" been included?
- ☐ Is the credit available with your bank, freely negotiable, or available with any bank, or is it restricted to the issuing bank or any other designated bank?
- ☐ Are the descriptions of the goods and unit prices, if any, in accordance with the sale contract? Have the terms "about" or "approximately" been included, if requested?
- ☐ Are the transshipment and partial shipments allowed, if necessary?
- ☐ Are the points of dispatch/taking in charge/loading on the board of the goods, as the case may be, and of discharge/final destination as agreed?
- ☐ Do the shipping and expiry dates allow sufficient time for processing the order, shipment, and presenting the documents to the bank? Does the period for presentation of documents after issuance of the transport document also allow sufficient time?
- ☐ Are the provisions for insurance in accordance with Incoterms?
- ☐ Can the necessary documents be obtained in the form required and in the time frame allowed by the credit?
- ☐ Have any unacceptable conditions been added to the credit without your approval such as an inspection certificate to be provided by the buyer?

Source: A Guide to Exporting Solid Wood Products, USDA 2006

Exhibit 7.4.4.2.3 Common Discrepancies Leading to Nonpayment

Letter of Credit: Common Discrepancies which can lead to Nonpayment	
General	• Documents inconsistent with each other • Description of goods on invoice differs from that in the credit • Marks and numbers differ between the documents • Absence of documents called for in the credit • Incorrect names and addresses
Draft (Bill of Exchange)	• Amount does not match invoice • Drawn on wrong party • Not endorsed correctly • Drawn payable on an indeterminable date
Transport Documents	• Shipment made between ports other than those stated in the letter of credit • Signature on bill of lading does not specify on whose behalf it was signed • Required number of originals not presented • Bill of lading does not evidence whether freight is prepaid or collect • No evidence of goods actually "shipped on board" • Bill of lading incorrectly consigned • "To order" bills of lading not endorsed
Insurance	• Insurance document presented of a type other than that required by the credit • Shipment is under insured • Insurance not effective for the date in the transport documents • Insurance policy incorrectly endorsed
Deadlines	• Late shipment • Late presentation of documents • Credit expired

Source: A Guide to Exporting Solid Wood Products, USDA 2006

7.4.4.3 Documentary Collection

Documentary Collection is a method of payment used in international trade whereby the exporter entrusts the handling of commercial and financial documents to banks, giving the banks instructions concerning the release of these documents to the importer. The collection instructions provide complete and precise instructions to the banks including the following:

- Contact points for seller and buyer
- Their respective banks
- Amounts and currencies to be collected
- A list of documents enclosed
- The terms and conditions upon which payment or acceptance is to be obtained
- Charges to be collected
- Interest to be collected (if applicable)
- The method of payment
- Instructions in case of nonpayment

The banks involved do not provide any guarantee of payment. Collections are subject to the Uniform Rules for Collections published by the International Chamber of Commerce (The last revision of these rules came into effect on January 1, 1996 and is referred to as the URC 522).

Documentary collection carries the risk that the buyer will walk away from the sale due to being unable to pay for the goods, the market price dropping, or the inability to sell the goods locally. Since the banks provide no guarantee of payment, if this occurs, it is the seller's responsibility and burden to locate a new buyer or pay to return the shipment. Exhibit 7.4.4.3.1 discusses the advantages and disadvantages of documentary collection.

Exhibit 7.4.4.3.1 Documentary Collection Analysis

	Importer	Exporter
Advantages	• Ability to examine documents before authorizing payment. • Ability to negotiate more favorable trade terms with the Exporter when payment by Letter of Credit is offered. • Will receive goods before having to make payment.	• Documents are not released to the Importer until payment has been effected. • Less costly than a Letter of Credit. • May provide formal/legal means to collect unpaid obligation.
Disadvantages	• In the case that transport documents carry title, cannot access goods until payment has been made. • Dishonoring an accepted draft is a legal liability and may ruin business reputation.	• Risk of refusal of payment. • Risk of non-acceptance of documents. • Legal enforcement of unpaid obligation costly and time-consuming. • Commercial and country risks not hedged. • Although bill of exchange/draft is accepted by the Importer, there is no guarantee of payment by the banks involved.

Source: The TD Bank Crash Course in International Trade

Documentary collections are best considered when shipping by ocean freight, because the ocean bill of lading (B/L) is a negotiable document and acts as title to the goods. The steamship company will not release the shipment from the port unless the buyer has the original B/L, which cannot be obtained unless they have agreed to pay the bank. However, in the case of air shipments, the B/L is not a negotiable document, does not act as a title to the goods, and the benefit of using documentary collection can be lost.

7.4.4.4 Open Account

Under an open account transaction, the seller agrees to provide the goods to the buyer, who agrees to make payment by a specified future date. Payment by the buyer is typically made via wire transfer or check. Open account is a high-risk method of payment for the seller. The seller must be confident that the buyer is well established, has a long and favorable payment record, has good credit, and is able to convert currency into U.S. dollars. Collection on delinquent payments under open account may be difficult and costly if the obligation of the buyer to pay the seller is not well documented. Even when well documented, collection on the delinquent open account sales usually requires legal action in the buyer's country.

7.4.5 Environmental, Regulatory, and Infrastructure Requirements

The development of a successful export strategy must encompass a thorough knowledge of shipping procedures and documents required. The mechanics of shipping include:

- Attention to packaging, including banding of bundles, grade stamping, labeling, and color coding
- Proper documentation
- Scheduling the best shipping routes and carriers
- An understanding of the U.S. and foreign customs, regulations, tariff rates, and plant health or phytosanitary requirements

However, the details of shipping are often handled by a freight forwarder, who acts as an exporter's agent when shipping goods overseas. Freight forwarders are licensed by the Federal Maritime Administration to facilitate the movement of goods from U.S. ports. They often advise the exporter regarding freight costs, port charges, consular fees, documentation fees, insurance, and handling costs. They are also responsible for assuring that the products arrive overseas in acceptable condition, reviewing the letter of credit and other necessary documentation, and may prepare the ocean bill of landing. After shipment, the forwarder will also send all documents to the paying bank to confirm the export of the commodity. Documents required for exporting can be seen in Exhibit 7.4.5.1. Shipping practices are further outlined in the logistics section of this feasibility study (Section 7.4.6).

Exhibit 7.4.5.1 Shipping Documents Required for Exporting

Documentation	Prepared by
Export License - issued upon application to the U.S. Department of Commerce. Currently no export license is required for exporting solid wood products with the exception of Western red cedar.	Exporter
Destination Control Statement - for compiling U.S. statistics/enforcing U.S. export controls	Freight Forwarder
Banking Papers	Freight Forwarder
Letter of Transmittal - for items eligible for duty drawback	Freight Forwarder
Notice of Exportation - for items eligible for duty drawback	Freight Forwarder
Certificated of Origin - for items eligible for duty drawback	Freight Forwarder
Export Packaging List - itemizes products shipped	Freight Forwarder
Domestic Packaging List - itemizes products shipped	Exporter
Insurance Certificate	Freight Forwarder
Pro Forma Invoice - a formal price quotation with a detailed account of individual cost	Exporter
Letter of Credit – a promise to pay a specific amount of money upon receipt by the bank at the buyer's request in favor of the seller	Importer
Bill of Lading – a detailed description of the cargo including destinations. Two types are necessary, an inland and an ocean bill of lading	Freight Forwarder
Phytosanitary Certificate – a certificate stating that the goods are free of disease and infestation	APHIS

Source: A Guide to Exporting Solid Wood Products, USDA 2006

7.4.5.1 Exporting Checklist (Using a Confirmed Letter of Credit)

The checklist in Exhibit 7.4.5.1.1 is a general guide outlining the steps involved in completing an export shipment under a confirmed letter of credit (LOC). The actual procedure will vary according to the bank's financing arrangements and the services provided by the freight forwarders and steamship companies. The price basis and the terms of sale agreed upon between the exporter and importer will also affect the necessary documentation and procedures followed in exporting. A company exporting will want to make sure of all documentation required for that specific transaction via their freight forwarder as well.

Exhibit 7.4.5.1.1 Generalized Exporting Checklist

Exporting Checklist

- ☐ U.S. exporter and foreign importer agree on the terms of the sale.
- ☐ Importer applies for a letter of credit (LOC) at the foreign bank.
- ☐ Foreign bank issues the LOC to the exporter's bank.
- ☐ Importer sends a purchase order accompanied by a copy of the LOC to the exporter.
- ☐ Exporter prepares the order for the shipment, arranges for inland transportation of the shipment to the port, and issues shipping instructions to a freight forwarder.
- ☐ Exporter's freight forwarder selects a suitable vessel, contacts the outbound steamship line office, and books space on a particular vessel. The freight forwarder also collects or prepares the exporting documents, including the inland bill of lading, ocean bill of lading (B/L), and insurance and phytosanitary certificates. (The exporter may arrange for marine insurance through a private insurance company.)
- ☐ Freight forwarder pays the bills due from the outbound steamship line and transmits to the exporter the original ocean bill of lading, together with the bill of covering the inland freight, the stevedoring costs, and the freight forwarders services.
- ☐ Exporter prepares a "commercial set" – a negotiable bill of lading, a copy of the LOC, an invoice, a bill for the freight forwarders charges, insurance certificate, and, if necessary, a customs invoice. The exporter then sends it to the exporter's bank.
- ☐ Upon receipt and acceptance of the commercial set, the bank pays the exporter covering the shipper's invoice in accordance with the LOC issued by the importer's bank. The bank transmits the commercial set and a debit notice to the importer's bank for payment.
- ☐ The exporter of freight forwarder sends a non-negotiable copy of the bill of lading to the importer notifying that the cargo has been shipped.
- ☐ After the vessel has sailed, the outbound steamship line's office sends the manifest to the inbound steamship office, together with non-negotiable copies of the bills of lading, arrival notice delivery receipt, and container list.
- ☐ Outbound steamship office submits to the U.S. Customs one non-negotiable copy of ocean bill of lading with the shipper's export declaration. This must be accomplished within 4 working days of the vessel's clearance from the U.S. port.
- ☐ Depending on the terms of the sale and financing arrangements, the exporter may be liable for the shipment after the vessel has sailed. Check with the bank, freight forwarder, and insurance company to determine your rights, responsibilities, and liabilities, as well as the proper procedures to follow in completing the export sale.

Source: A Guide to Exporting Solid Wood Products, USDA 2006

7.4.6 Logistics of Exporting Wood Products from South Missouri

Exporting wood products from south Missouri to Asia will involve trucking and rail to domestic ports and ocean carrier shipping to export markets. Freight forwarders, licensed by the Federal Maritime Administration, may be hired to handle the details of export shipping and advise on freight costs, port charges, consular fees, documentation fees, insurance, and handling costs. In addition to assuring that the goods arrive overseas in good condition, freight forwarders review letters of credit and other necessary documentation and prepare the ocean bill of lading. After shipment, the freight forwarder will send all documents to the paying bank to confirm the export of the commodity.

According to the USDA's 2006 *Guide to Exporting Solid Wood Products*, wood products are shipped overseas using a variety of methods such as break bulk, containers, flat racks, and lash barge, but the most common methods are break bulk for lower valued shipments and containers for higher valued shipments.

Wood products producers in south Missouri may reach Asian export markets through freight forwarders in either St. Louis or Kansas City. Inclusive ramp-to-port shipping quotes for 40 foot containers from these locations to several Asian destinations are shown in Exhibit 7.4.6.1. Note that the quotes, as well as the time in transit, for shipping from either St. Louis or Kansas City are the same. Hence, the relative costs of trucking to either location determine the lowest cost route.

Exhibit 7.4.6.1 Ramp-to-Port Shipping Quotes for 40 foot Containers

Origin City	Destination City	Ocean Freight	Handling	AES Filing	TOTAL	Transit (Days)
St Louis, MO	Keelung, Taiwan	$2,050	$85	$15	**$2,150**	23-28
	Kaosiung, Taiwan	$2,050	$85	$15	**$2,150**	24-29
	Yantien, China	$2,025	$85	$15	**$2,125**	25-30
	Dalian, China	$1,990	$85	$15	**$2,090**	25-30
	Ningbo, China	$1,990	$85	$15	**$2,090**	28-32
	Singapore, Singapore	$2,500	$85	$15	**$2,600**	47-52
	Kelang, Malaysia	$2,600	$85	$15	**$2,700**	30-35
	Manila, Philippines	$2,500	$85	$15	**$2,600**	29-34
Kansas City, MO	Keelung, Taiwan	$2,050	$85	$15	**$2,150**	23-28
	Kaosiung, Taiwan	$2,050	$85	$15	**$2,150**	24-29
	Yantien, China	$2,025	$85	$15	**$2,125**	25-30
	Dalian, China	$1,990	$85	$15	**$2,090**	25-30
	Ningbo, China	$1,990	$85	$15	**$2,090**	28-32
	Singapore, Singapore	$2,500	$85	$15	**$2,600**	47-52
	Kelang, Malaysia	$2,650	$85	$15	**$2,750**	30-35
	Manila, Philippines	$2,500	$85	$15	**$2,600**	29-34

Source: Missouri Department of Agriculture. Rates quoted for February 24, 2009.

As an example, and given China's importance as an importer of U.S. wood products, consider the case of exporting wood products from an arbitrarily chosen central location in southern Missouri, Salem, to one of China's major ports, Ningbo (Exhibit 7.4.6.2). This exporting example requires trucking from Salem, Missouri to either St. Louis or Kansas City, distances of about 125 miles and 248 miles respectively. Using trucking rates reported in Exhibit 7.4.6.3 and the shipping rates shown in 7.4.6.1, the total costs of exporting 40 foot containers of 4/4 FAS and 4/4 1C red oak to Ningbo, China can be computed (Exhibits 7.4.6.4 and 7.4.6.5).

Exhibit 7.4.6.2 Ports in China

Exhibit 7.4.6.3 Truck Rates and Availability

Report Date	Quarter	Truck rates per mile[1] 25 Miles	100 Miles	200 Miles	Quarterly Truck Industry Ratings Truck Availability[2]	Truck Activity[3]	Future Truck Activity[3]
6/8/2006	1st	3.6	2.35	1.9	2.5	2.8	3.1
9/21/2006	2nd	4.57	2.29	1.69	2.9	3.5	3.7
12/14/2006	3rd	4.31	2.53	2.14	2.8	2.9	3.3
8/13/2007	2nd	3.95	2.41	2.05	2.8	2.9	3.2
3/1/2007	4th	4.84	2.56	2.52	2.4	3.1	3.2
5/30/2008	1st	4.96	3.02	3.24	2.8	2.7	2.9
9/18/2008	2nd	4.64	3.09	3.13	3.2	3	3.2
2/5/2008	3rd	4.24	2.55	2.4	3	2.9	3.4
2/14/2008	4th	4.85	2.56	2.17	2.5	3.6	2.6

[1] National rates are based on trucks with 80,000 lb gross vehicle weight limit.
[2] Quarterly rating from 1 = Very easy to 5 = Very difficult.
[3] Quarterly rating from 1 = Much lower to 5 = Much higher.
Source: USDA AMS Grain Transportation Reports. Online, available at: http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateA&navID=AgriculturalTransportation&leftNav=AgriculturalTransportation&page=ATGrainTransportationReport&description=Grain%20Transportation%20Report%20(GTR).

While containers may hold between 10,000 to 14,000 board feet of lumber, depending on the product, its moisture content, and container size, laws established to protect U.S. roads and bridges limit 40 foot containers to 46,000 pounds. Our estimates conservatively assume 40,000 pounds of product per 40 foot container. Obviously, the moisture content of the wood limits the volume that may be held in a container, and thereby, kiln drying lumber yields advantages in transportation costs.

Under the scenario that the wood producer group's collection facility is located in Salem, Missouri, shipping through St. Louis is relatively cheaper than through Kansas City. However, this result may not hold if the lumber is originated in another location in southern Missouri. Furthermore, the existence of surplus containers at warehousing facilities for Wal-mart near Kansas City may allow the producer group to realize cheaper container rates out of Kansas City than assumed in these examples.

Exhibit 7.4.6.4 Costs of Exporting 4/4 FAS Red Oak from Missouri to China

40ft Container of 4/4 FAS Red Oak	Green	8% Moisture
(A) 1,000 bf /container	6.90	11.27
(B) Price / 1,000 bf	$750.00	$1,050.00
(C) Cost / container (A x B)	$5,172.41	$11,830.99
(D) ***Trucking costs per container from Salem to:***		
St. Louis (125 miles @ $2.56/mile)	$320.00	$320.00
Kansas City (248 miles @ $2.56/mile)	$538.16	$538.16
Shipping costs per container from St Louis to Ningbo, China		
Ocean Freight	$1,990.00	$1,990.00
Handling	$85.00	$85.00
AES Filing	$15.00	$15.00
(E) Total	$2,090.00	$2,090.00
Total export costs into China per 1,000 bf ((C + D + E)/A)		
From St. Louis	$1,099.45	$1,263.89
From Kansas City	$1,131.08	$1,283.25

Exhibit 7.4.6.5 Costs of Exporting 4/4 1C Red Oak from Missouri to China

40ft Container of 4/4 1C Red Oak	Green	8% Moisture
(A) 1,000 bf /container	6.90	11.27
(B) Price / 1,000 bf	$540.00	$785.00
(C) Cost / container (A x B)	$3,724.14	$8,845.07
(D) ***Trucking costs per container from Salem to:***		
St. Louis (125 miles @ $2.56/mile)	$320.00	$320.00
Kansas City (248 miles @ $2.56/mile)	$538.16	$538.16
Shipping costs per container from St Louis to Ningbo, China		
Ocean Freight	$1,990.00	$1,990.00
Handling	$85.00	$85.00
AES Filing	$15.00	$15.00
(E) Total	$2,090.00	$2,090.00
Total export costs into China per 1,000 bf ((C + D + E)/A)		
From St. Louis	$889.45	$998.89
From Kansas City	$921.08	$1,018.25

7.4.7 Specific Labeling Requirements

As discussed in the section on certified wood products, the certification requirements are often cost-prohibitive for smaller operations, leading to the development of own certification and certification-like mechanisms. Of course, exporters and other marketing channel participants must consider which certification programs carry the most weight in the country of destination for final consumer products. In general, global programs, such as Forest Stewardship Council (FSC) and International Organization for Standardization (IOS), will have the broadest recognition. For example, FSC offers Forest Management Certification for forest or plantation areas and Chain of Custody certification to track the product through the supply chain to retail stores. Criteria that must be met for FSC certification are listed in Exhibit 7.4.7.1.

Exhibit 7.4.7.1 Requirements for Forest Stewardship Council Certification Labeling

***Principle* 1.**	Compliance with all applicable laws and international treaties
***Principle* 2.**	Demonstrated and uncontested, clearly defined, long–term land tenure and use rights
***Principle* 3.**	Recognition and respect of indigenous peoples' rights
***Principle* 4.**	Maintenance or enhancement of long-term social and economic well-being of forest workers and local communities and respect of worker's rights in compliance with International Labour Organisation (ILO) conventions
***Principle* 5.**	Equitable use and sharing of benefits derived from the forest
***Principle* 6.**	Reduction of environmental impact of logging activities and maintenance of the ecological functions and integrity of the forest
***Principle* 7.**	Appropriate and continuously updated management plan
***Principle* 8.**	Appropriate monitoring and assessment activities to assess the condition of the forest, management activities and their social and environmental impacts
***Principle* 9.**	Maintenance of High Conservation Value Forests (HCVFs) defined as environmental and social values that are considered to be of outstanding significance or critical importance
***Principle* 10.**	In addition to compliance with all of the above, plantations must contribute to reduce the pressures on and promote the restoration and conservation of natural forests

Source: Forest Stewardship Council at http://www.fsc.org/fsc-rules.html

Due to shortages in the availability of FSC certifiable material, the FSC allows for the mixing of certified and non-certified lumber through FSC Controlled Wood standards, where the non-certified portion must avoid unacceptable timber of the five origins listed in Exhibit 7.4.7.2.

Exhibit 7.4.7.2 Requirements for FSC Controlled Wood Standards Labeling

1. Illegally harvested wood
2. Wood harvested in violation of traditional and civil rights
3. Wood harvested in forests in which High Conservation Values (areas particularly worth of protection) are threatened through management activities
4. Wood harvested from conversion of natural forests
5. Wood harvested from areas where genetically modified trees are planted

Source: Forest Stewardship Council at http://www.fsc.org/fsc-rules.html

Exhibit 7.4.7.3 compares the accreditation process for the FSC with the Sustainable Forestry Initiative and the Canadian Standards Association. Further information on these and other certified labels is available online at the Forest Certification Resource Center at http://www.metafore.org/index.php?p=International_Organization_for_Standardization&s=166.

Exhibit 7.4.7.3 Comparing Accreditation Processes

SYSTEM	APPLICATION PROCESS	EVALUATION AND REPORTING	DECISION-MAKING	SURVEILLANCE AND RENEWAL
Forest Stewardship Council	Yes. A review team assesses an application that addresses its procedures, standards, and certifications or evaluations that have been completed.	The team conducts an office audit and audits organizations that have already been evaluated by the applicant.	A separate unit makes the final decision based on the evaluation and absence of non-compliance issues to accreditation criteria.	Certification organizations are regularly monitored and required to be re-accredited every five years.
Sustainable Forestry Initiative®	Yes. Applicants are required to submit an application that outlines its technical capacity, auditing system and auditing experience.	A review team conducts an office audit and reviews an audit based on the ISO 14001 standard, which is the creation of an environmental management system.	A separate unit makes the final decision based on the evaluation and absence of non-compliance issues to accreditation criteria.	Certification organizations are assessed annually and required to be re-accredited every three years.
Canadian Standards Association	Yes. Potential certification organizations submit an application that addresses aspects of independent auditing and certification in accordance with national and ISO requirements.	A designated task group reviews the application and an actual Sustainable Forest Management audit is conducted by the applicant. The task group prepares a profile outlining its findings.	A committee makes the final accreditation decision based on the evaluation of the applicant's compliance to accreditation criteria.	Certification organizations are monitored annually and required to be re-accredited every five years.

Source: "Matching Busines Values with Forest Certification Systems"
http://www.metafore.org/downloads/certification_eval_final8104.pdf

8. Competitiveness Assessment

8.1 Economies of Scale

Due to its small size, the firm has the potential to fill a niche for the relatively small international processors that prefer to avoid making large orders.

8.2 State Financial Incentives

Business and Industry Guarantee Loan Program
http://www.gpers.com/open/usdabi.html

The Business and Industry (B&l) Guarantee Loan Program helps create jobs and stimulates rural economies by providing financial backing for rural businesses. This program guarantees up to 80 percent of a loan made by a commercial lender. Loan proceeds may be used for working capital, machinery and equipment, buildings and real estate, and certain types of debt refinancing. The primary purpose is to create and maintain employment and improve the economic climate in rural communities. This is achieved by expanding the lending capability of private lenders in rural areas, helping them make and service quality loans that provide lasting community benefits. This program represents a true private-public partnership.

New Generation Cooperative Incentive Tax Credits
http://www.mda.mo.gov/masbda/taxcredits.htm

The Missouri Agricultural and Small Business Development Authority provides New Generation Cooperative Incentive Tax Credits to induce producer member investment into new generation processing entities that will process Missouri agricultural commodities and agricultural products into value-added goods, provide substantial benefits to Missouri's agricultural producers, and create jobs for Missourians.

Big Missouri
http://www.mda.mo.gov/masbda/linkdepositpgm.htm
The Missouri State Treasurer's Office administers the BIG MISSOURI Linked Deposit Program, one of the nation's most utilized low interest loan programs. In order to promote Missouri's economic growth and development, below-market rate deposits of state funds are placed in Missouri financial institutions, allowing eligible borrowers to obtain low interest loans from that institution. The borrower typically saves 25-30% of the interest paid on a standard business loan.

8.3 Equity Requirements

The member-owners will be responsible for $398,100 in equity investments. As outlined in Section 10 on the financials, this investment pertains to the costs of facilities

and equipment, including kilns, forklifts, a semi-truck, and storage facilities. A matrix of possible share prices and associated delivery requirements is discussed in Section 3.

8.4 Transportation Cost and Infrastructure

Transportation costs for Shanghai, China can be seen in Exhibit 8.4.1. The ocean freight cost for each international destination will vary from the amount shown here, depending on the final location of the port. The rest of the transportation costs will remain the same or very close to the same.

Exhibit 8.4.1 Transportation Costs per Container

Shipping costs per container from Vienna, MO to:	
St. Louis, MO	$404.70
Shipping costs per container from St Louis to Shanghai, China	
Ocean Freight	$1,459.00
Other Charges (Excluding Insurance)	$160.00
Insurance (Based on $20,000 invoice value)	$59.40
AES Filing	$15.00
Subtotal	$1,693.40
Total	**$2,098.10**

Exhibit 8.4.2 displays the cost of ocean freight to various destinations in Asia.

Exhibit 8.4.2 Ocean Freight Costs

Port	Cost
Ho Chi Minh	$ 1,653
Kaohsiung, Taiwan	$ 1,848
Keelung Taiwan	$ 1,848
Taichung, Taiwan	$ 2,128
Shanghai, China	$ 1,459
Yantian, China	$ 1,589

Quotes as of July 23, 2009

9. Management Summary

The management of the cooperative would be comprised of an on-site manager, the cooperative board, and member-investors. The manager would be responsible for making the day to day business decisions. He/she would also have the duties of implementing strategic planning and communicating with the membership. The role of the board would include helping to structure a strategic plan and overseeing the manager. The member-investors would be responsible for investing in the company, delivery the contracted quantity of product, and voting on the strategic plan for the cooperative.

9.1 Organizational Structure

The management of the cooperative would be comprised of an on-site manager, the cooperative board, and member-investors. The manager would be responsible for making the day to day business decisions. He/she would also have the duties of implementing strategic planning and communicating with the membership. The role of the board would include helping to structure a strategic plan and overseeing the manager. The member-investors would be responsible for investing in the company, delivery the contracted quantity of product, and voting on the strategic plan for the cooperative.

A description of alternative organizational structures can be found in Section 3.

9.2 Personnel Requirements

The on-site manager will run the kiln operation. In addition to this, one full time hourly employee will be required to help run the kiln operation, as well as to act as the company's tractor trailer driver. Because of this, the employee will need to have their commercial driver's license. One part-time employee will be needed to take care of administrative and clerical duties such as billing, correspondence, etc. (i.e. office staff).

10. Financial Plan

10.1 Estimated Capital Expenditures

Exhibit 10.1.1 displays the estimated capital expenditures. The financial projects were prepared under the assumption that the capital expenditures would be financed by 60% equity and 40% long and short term loans. Capital expenses will be $413,500. This amount includes two kilns—each capable of drying 360,000 bf of red oak annually from green to seven percent moisture—and chambers. The kilns have a capacity of 30,000 bf and it is estimated to take 28 days to dry red oak to seven percent moisture. The equipment expense includes one used day cab semi truck ($12,000), a used flat bed trailer ($6,000), a used heavy duty telescoping fork lift ($25,000) and a $15,000 allowance for small equipment and machines such as saws and planers. Other capital expenses include one shed for air drying, dry storage and a load out dock, an office space, land, and concrete.

Two hundred forty-eight thousand one hundred dollars will be sourced by equity investments, and the remaining $165,400 will be financed by long term debt taken out by the firm. While the details of this loan will ultimately have to be agreed upon by the financing institution and the firm, loan terms were assumed to be seven percent interest rate and a repayment schedule of monthly payments over seven years. A six month construction period was assumed. During that period, interest was capitalized, and the first payment is made by the firm in August 2010.

Operating capital in the amount of $250,000 will be necessary. This amount will also be financed by a 60/40 split between equity and liabilities. An initial investment by member-owners of $150,000 will be paired with a short term line of credit taken out by the firm in the amount of $100,000. As with the long term financing, the terms will have to be agreed upon by the firm and financing institution. For these projections, an 8.5% interest rate was used.

Total initial member-owner investment in capital costs and operating capital will be $398,100, leaving the firm to finance $265,400 in a combination of long and short term loans.

Exhibit 10.1.1 Estimated Capital Expenditures

Capital Expenditure ***(Includes Labor/Construction Costs)***	**Amount**
Air Drying Shed--27x28x18	$ 6,000
Kiln--Nyle L1200S (360,000 BF/Year) x2	$ 250,000
Dry Storage/Loading Dock	$ 36,000
Office	$ 25,000
Land (Purchase and Preparation)	$ 17,500
Concrete (Floors of all Buildings)	$ 21,000
Equipment	$ 58,000
Operating Capital	$ 250,000
Total Capitalization Expense	**$ 663,500**

10.2 Important Assumptions

The financial projects begin in January of 2010. However, a six month construction phase is assumed and operation does not begin until July 2010. As the kilns require 28 days to dry the red oak, the first loads will not be ready to ship until August 2010. Green inventory will be purchased one month in advance, making the first inventory purchase in June 2010, not to be dried until July of 2010. Accounts payable are assumed to pay 70% within 30 days and the remaining 30% between 31 and 60 days. Due to the nature of exporting, international sales take longer to finalize, and payment is often not rendered until the shipment is inspected and approved. In order to account for this in the financials, accounts receivable are assumed to collect 80% between days 31 and 60, with the remaining 20% being collected between 61 and 90 days.

On the production side, a five percent loss is assumed due to drying the oak. While 720,000 bf of green red oak will be purchased annually, only 684,000 bf of dried red oak will be sold. Countries that are likely to import the firm's product will mostly be interested in FAS grade red oak. While there may be potential for lower grades, it is assumed that only FAS grade red oak is handled by the firm. The total amount sold will be split equally between the various sizes (4/4, 5/4, 6/4, and 8/4) depending on the buyer's needs.

Exhibit 10.2.1 displays the price projections for both green and kiln dried Appalachian Red Oak through the year 2015. All prices are in dollars per 1,000 board feet. The green price was used in the financial projections as the purchasing price. The kiln dried price was used for the selling price in the projections. The selling priced used in the financials is a domestic price. Due to the varying nature of international buyers, a risk premium would need to be added to that price that would account for the shipment's final destination (if selling internationally). Ultimately, this will be decided upon by the firm and the buyer. A discussion on the risk premium can be found in Section 10.6 of this report

Exhibit 10.2.1 Price Projections for Appalachian Red Oak—Green and Kiln Dried

Grade	2009	2010	2011	2012	2013	2014	2015
			Appalachian Red Oak - Green Price/1000 bf				
4/4 FAS	$ 695	$ 812	$ 896	$ 957	$1,000	$1,026	$1,040
5/4 FAS	$ 825	$ 942	$1,026	$1,087	$1,130	$1,156	$1,170
6/4 FAS	$ 880	$ 997	$1,081	$1,142	$1,185	$1,211	$1,225
8/4 FAS	$ 895	$1,012	$1,096	$1,157	$1,200	$1,226	$1,240
			Appalachian Red Oak - Kiln Dried[1] Price/1000 bf				
4/4 FAS	$ 980	$1,097	$1,181	$1,242	$1,285	$1,311	$1,325
5/4 FAS	$1,218	$1,334	$1,419	$1,480	$1,522	$1,549	$1,563
6/4 FAS	$1,582	$1,698	$1,783	$1,844	$1,886	$1,913	$1,926
8/4 FAS	$1,723	$1,839	$1,924	$1,985	$2,027	$2,054	$2,067

[1] Lengths on kiln dried wood were measured prior to drying
Source: Historical price data was collected from the Hardwood Market Report—www.hmr.com

Exhibit 10.2.2 displays the personnel assumptions used to complete the pro forma financial projections. An annual inflation rate of three percent was used for all expenses, including personnel. Payroll tax and benefits that are the responsibility of the firm are assumed to be a rate of 30% of the annual salary. This rate was used for the manager and the full time hourly kiln facility employee. The hourly office employee is part time (20 hours per week) and will not receive any benefits. Therefore only a payroll tax of ten percent of the annual wage was used for the financials. The amount shown in the exhibit includes both the annual salary and tax/benefits amount.

Exhibit 10.2.2 Personnel Assumptions

Position	2010	2011	2012
	Annual Salary Expense (Including Benefits)		
Manager (x1)	$50,882	$52,408	$53,981
Hourly Employee--Kiln Facility (x1)	$25,066	$25,818	$26,593
Hourly Employee--Office Staff (x1)	$8,034	$8,275	$8,523
Total Annual Salary Expense	**$83,982**	**$86,502**	**$89,097**

Exhibit 10.2.3 lists the annual operating expenses. It was estimated that each kiln used 13,500 kWh per load (every 28 days). An additional 1,500 kWh of electricity was assumed to be used for operations (office, sheds, etc.) monthly. Total monthly electricity usage is 28,500 kWh. A price per kilowatt hour of $0.06 was used in the financial projections. However, in comparison with historical rates for that area, it is likely that the firm could negotiate with the electric company for a price closer to $0.04/kWh. Water usage is small, as it will not be needed for the production of the

dried red oak. The annual repairs and maintenance expense is estimated to be one percent of the initial capital costs of the two kilns and chambers.

Exhibit 10.2.3 Annual Operating Expenses

Operating Expense	2010 Annual Expense Amount	2011	2012
Electricity	$21,136	$21,770	$22,423
Water	$618	$637	$656
Repairs/Maintenance	$2,575	$2,652	$2,732
Total Operating Expense	**$24,329**	**$25,058**	**$25,810**

Exhibit 10.2.4 lists the annual administrative and marketing expenses. The annual insurance expense is estimated to be five percent of the total initial investment ($663,500). As some product will be sold domestically, a small domestic marketing expense of approximately $3,000 is assumed annually. A broker will be used for international sales. A broker fee of seven percent was used. International sales were assumed to be 40% of the product sales, eventually becoming 60% of the product sales by the end of 2012. As mentioned previously, an annual inflation rate of three percent is applied to all expenses.

Exhibit 10.2.4 Annual Administrative and Marketing Expenses

Expense	2010 Annual Expense Amount	2011	2012
Office Supplies	$927	$955	$983
Computers	$500	$515	$1,000
Misc	$618	$637	$656
Insurance	$33,175	$34,170	$35,195
Domestic Marketing	$3,090	$3,183	$3,278
Brokerage Fee (International Sales Only)	$12,322	$35,743	$43,715
Total Administrative Expense	**$50,632**	**$75,202**	**$84,827**

10.3 Projected Income Statements

The annual income statements for years 2010-2012 can be seen in Exhibit 10.3.1. The income statements reflect constant quantities of 4/4, 5/4, 6/4, and 8/4 FAS Red Oak being sold over the period. The small upward trend in dollar value of sales reflects a slight uptrend in the assumed selling prices of these outputs. The cost of sales over the projection period also trends upward, reflecting an uptrend in assumed green Red Oak prices and the annual inflation rate of three percent assumed for all other costs.

Gross margin is calculated by subtracting the direct costs associated with procuring and drying the green Red Oak from the amount received at the time of sale for the dried, FAS Red Oak. Gross margin tells a firm if the buy sell relationship is strong enough to be able to pay for operation of the firm, not just the production of the product. From gross margin, overhead (operating) expenses are subtracted to leave income from operations. The following provides an explanation of the assumed direct costs and overhead expenses. The associated cost assumptions can be found in the previous section of this report. An annual inflation rate of three percent is applied to wages and all expenses.

Direct costs include materials/packaging/goods, direct labor, and other direct costs. Materials/packaging/goods is made up of the cost for purchasing green Red Oak. Direct labor is the expense associated with the wages, benefits, and taxes for the one kiln hourly employee. Other direct costs are comprised of the plant expenses associated with electricity, water, brokerage fees, and maintenance/repairs.

Overhead expenses include several categories. The operational (indirect) expense is comprised of the wages for the manager and associated benefits and tax responsibility. The selling and freight expense is made up of the assumed domestic marketing costs. The management/admin staff expense displays the cost associated with the office staff. The administration expense is the sum of the costs experienced for office supplies, computer supplies, and a small allowance for miscellaneous expenses. Finally, the occupancy expense is made of the expected insurance costs for the organization.

As previously mentioned, kiln operation and product sales do not begin in year one until July 2010 and August 2010, respectively. This, along with the long term loan, inventory, accounts payable, and accounts receivable assumptions, leads to a loss of $4,000 in 2010 before interest and taxes. However, in 2011, after a full year of operating, the firm is expected to see an EBIT of $130,000. Earnings before interest and taxes decreases approximately sixteen thousand dollars from 2011 to 2012, which is largely a reflection in a decrease in gross margin of the same period. Interest expense declines over the projection period, reflecting the assumed fully amortizing loan.

Taxes are not included on this statement because this depends on the organizational structure that is ultimately decided upon by the firm. It is also likely that the organizational structure will allow for income and associated tax liability to pass through the firm and be realized at the individual member/investor level. No assumptions were made about dividends. Because of this, it is assumed that the total net income (loss) is transferred to reserves.

Exhibit 10.3.1 Annual Income Statements

36 Months to end Dec 2012	2010 Year	2011 Year	2012 Year
INCOME STATEMENTS	$000	$000	$000
Sales:			
- 4/4 Dried Red Oak	$78	$202	$212
- 5/4 Dried Red Oak	$95	$243	$253
- 6/4 Dried Red Oak	$121	$305	$315
- 8/4 Dried Red Oak	$131	$329	$339
Total sales	**$425**	**$1,078**	**$1,120**
Cost of sales:			
-Materials/packaging/goods	$280	$733	$778
-Direct labor	$10	$26	$26
-Other direct	$22	$60	$69
Cost of sales	**$312**	**$819**	**$874**
Gross margin	**$113**	**$260**	**$246**
Overhead expenses:			
-Operational (indirect)	$51	$52	$54
-Selling & freight	$2	$3	$3
-Management/admin staff	$4	$9	$9
-Administration	$1	$2	$2
-Occupancy/general	$33	$34	$35
Depreciation	$26	$29	$29
Total operating expenses	**$117**	**$129**	**$132**
Income from operations	**($4)**	**$130**	**$114**
Total other income (expenses)	**$0**	**$0**	**$0**
Earnings before interest & taxes	**($4)**	**$130**	**$114**
Interest expense/income:			
-Interest expense	$14	$13	$9
-Interest income	$0	$0	$0
Net interest expense (income)	**$14**	**$13**	**$9**
Net income before taxes	**($19)**	**$117**	**$105**
Taxes	$0	$0	$0
Net income	**($19)**	**$117**	**$105**
Dividends declared	$0	$0	$0
Transferred to reserves	**($19)**	**$117**	**$105**

10.4 Projected Cash Flow Statements

Exhibit 10.4.1 displays the annual cash flow statements for years 2010-2012. In the startup year 2010, there is a significant negative cash flow expected due to the construction phase from January through June of 2010, and it being the first year of operation. An operating line of credit and opening cash balance from the initial capitalization allow for sufficient operating capital during this year. The line of credit will be used throughout most of 2011. However, by the end of 2011, the facility should generate positive cash flows and allow for the pay off any short term operating loan balances from the previous years and begin building a positive cash balance.

Notes on the cash flow statements can be found in Exhibit 10.4.2. These notes breakout how certain line items are broken down. No assumptions were made about dividends, new investments, or early long term debt retirement. Because of this, the cash balance grows by the annual net cash flow after 2011.

Exhibit 10.4.1 Annual Cash Flow Statements

36 Months to end Dec 2012	2010 Year	2011 Year	2012 Year
CASHFLOW PROJECTIONS	$000	$000	$000
Cash receipts			
Cash sales & accounts receivable (Note 1)	$323	$1,073	$1,116
Proceeds of new stock issues	$398	$0	$0
Increases in long term debt/notes	$165	$0	$0
Total cash receipts	**$887**	**$1,073**	**$1,116**
Cash payments			
Materials/goods accounts payable (Note 2)	$378	$742	$785
Total direct cost payments (Note 3)	$37	$87	$96
Total overhead expense payments (Note 4)	$91	$100	$103
Taxes paid	$0	$0	$0
Dividends paid	$0	$0	$0
Total capital expend. payments (Note 5)	$414	$0	$0
Operating lease payments	$0	$0	$0
Longterm debt/note repayments	$8	$20	$22
Purchases of intang. & new invest.	$0	$0	$0
Interest paid	$14	$13	$9
Total cash payments	**$942**	**$962**	**$1,015**
Net cashflow	**($55)**	**$111**	**$101**
Closing net cash balance (deficit)	**($55)**	**$56**	**$157**

Exhibit 10.4.2 Notes on Cash Flow Statements

36 Months to end Dec 2012	2010 Year	2011 Year	2012 Year
Notes on Cash Flow Projections			
Note 1			
Cash sales & accounts receivable (Net of bad debts):			
- 4/4 Dried Red Oak	59.4	200.5	211.4
- 5/4 Dried Red Oak	72.3	241.2	252.1
- 6/4 Dried Red Oak	91.9	303.4	314.2
- 8/4 Dried Red Oak	99.6	327.5	338.3
	323.2	**1,072.6**	**1,116.0**
Note 2			
Material/goods accounts payable:			
- 4/4 Dried Red Oak	81.6	162.2	173.0
- 5/4 Dried Red Oak	94.6	185.6	196.4
- 6/4 Dried Red Oak	100.2	195.5	206.3
- 8/4 Dried Red Oak	101.7	198.2	209.0
	378.1	**741.6**	**784.6**
Note 3			
Direct cost payments:			
-Wages and salaries (direct)	12.5	25.8	26.6
-Payroll taxes/benefits (directs)	0.0	0.0	0.0
-Utilities (variable)	10.9	22.4	23.1
-Repairs/maintenance (variable)	1.3	2.7	2.7
-Brokerage Fee (International Sales)	12.3	35.7	43.7
	37.0	**86.6**	**96.1**
Note 4			
Overhead expense payments:			
-Wages and salaries (expenses)	55.3	61.5	63.4
-Marketing Expenses	1.5	3.2	3.3
-Office supplies etc.	0.5	1.0	1.0
-Misc. Expenses	0.3	0.6	0.7
-Insurances	33.2	34.2	35.2
	90.8	**100.5**	**103.5**
Note 5			
Capital expenditure payments:			
-Land, buildings & improvements	104.0	0.0	0.0
-Plant & machinery	250.0	0.0	0.0
-Computers & equipment	59.5	0.0	0.0
	413.5	**0.0**	**0.0**

10.5 Projected Balance Sheets

A yearend balance sheet for 2010 through 2012 can be seen in Exhibit 10.5.1. As mentioned above, no assumptions were made about dividend policy, new investments, or early long term debt retirement. Because of this, the cash balance grows by the annual net cash flow after 2011. The accounts receivable reflect a very conservative assumption that all customers will pay within the 31 to 90 day window.

Because it is expected that the facility will have negative cash flow in the startup year, a line of credit is reflected in the liability portion of the balance sheet. Accounts payable reflects the assumed 20% that would be paid after day 30. The current liabilities section could change substantially depending on dividend payout and the cash balance minimum ultimately set by management. Long term liabilities are decreasing based on a seven year amortization of long term loans. This reflects an aggressive repayment schedule. The exact trend in long term liabilities would depend on the terms agreed upon with the lender.

Owner's equity grows over the period of the financials and reflects the profitable nature of the enterprise and the accumulation of unpaid dividends.

Exhibit 10.5.1 Annual Balance Sheets

36 Months to end Dec 2012	2010 Dec	2011 Dec	2012 Dec
BALANCE SHEETS	$000	$000	$000
ASSETS			
Current assets:			
Cash at bank	$0	$56	$157
Accounts receivable	$102	$108	$112
Inventory	$120	$130	$139
Total current assets	**$222**	**$294**	**$407**
Fixed assets:			
Fixed assets (gross)	$414	$414	$414
Less: Accumulated depreciation	$26	$55	$84
Net fixed assets	**$387**	**$359**	**$330**
Net intang. assets & invest.	**$0**	**$0**	**$0**
Total assets	**$609**	**$652**	**$737**
LIABILITIES			
Current liabilities:			
Accounts payable	$17	$18	$20
Dividends	$0	$0	$0
Taxes	$0	$0	$0
Short-term loans/line of credit	$55	$0	$0
Total current liabilities	**$72**	**$18**	**$20**
Long term liabilities:			
Long term debt/notes	$157	$137	$115
Other loans	$0	$0	$0
Total long term liabilities	**$157**	**$137**	**$115**
Equity:			
Equity investments	$398	$398	$398
Retained earnings	($19)	$99	$204
Total owners' equity	**$380**	**$497**	**$602**
Total liabilities & equity	**$609**	**$652**	**$737**

10.6 Risk Premium

According to a USDA Forest Service Report "The Export Premium: Why Some Logs are Worth More Abroad" (see http://www.fs.fed.us/pnw/pubs/pnw_rp462.pdf), "After adjusting for ocean transport costs, there typically remains a premium, which compensates market participants for coping with the inconvenience of a long-distance, relatively time-costly activity involving customs and laws in many nations and a variety of uncertainties and risks" (page 3). The Organization for Economic Co-operation and Development (OECD) formulates a Country Risk Classification system to ensure that participants to an arrangement charge premium rates that cover risks of non-repayment of export credits and long-term operating costs and losses associated with provision of export credits (http://www.oecd.org/document/49/0,3343,en_2649_34169_1901105_1_1_1_37431,00.html). The system combines a quantitative analysis of country credit risk based on participants' payment experience and the financial and economic situation with a qualitative assessment of political risk and other risk factors not captured quantitatively.

Here, a similar analysis is used to quantify necessary export premiums as a percentage of the product value shipped (Exhibit 10.6.1). The factors listed here represent the costs of doing business and the potential costs and probability of not being paid, which all contribute to the premium necessary to support exports to the country. As shown, premiums in the range of 7% to 9% of product value are common. Higher premiums, such as 14% for Korea and 15% for the Philippines may be harder to garner. Furthermore, high agricultural import duties highlighted in grey for certain countries may be cost-prohibitive.

10.6.1 Estimated Risk Premiums by Country

Country	China	Hong Kong, China	Indonesia	Japan	Malaysia	Mexico	Philippines	Republic of Korea	Singapore	Taiwan	Thailand	Vietnam	*U.S.*
Political Instability^	1.98	1.66	2.11	1.41	1.74	2.13	2.43	1.72	1.69	1.73	2.49	2.75	*2.32*
Intellectual Property Power^^	88	74	107	51	81	38	114	67	2	26	11	170	*5*
View on Trading Across Borders#	48	3	37	17	29	87	58	12	10	30	10	67	*18*
Average Ag Import Duties %^^^	15.8	0	47.1	24	83.4	44.2	34.7	59.3	29.1	17.8	42.7	18.5	*4.8*
Duty Free Ag Imports %^^^	0.8	100	37.5	46.8	74.3	16.8	0	1.5	98.7	47.2	13.4	32.5	*39.6*
WTO Notifications^^^	16	4	56	10	29	25	17	20	8	6	20	30	*16*
Rankings On the Ease of Doing Business#	89	3	122	15	23	51	144	19	1	46	12	93	*4*
Time in Days to Solve Contractual Problem#	406	280	570	360	585	415	842	230	150	510	479	295	*300*
Documents to Export (number)#	7	4	5	4	7	5	8	3	4	7	4	6	*4*
Time to Export (days)#	21	6	21	10	18	14	16	8	5	13	14	22	*6*
Cost to Export (US$ per container)#	500	625	704	989	450	1,472	816	742	456	720	625	756	*1050*
Implied Price Premium*	9%	7%	14%	7%	9%	7%	15%	7%	7%	10%	8%	8%	

Notes:

	Indicates Mexico is part of NAFTA implying a free trade agreement with the US
	Indicates markets that are likely cost prohibitive due to high Ag import duties assessed
^	Economist, lower number is better
^^	Worldbank, lower number is better
^^^	World Trade Organization facts
#	From Doing Business, a service of World Bank
*	The implied price premium reflects, in addition to risk, the opportunity cost of money from transit time

The forest product export cooperative could obtain export credit insurance from the Import-Export Bank of the United States at a rate of about $0.55/$100 of shipment value (Exhibit 10.6.2). For a $12,000 declared value container shipped to the Malaysia, the cost of insurance would be $660. Thus, the computed price premiums seem reasonable.

Exhibit 10.6.2 Export Credit Insurance Policy Rate Schedule

Terms	Class I	Class II	Class III
Sight Letters of Credit	$0.03	$0.03	N/A
S/D D/P; CAD	$0.06	$0.08	$0.20
1-60 Days	$0.16	$0.20	$0.55
61-120 Days	$0.27	$0.33	$0.90
121-180 Days	$0.35	$0.43	$1.15
181-270 Days	$0.43	$0.54	$1.45
271-360 Days	$0.53	$0.65	$1.77

Note: Rates are for all reportable transactions per $100.00 of contract price, letter of credit, or invoice value (including shipping and insurance charges if billed to the buyer) but exclusive of interest. Class I pertains to sovereign buyers or guarantors; sovereign letters of credit (refer to applicable term); political-only transactions, pre-shipment coverage; consignment coverage. Class II pertains to private sector and non-sovereign public sector financial institutions acting as buyer or as the issuer of a letter of credit (refer to applicable term). Class III pertains to non-financial institution private sector and non-sovereign public sector buyers or guarantors.
Source: Import-Export Bank of the United States at http://www.exim.gov/smallbiz/small_bus_multi-buyer.html

11. SWOT Analysis

A strengths, weaknesses, opportunities, and threats (SWOT) analysis is supportive of the development of a hardwood products export cooperative (Exhibit 11.1). The growing demand for red oak in Asian export markets and it availability in Missouri, combined with currently low shipping and employment costs, are major factors that make this endeavor feasible. While shipping cost could rise, southeast Missouri has two shipping options, from St. Louis to the Gulf of Mexico and Kansas City to the west coast, that offer flexibility. While developing business relationships in Asia is time-intensive, this can be achieved with the employment of brokers. The primary challenge is to raise sufficient equity and debt financing in the current economic climate. This will require sufficient interest from sawmills and other industry stakeholders.

Exhibit 11.1 SWOT Analysis

SWOT Analysis

Strengths

- Availability of red oak, a popular hardwood in export markets
- Multiple shipping alternatives including St. Louis to the Gulf and Kansas City to the west coast
- Experienced group of sawmills to cut lumber
- Low wage and employment costs in southern Missouri

Weaknesses

- Lack of knowledge of Asian markets requires employment of brokers to develop relationships
- Tax exemptions afforded to agricultural companies do not extend to lumber producers
- Challenge to raise equity and debt financing in current economic climate
- Consumer purchases of hardwood products have decreased in current economic climate

Opportunities

- Growing export markets in Asia
- Potential demand growth in China is high in particular
- Shipping rates are falling from historical highs in summer 2008

Threats

- Growth could stagnate in Asian export markets if global economy continues to slow
- Currently low shipping rates could rise in the future, eating into profitability, but this is not expected in the near-term
- Growing popularity of red oak in export markets could decline

12. Appendices

Appendix 1—Survey Given to Producers during Outreach Meetings

Name: **Preferred Contact Info:**

Company:

Has your company ever embarked on international marketing in the past?

A. Yes
B. No

Does your company have a marketing plan?

A. Yes
B. No

What is your company's sales approach?

What is your primary business?

A. Lumber
B. Sawmill
C. Logging
D. Pallet
E. Flooring
F. Cabinetry
G. Other

What is your secondary business, if applicable?

A. Lumber
B. Sawmill
C. Logging
D. Pallet
E. Flooring
F. Cabinetry
G. Other

What is the prominent species handled within your firm?

A. Red Oak
B. White Oak
C. Hickory
D. Other

What is the second most prominent species handled within your firm?

A. Red Oak
B. White Oak
C. Hickory
D. Other

How concerned would you be with the forest products export cooperative management setting the monthly "pool price"?

A. Very Concerned
B. Concerned
C. Slightly Concerned
D. No Concern at All

How much would you be willing to invest in a wood products export cooperative? (note: your return potential is proportion to your investment)

A. Nothing
B. $2,500
C. $5,000
D. $10,000
E. $20,000
F. $30,000 to $50,000
G. More than $50,000

Now suppose, following for the example of buying from the pool, you were required to deliver 30,000 bf/annually (2,500 bf/mo) -regardless of species- per share, then what would you be willing to invest in a forest product export cooperative?

A. Nothing
B. $2,500
C. $5,000
D. $10,000
E. $20,000
F. $30,000 to $50,000
G. More than $50,000

Do you have an interest in a wood products export cooperative?

A. Yes
B. No

Would you require a bank loan to buy shares in a forest products export cooperative?

A. Yes
B. No

Would you have interest in being part of a steering committee leading an effort to further look into a wood products export cooperative?

A. Yes
B. No

Do you have an interest in traveling abroad to observe and promote MO wood products?

A. Yes
B. No

Do you have an interest in hosting international visitors, who are interested in buying MO forest products?

A. Yes
B. No

Appendix 2—Meeting Schedules

Outreach Meetings:

A typical schedule for the six outreach meetings is as follows:

1. Dinner
2. Introductions
    a. Presentation by MDA (Missouri Department of Agriculture)
    b. Presentation by MFPA (Missouri Forest Products Association)
3. Presentation by Value Ag, LLC and Ian Smith
4. Survey (if not conducted electronically)
5. Round Table Discussion for remainder of meeting time

Follow Up Meeting:

The schedule for the follow up meeting is as follows:

1. Introductions
    a. Speakers to attendees
    b. Attendees to each other
2. Meeting Summary and Objectives
3. FCS Financial—Randy Pace
    a. About FCS Financial
    b. Capitalization/Loan Process
4. Missouri Northern Pecan Growers—Drew Kimmell
    a. Organizing a Group of Processors for Collective Action
5. Missouri Department of Agriculture—Richard Li
    a. Discussion of Asian Markets
6. Value Ag, LLC—Joe Parcell
    a. Discussion of Grant Opportunities
7. Dinner and Informal Discussion

Appendix 3— Forms of Business Structure

	LIMITED LIABILITY PARTNERSHIP	LIMITED LIABILITY LIMITED PARTNERSHIP	LIMITED LIABILITY COMPANY (LLC)	C CORPORATION	S CORPORATION	COOPERATIVE CHAPTER 274 (stock)	COOPERATIVE CHAPTER 357 (non-stock)
Legal Liability	Give no protection from the partners' own acts and omissions or against other partnership obligations such as leases, loans or trade accounts payable	Limited liability to all partners, including general partners	Limited personal liability for business activities	Shareholders are not personally liable for debts or obligations incurred by the corporation	Shareholders risk only the amount invested in the company	Patrons are owners of a corporation and receive shelter from liability; not personally liable for debts or obligations incurred by the cooperative	Patrons are owners of a corporation and receive shelter from liability; not personally liable for debts or obligations incurred by the cooperative
Continuity of Entity	Limited, unless provided for in partnership contract	Limited, unless provided for in partnership contract	Dissolve date	Perpetual Life	Perpetual Life	Perpetual Life	Perpetual Life
Acquisition of Capital	Generally limited to what partners collectively can raise	Generally limited to what partners collectively can raise	Generally limited to what members collectively can raise	Unlimited number of stockholders, but capital generally not raised by selling stock	Maximum of 75 stockholders, but capital generally not raised by selling stock	Financed by members who use their services; selling shares of stock	Relatively low startup costs. Capital financed through memberships and retained earnings are used to grow the business.
Transfer of Interest	Right to distributions easy to transfer, interest in assets and right to management cannot be transferred without consent of other partners	Right to distributions easy to transfer, interest in assets and right to management cannot be transferred without consent of other partners	Economic rights are transferable; management rights transferable with consent of other members	Stock easy to transfer unless restricted by agreement, by articles of incorporation or by statutory close corporation	Stock easy to transfer unless restricted by agreement, by articles of incorporation or by statutory close corporation		Upon death
Tax implications of transfer	Right to distributions easy to transfer, interest in assets and right to management cannot be transferred without consent of other partners	Right to distributions easy to transfer, interest in assets and right to management cannot be transferred without consent of other partners	Economic rights are transferable; management rights transferable with consent of other members	Stock sales are taxed at individual local and sale of assets taxed at corporate le	Taxed at shareholder level		
Governance	No restrictions on active participation in management by limited liability partners	No restrictions on active participation in management by limited liability partners	Management shall be vested in its members, with each member having one vote, unless otherwise provided in the articles of organization or the operating agreement	Managed by directors, who are elected by shareholders	Managed by directors, who are elected by shareholders	Organized on the user-owned and user-controlled principles; patrons or customers possess ultimate control over the decisions and directions of their cooperative; 2/3.	Organized on the user-owned and user-controlled principles; patrons or customers possess ultimate control over the decisions and directions of their cooperative

	LIMITED LIABILITY PARTNERSHIP	LIMITED LIABILITY LIMITED PARTNERSHIP	LIMITED LIABILITY COMPANY (LLC)	C CORPORATION	S CORPORATION	COOPERATIVE CHAPTER 274 (stock)	COOPERATIVE CHAPTER 357 (non-stock)
Taxation of Income and Expenses	No income is reported at the partnership level; all profits and losses are reported through the owners' individual returns; must pay self-employment tax on income (unless a limited partner)	No income is reported at the partnership level; all profits and losses are reported through the owners' individual returns; must pay self-employment tax on income (unless a limited partner)	Divided among members in accordance with investment or operating agreement and reported on members' individual returns; however, may be taxed as a corporation if meeting certain criteria; may or may not be subject to self-employment tax on income	Taxed separately at the corporate level, and again at the shareholder level if distributed as a dividend; dividends not subject to self-employment tax	Pass-through tax treatments of a partnership; all profits and losses are reported through the owners' individual returns; may be subject to one or more corporate-level taxes; dividends not subject to self-employment tax	Usually organized as corporations, and taxed as C corps; may be taxed like partnerships, S-corps or LLCs; all profits and losses are reported through the owners' individual returns; patronage dividends subject to self-employment tax: sectional election is seeking non-profit status.	Usually organized as corporations, and taxed as C corps; may be taxed like partnerships, S-corps or LLCs; all profits and losses are reported through the owners' individual returns; patronage dividends subject to self-employment tax: sectional election is seeking non-profit status.
Life of Business	The death or dissolution of a partner, general or limited, could cause the technical dissolution of the partnership	The death or dissolution of a partner, general or limited, could cause the technical dissolution of the partnership	Somewhat unlimited life	Unlimited	Unlimited	Unlimited	Unlimited
Major Advantages	Limited partners receive personal liability protection from business activities; only risk the amount they invest; pass-through taxation	All partners receive limited liability; while maintaining a more corporate-like governance structure; pass-through taxation	Properly organized LLC has limited personal liability; pass-through tax advantage of partnership	Limited liability; can offer fringe benefits to owners and deduct them for income tax purposes; large number of sources for financing;	Limited liability; profits taxed once; direct pass through of income and expenses to shareholders	Limited liability; pass-through tax advantage; not subject to anti-trust regulations	Limited liability; pass-through tax advantage; not subject to anti-trust regulations

	LIMITED LIABILITY PARTNERSHIP	LIMITED LIABILITY LIMITED PARTNERSHIP	LIMITED LIABILITY COMPANY (LLC)	C CORPORATION	S CORPORATION	COOPERATIVE CHAPTER 274 (stock)	COOPERATIVE CHAPTER 357 (non-stock)
Major Disadvantages	Personal liability from business activities for general partners is unlimited; limited life; relations among partners can cause problems; changes of partners or partnership agreement may be difficult; profits from business operations have to be reported on the owners' income tax return, even if they were not distributed	Limited life; relations among partners can cause problems; changes of partners or partnership agreement may be difficult; profits from business operations have to be reported on the owners' income tax return, even if they were not distributed	Relations among members can cause problems; changes of members or operating agreement may be difficult; can be taxed as a corporation if two or more conditions apply: 1) limited liability; 2) continuity of life; 3) free transferability of interests; 4) centralized management	Difficult to get assets out or to sell business without double tax; relations among shareholders or directors can cause problems	Not every corporation is eligible; MUST BE: 1) small (fewer than 35 shareholders); 2) a domestic corporation; 3) not have more than one class of stock; 4) not be a member of an affiliated group; 5) not have non-resident alien shareholders; 6) not be an "ineligible corporation"; cannot deduct fringe benefits for owners or their families; relations among shareholders or directors can cause problems	Patronage ownership not transferable; limited earnings outside of business	Patronage ownership not transferable; time-log in equity redemption
Financing	If investors can be found who will invest without desiring participation in management, a LP can be financed more easily than a GP	If investors can be found who will invest without desiring participation in management, a LP can be financed more easily than a GP	Combination of debt and equity financing that members can acquire	Debt or equity securities	Debt or equity securities	Financed by the members who use their services; new members are usually required to purchase a share of stock; remainder of a member's investment will be earned over time in the form of retained patronage refunds	Membership cost and then business operators off of debt and retained earnings, which are paid back at a later date.
Legal Filing Formalities	LP Certificate must be filed with the Secretary of State		Complex legal process; Articles of organization; operating agreement; annual report	Most legal formalities; Articles of Incorporation; Corporate Bylaws; Annual Reports; SEC filings	Same as C corporation; Articles of Incorporation and Bylaws must be filed with the appropriate state offices	Most often formed legally as corporations and must perform same legal formalities; Articles of Incorporation; Cooperative Bylaws; Annual Report	Most often formed legally as corporations and must perform same legal formalities; Articles of Incorporation; Cooperative Bylaws; Annual Report

	LIMITED LIABILITY PARTNERSHIP	LIMITED LIABILITY LIMITED PARTNERSHIP	LIMITED LIABILITY COMPANY (LLC)	C CORPORATION	S CORPORATION	COOPERATIVE CHAPTER 274 (stock)	COOPERATIVE CHAPTER 357 (non-stock)
Stock Class	No stock	No stock	No stock	Unlimited shareholders; Common voting; common non-voting; preferred voting; preferred non-voting; can have different series of stock, which can have different rights or tied to an individual profit group	Only one class of stock; but can have different voting privileges	Multiple levels	No stock
Minimum # of Investors (MO)	Two	Two	One	One	One; maximum of 75 members	Eleven	Twelve
Cost of Establishment	Medium	Medium	Low to medium	High	High	High	High
Annual Meeting	No	No	No	Yes	Yes	Yes	Yes

Appendix 4—Number of Primary Processors by Location

Location	Number of Wood Products Primary Processors
Carter	
Van Buren	17
Ellsinore	6
Gardin	2
Freemont	1
Dent	
Boss	3
Salem	14
Lake Spring	1
Iron	
Belleview	2
Annapolis	3
Des Arc	2
Bixby	2
Vulcan	1
Ironton	1
Arcadia	1
Viburnum	2
Reynolds	
Bunker	6
Redford	2
Centervlle	4
Ellington	5
Black	2
Lesterville	1
Reynolds	3
Shannon	
Birch Tree	5
Winona	3
Eminence	2
Summersville	5
Ripley	
Doniphan	15
Gatewood	7
Fairdealing	2
Texas	
Licking	3
Solo	1
Success	2
Cabool	2
Raymondville	1
Roby	1
Houston	2
Bucyrus	1
Wayne	
Williamsville	2
Piedmont	6
Lodi	1
Greenville	2
Silva	2
Hiram	1
Clubb	1

Appendix 5—Lumber Drying Methods

Air Drying: Air drying refers to drying that takes place using the natural wind and sun. Lumber is staked on stickers and placed in a manner that allows the prevailing winds to blow through the pile and dry it. The drying is strictly dependent upon the weather, which can dry lumber too fast and cause checks and damage, or dry it too slowly, which is expensive. For lumber that is to be used in furniture of some other finished product which requires a 6-8% moisture content, air drying by itself can't do the whole job. It's often used as a first step, with the lumber being placed in a kiln for final drying. Air drying poses real problems with damage and degrade. And it's often the most expensive way to dry once you include interest on the money tied up, labor, land costs, and especially degrade loss.

Shed Drying: Rain and direct sun can severely damage wood while air drying. So instead of air drying lumber, some people put lumber under a room or shed to protect it from the elements. This enhances quality somewhat over air drying, but it extends the drying time. It also requires an investment in sheds—and it still doesn't allow much control over factors like humidity, air flow, and temperatures.

Forced Air Drying or Fan/Shed Drying: This is shed drying as described above, except fans are used to force air through the lumber rather than relying upon the natural wind. This is faster than air drying or shed drying, but the cost of operating the fans is quite high. Also, the capital investment is fairly high in proportion to the amount of drying that can be accomplished.

Pre-Drying: Pre-drying is used to remove most of the free water from lumber before it is placed in a kiln for final drying. In a predryer, lumber is staked in a building where heat and humidity are controlled. The temperature is usually kept around 90-100°F. (35°C.). The lumber is dried to 20-30% moisture content, then placed in a kiln for final drying. Though predryers cost about the same to build as kilns when you compare costs on the basis of your annual production, they require extra handling of the lumber, and they actually cost more to run than dry kilns. They are usually only used in combination with dry kilns that are old or inefficient and cannot be used to dry green lumber.

Kiln Drying: In kiln drying, lumber is placed in a chamber where airflow, temperature, and humidity are controlled to provide as rapid drying as can be tolerated by the lumber without increasing defects. There are several types of kilns. The different types are defined by the manner in which the temperature and humidity are controlled. The three most common types of kilns are Conventional, Dehumidification, and Solar.

Appendix 6—Pest Analysis for Selected Asian Countries and Mexico

PEST Analysis: China Economy and Business Environment

Political

- Instability ranking of 1.98 on scale from 1 – 5 (lower score indicates higher stability)
- Average Intellectual Property Protection, Rank (lower score means higher intellectual property protection)- 88 versus US ranking of 5
- Pro-trade view on trading across borders – Costs 50% less to import and export in China than other countries in region – Rank 48
- Relatively hard to start up a new business because of more procedures, but lower costs than region – Rank 151

Economic

- Market economy with high economic growth rates (7.5% - 10.9% per year)
- Low unemployment rate (4.2%)
- Highly skilled workforce – Literacy rate of 90.90% nationwide
- High Infrastructure Quality (rankings below)
  - Railway ranking - 5/140
  - Roadway ranking – 5/222
  - Airport ranking – 18/126

Social

- Demographics
  - Officially claimed atheism
  - Han Chinese prevalent ethnicity (91.5%)
  - 33.6 years is median age
  - Largest age group (71.9%) 15 – 64
- Intermediate level of risk of infectious diseases – especially avian flu
- Lawmakers trying to improve national social security and health systems, as well as equal employment opportunities
- Typical workweek is ~37 hours

Technological

- Recent technology developments
  - Internet hosts – High
  - TV Broadcast Stations – High
  - Cellular Use - High
- High technology ranking compared to United States (13 versus 1)
- Low technological impact on product availability – Rank 126
- Fuel prices increased by 18% in June, so cost of production will be greatly increased

PEST Analysis: Hong Kong Economy and Business Environment

Political

- Instability ranking of 1.657 on scale from 1 – 5 (lower score indicates higher stability)
- Moderate Intellectual Property Protection, Rank (lower score means higher intellectual property protection) - 74 versus US ranking of 5
- Positive view on trading across borders – cheaper to import and export than other countries in region – Rank 3
- Positive view on starting new businesses with few procedures and less costs – Rank 15

Economic

- Free Market economy with unstable, moderate economic growth rates (6% - 7.5% per year)
- Low unemployment rate (4.90%)
- Highly skilled workforce – Literacy rate of 93.5% nationwide
- Low Quality Infrastructure
  - Railway ranking – N/A
  - Roadway ranking – 173/222
  - Airport ranking – 122/126

Social

- Demographics
  - 90% observe mixture of local religions; 10% Christian
  - 95% Chinese ethnicity
  - 41.7 years is median age
  - Largest age group (74.4%) 15 – 64
- Very low level of risk of infectious diseases
- Typical workweek is 45-47 hours

Technological

- Recent technology developments
  - Internet hosts – High
  - TV Broadcast Stations – High
  - Cellular Use - High
- High technology ranking along with United States (12 versus 1)
- Rises in fuel prices and core inflation rates lead to increased costs of production

PEST Analysis: Indonesia Economy and Business Environment

Political

- Instability ranking of 2.111 on scale from 1 – 5 (lower score indicates higher stability)
- Low Intellectual Property Protection, Rank (lower score means higher intellectual property protection) - 107 versus US ranking of 5
- Positive view on trading across borders – cheaper to import and export than other countries in region – Rank 37
- Negative view on starting new businesses with longer, more expensive procedures Rank 171

Economic

- Market economy with estimated growth rate at 6.3%
- High unemployment rate (12.50%)
- Highly skilled workforce – Literacy rate of 87.9% nationwide
- High Quality Infrastructure
  - Railway ranking - 30/140
  - Roadway ranking – 18/222
  - Airport ranking – 13/126

Social

- Demographics
  - 86.1% Muslim; 5.7% Protestant
  - 41% Javanese; 14% Sudanese
  - 27.2 years is median age
  - Largest age group (65.7%) 15 – 64
- High risk of infectious diseases
- Typical workweek is 43 hours

Technological

- Recent technology developments
  - Internet hosts – Average
  - TV Broadcast Stations – High
  - Cellular Use - High
- Average technology ranking compared with United States (62 versus 1)
- Low technological impact on product availability – Rank 119
- 30% increase in fuel prices lead to a rise in costs of production

PEST Analysis: Japan Economy and Business Environment

Political

- Instability ranking of 1.413 on scale from 1 – 5 (lower score indicates higher stability)
- High Intellectual Property Protection, Rank (lower score means higher intellectual property protection) - 51 versus US ranking of 5
- Positive view on trading across borders – cheaper to import and export than other countries in region – Rank 17
- Neutral view on starting new businesses with long, costly procedures – Rank 64

Economic

- Mixed economy with unstable, low economic growth rates (1% - 3% per year)
- Low unemployment rate (4.10%)
- Highly skilled workforce – Literacy rate of 99.0% nationwide
- High Quality Infrastructure
  - Railway ranking - 13/140
  - Roadway ranking – 7/222
  - Airport ranking – 37/126

Social

- Demographics
  - 84% observe both Shinto & Buddhism
  - 98.5% Japanese ethnicity
  - 43.8 years is median age
  - Largest age group (64.7%) 15 – 64
- Very low level of risk of infectious diseases
- Lawmakers trying to improve social security system and work & social equality
- Typical workweek is 41 hours

Technological

- Recent technology developments
  - Internet hosts – High
  - TV Broadcast Stations – High
  - Cellular Use - High
- High technology ranking along with United States (14 versus 1)
- High technological impact on product availability – Rank 17
- Rise in core inflation rates cause a rise in gas prices, therefore cost of production will be increased

PEST Analysis: Malaysia Economy and Business Environment

Political

- Instability ranking of 1.74 on scale from 1 – 5 (lower score indicates higher stability)
- Average Intellectual Property Protection, Rank (lower score means higher intellectual property protection)- 81 versus US ranking of 5
- Pro-trade view on trading across borders – Costs 50% less to import and export in Malaysia than other countries in region – Rank 29
- Relatively easy to start up a new business because of shorter duration and lower costs than region – Rank 75

Economic

- Mixed economy with average economic growth rates (~5.5% per year)
- Low unemployment rate (3.5%)
- Highly skilled workforce – Literacy rate of 88.70% nationwide
- Average Infrastructure Quality (rankings below)
  - Railway ranking - 79/140
  - Roadway ranking – 42/222
  - Airport ranking – 52/126

Social

- Demographics
  - 60.4% Muslim; 18.2% Buddhist; 9.1% Christian
  - 50.4% Malay; 23.7% Chinese
  - 24.6 years is median age
  - Largest age group (63.3%) 15 – 64
- High level of risk of infectious diseases
- Lawmakers trying to improve equal rights for social security and standard of living for children, minorities and migrants.
- Typical workweek is 47 - 48 hours

Technological

- Recent technology developments
  - Internet hosts – High
  - TV Broadcast Stations – Low
  - Cellular Use - High
- High technology ranking compared to United States (26 versus 1)
- High technological impact on product availability – Rank 51
- Fuel prices increased by 40% in June 2008, so cost of production will be greatly increased

PEST Analysis: Mexico Economy and Business Environment

Political

- Instability ranking of 2.13 on scale from 1 - 5
- High Intellectual Property Protection, Rank (lower score means higher intellectual property protection)- 38 versus US ranking of 5
- Neutral view on trading across borders – more expensive to import and export but less time consuming than other countries in region – Rank 87
- Relatively hard to start up a new business because of timely and costly procedures – Rank 115

Economic

- Free market economy with moderate economic growth rates (2% - 3% per year)
- Low unemployment rate (3.2%)
- Highly skilled workforce – Literacy rate of 92.20% nationwide
- High Infrastructure Quality (rankings below)
  - Railway ranking - 18/140
  - Roadway ranking – 22/222
  - Airport ranking – 5/126

Social

- Demographics
  - 76.5% claim Roman Catholicism
  - Mestizo prevalent ethnicity (60.0%)
  - 26.3 years is median age
  - Largest age group (64.6%) 15 – 64
- Intermediate level of risk of infectious diseases
- Lawmakers trying to improve working and living conditions/equality for women/persons in poverty/indigenous
- Typical workweek is ~44 hours

Technological

- Recent technology developments
  - Internet hosts – High
  - TV Broadcast Stations – High
  - Cellular Use - High
- Average technology ranking compared to United States (49 versus 1)
- Fuel prices of the state-owned oil company will be increased weekly throughout 2009 and 2010 to reach average international market prices in order to decrease subsidies, so cost of production will be greatly increased

PEST Analysis: North Korea Economy and Business Environment

Political

- Instability ranking not found for North Korea
- Average Intellectual Property Protection, Rank (lower score means higher intellectual property protection) - 70 versus US ranking of 5
- Positive view on trading across borders – cheaper to import and export than other countries in region – Rank 12
- Negative view on starting new businesses with long, costly procedures – Rank 126

Economic

- Socialist economic system
- Unemployment rate is unknown
- Highly skilled workforce – Literacy rate of 99.0% nationwide
- Average Quality Infrastructure
  - Railway ranking - 35/140
  - Roadway ranking – 97/222
  - Airport ranking – 68/126

Social

- Demographics
  - Traditionally Buddhist and Confucianist
  - Majority Korean, with small Chinese and Japanese communities
  - 32.7 years is median age
  - Largest age group (68.2%) 15 – 64
- Very low level of risk of infectious diseases
- Typical workweek is 43.5 hours

Technological

- Recent technology developments
  - Internet hosts – N/A
  - TV Broadcast Stations – Low
  - Cellular Use – N/A
- High technology ranking along with United States (19 versus 1)
- Rise in core inflation rates along with fuel prices cause a rise in gas prices, therefore cost of production will be increased

PEST Analysis: Philippines Economy and Business Environment

Political

- Instability ranking of 2.428 on scale from 1 – 5 (lower score indicates higher stability)
- High Intellectual Property Protection, Rank (lower score means higher intellectual property protection) - 114 versus US ranking of 5
- Positive view on trading across borders – cheaper to import and export than other countries in region – Rank 58
- Negative view on starting new businesses with several long procedures – Rank 155

Economic

- Mixed economy with unstable but increasing economic growth rates (5.8% in 2007)
- High unemployment rate (8.40%)
- Highly skilled workforce – Literacy rate of 92.6% nationwide
- Average Quality Infrastructure
  - Railway ranking - 93/140
  - Roadway ranking – 26/222
  - Airport ranking – 29/126

Social

- Demographics
  - 80.9% Roman Catholic
  - 28.1% Tagalog; 13.1% Cebuano
  - 22.3 years is median age
  - Largest age group (60.4%) 15 – 64
- High risk of infectious diseases
- Lawmakers trying to improve social equality for girls, women, minorities and indigenous people
- Typical workweek is 41 hours

Technological

- Recent technology developments
  - Internet hosts – High
  - TV Broadcast Stations – High
  - Cellular Use - High
- Low technology ranking along with United States (69 versus 1)
- Low technological impact on product availability – Rank 92
- Rise in core inflation rates cause a rise in gas prices, therefore cost of production will be increased

PEST Analysis: South Korea Economy and Business Environment

Political

- Instability ranking of 1.719 on scale from 1 – 5 (lower score indicates higher stability)
- High Intellectual Property Protection, Rank (lower score means higher intellectual property protection) – 67 versus US ranking of 5
- High view on trading across borders – cheaper to import and export than other countries in region – Rank 12
- Positive view on starting new businesses – Rank 126

Economic

- Economic growth rate at 5%
- Low unemployment rate (3.3%)
- Highly skilled workforce – Literacy rate of 97.9 % nationwide
- High Quality Infrastructure
  - Railway ranking – 53/140
  - Roadway ranking – 41/222
  - Airport ranking – 57/126

Social

- Demographics
  - 49.8% observe no religion, Christian being the highest at 26.3%
  - 1.2 Children born per woman
  - 36.7 years is median age
  - Largest age group (72%)15 – 64
- Very low risk of infectious diseases
- Typical workweek is 43 hours

Technological

- Recent technology developments
  - Internet host – High
  - TV Broadcast Stations- Low
  - Cellular Use - High
- High technology rating along with the United States (9 versus 1)
- High technological impact on product availability – Rank 41
- Gas prices are relatively low but increasing, so production costs will be slightly affected

PEST Analysis: Taiwan Economy and Business Environment

Political

- Instability ranking of 1.731 on scale from 1 – 5 (lower score indicates higher stability)
- High Intellectual Property Protection, Rank (lower score means higher intellectual property protection) - 26 versus US ranking of 5
- Positive view on trading across borders – cheaper to import and export than other countries in region – Rank 30
- Negative view on starting new businesses with higher minimum paid-in capital - Rank 119

Economic

- Mixed economy
- Low unemployment rate (3.90%)
- Highly skilled workforce – Literacy rate of 96.1% nationwide
- Average Quality Infrastructure
  - Railway ranking - 70/140
  - Roadway ranking – 90/222
  - Airport ranking – 88/126

Social

- Demographics
  - 35.1% Buddhist; 33% Taoist
  - 98% Han Chinese; 2% Indigenous
  - Median Age: 36 years
  - Largest age group (70.8%) 15 – 64
- Intermediate risk of infectious diseases
- Typical workweek is ~38 hours

Technological

- Recent technology developments
  - Internet hosts – High
  - TV Broadcast Stations – Average
  - Cellular Use - High
- Average technology ranking compared with United States (13 versus 1)
- Average technological impact on product availability – Rank 71
- Rising inflation rates and fuel prices lead to increase in production costs

PEST Analysis: Thailand Economy and Business Environment

Political

- Instability ranking of 2.491 on scale from 1 – 5 (lower score indicates higher stability)
- High Intellectual Property Protection, Rank (lower score means higher intellectual property protection) - 11 versus US ranking of 5
- Positive view on trading across borders – cheaper to import and export than other countries in region – Rank 10
- Positive view on starting new businesses with shorter, less expensive procedures Rank 44

Economic

- Free-enterprise economy with steady, average economic growth rates (~4.5% per year)
- Low unemployment rate (2.10%)
- Highly skilled workforce – Literacy rate of 92.6% nationwide
- Average Quality Infrastructure
  - Railway ranking - 44/140
  - Roadway ranking – 74/222
  - Airport ranking – 56/126

Social

- Demographics
  - 94.6% observe Buddhism
  - 75% Thai; 14% Chinese
  - 32.8 years is median age
  - Largest age group (70.3%) 15 – 64
- High risk of infectious diseases
- Lawmakers trying to improve equal rights for girls, women and minorities
- Typical workweek is ~47 hours

Technological

- Recent technology developments
  - Internet hosts – High
  - TV Broadcast Stations – High
  - Cellular Use - High
- High technology ranking along with United States (37 versus 1)
- Average technological impact on product availability – Rank 54
- Rise in core inflation rates and fuel prices cause a rise in costs of production

PEST Analysis: Vietnam Economy and Business Environment

Political

- Instability ranking of 2.75 on scale from 1 – 5 (lower score indicates higher stability)
- Low Intellectual Property Protection, Rank (lower score means higher intellectual property protection) - 170 versus US ranking of 5
- Neutral view on trading across borders – cheaper to import and export than other countries in region – Rank 67
- Relatively hard to start up a new business because of timely and costly procedures – Rank 108

Economic

- Mixed economy with high economic growth rates (5% - 8% per year)
- Low unemployment rate (2.0%)
- Highly skilled workforce – Literacy rate of 90.30% nationwide
- Moderate Infrastructure Quality (rankings below)
  - Railway ranking - 68/140
  - Roadway ranking – 25/222
  - Airport ranking – 96/126

Social

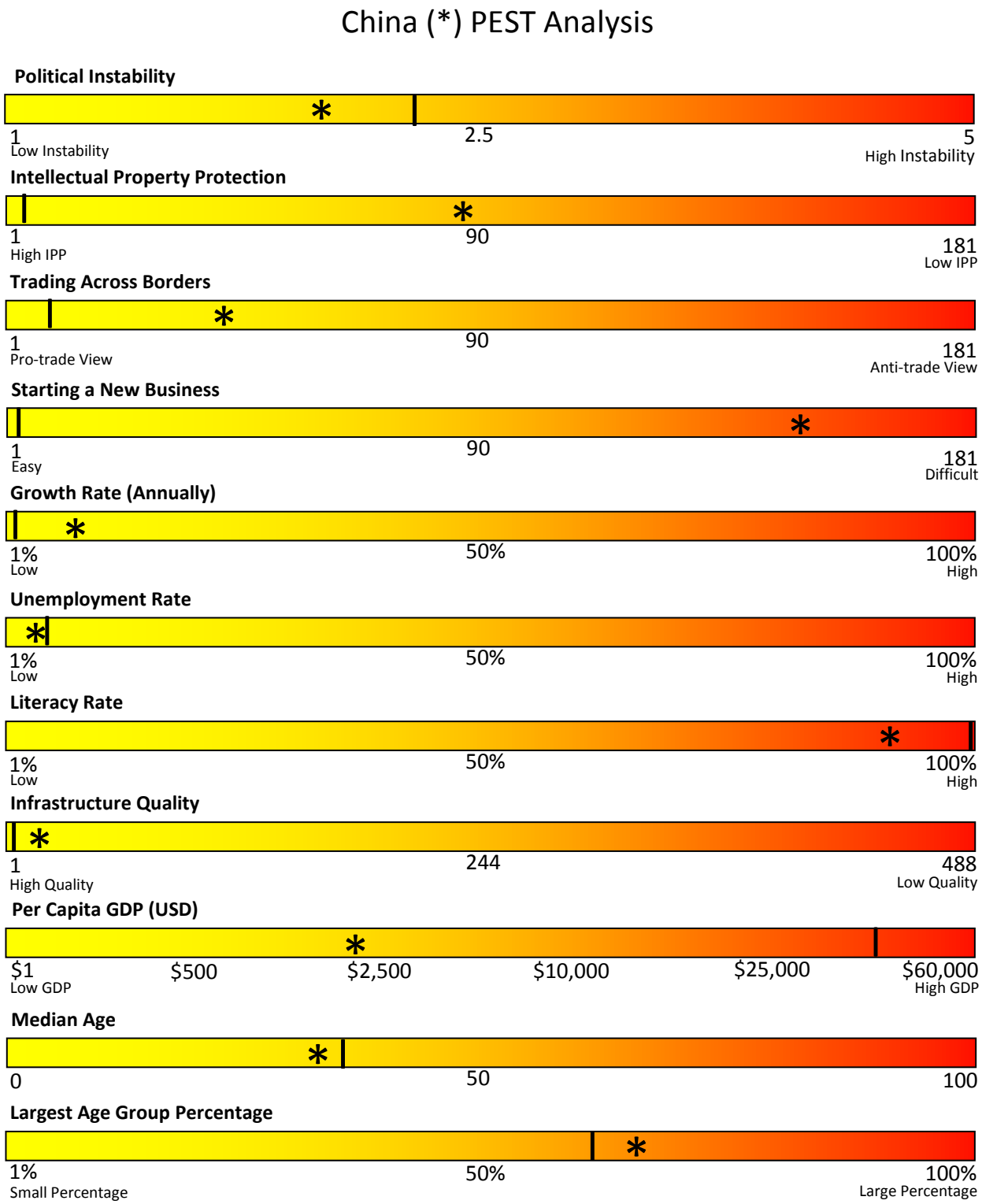
- Demographics
  - 80.8% claim no religion
  - Kinh prevalent ethnicity (86.2%)
  - 26.9 years is median age
  - Largest age group (68.6%) 15 – 64
- High level of risk of infectious diseases
- Lawmakers trying to improve working and living conditions/equality for girls/women/minorities
- Typical workweek is 45 - 48 hours

Technological

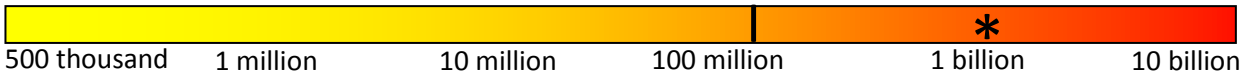
- Recent technology developments
  - Internet hosts – Low
  - TV Broadcast Stations – Low
  - Cellular Use - Average
- Low technology ranking compared to United States (82 versus 1)
- Low technological impact on product availability – Rank 135
- Fuel prices increased by 11.5% in February, so cost of production will be greatly increased

Appendix 7—Graphical Representation of Pest Analysis for Selected Asian Countries and Mexico

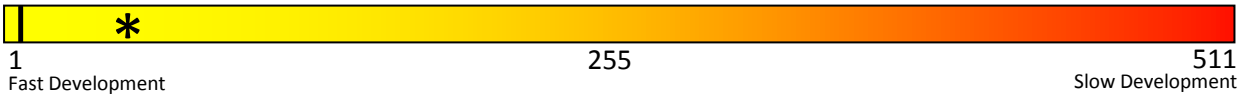
*(The vertical line on each bar represents the US, while the * represents the given country.)*



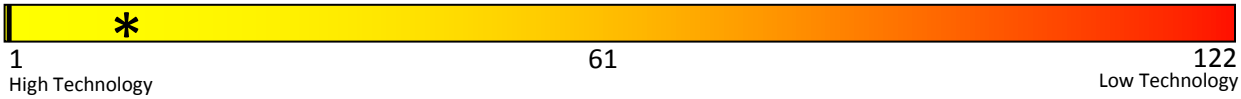
Population



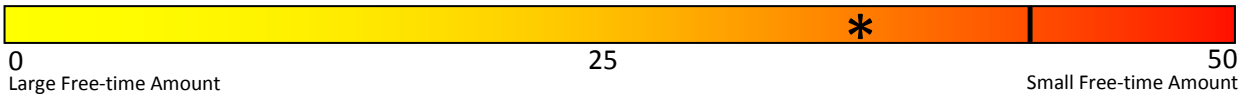
Technological Development



Technological Level

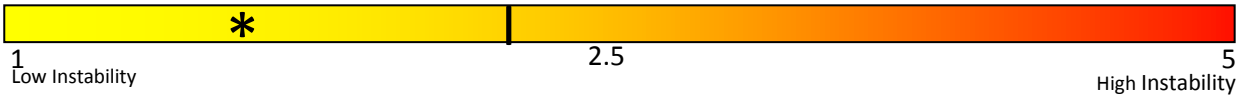


Typical Workweek (hours)

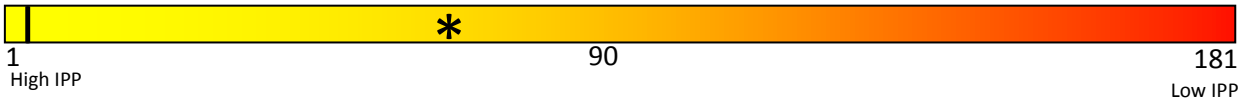


Hong Kong (*) PEST Analysis

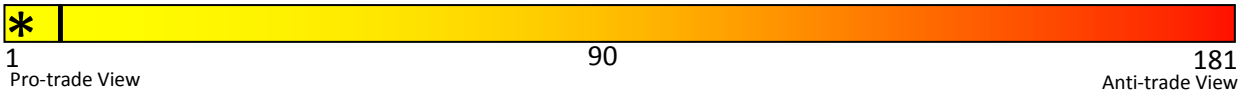
Political Instability



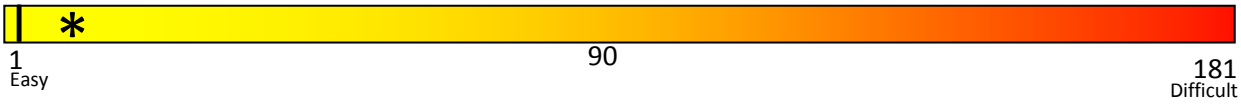
Intellectual Property Protection



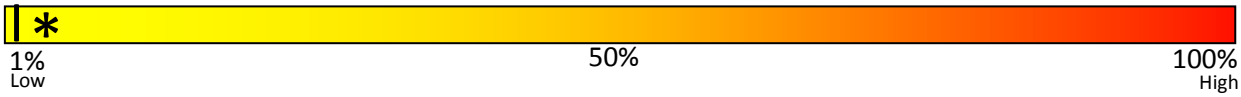
Trading Across Borders



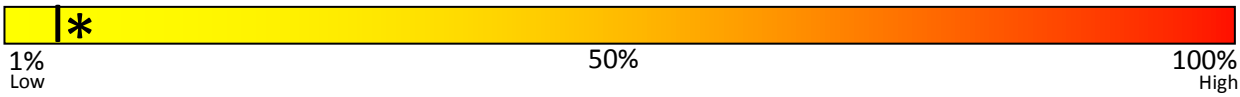
Starting a New Business



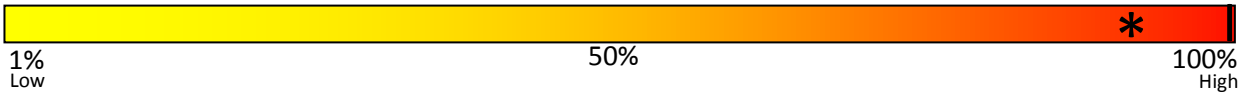
Growth Rate (Annually)



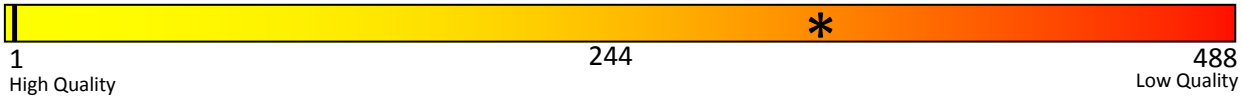
Unemployment Rate



Literacy Rate

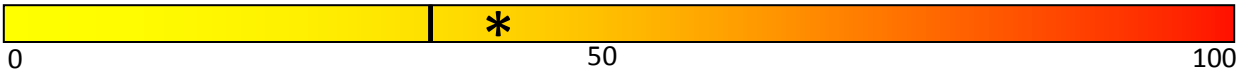


Infrastructure Quality

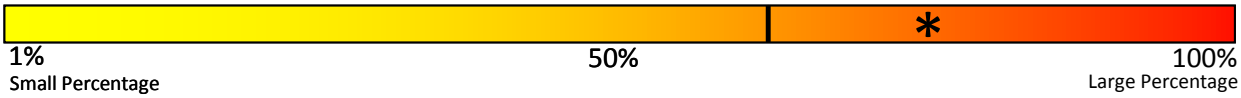


Per Capita GDP (USD)

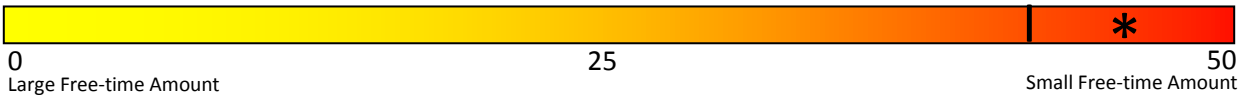
Median Age



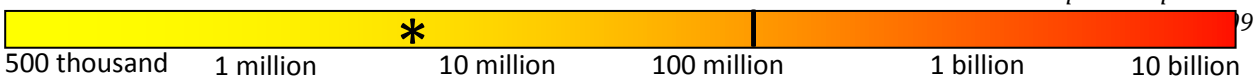
Largest Age Group Percentage



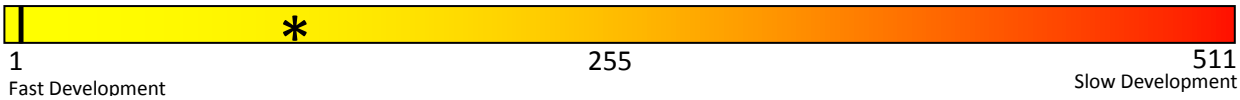
Typical Workweek (hours)



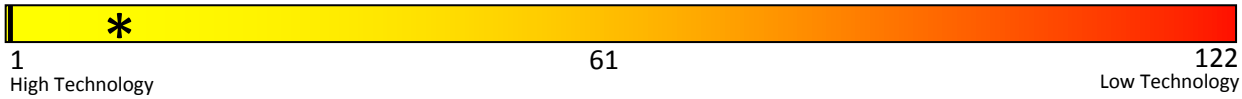
Population



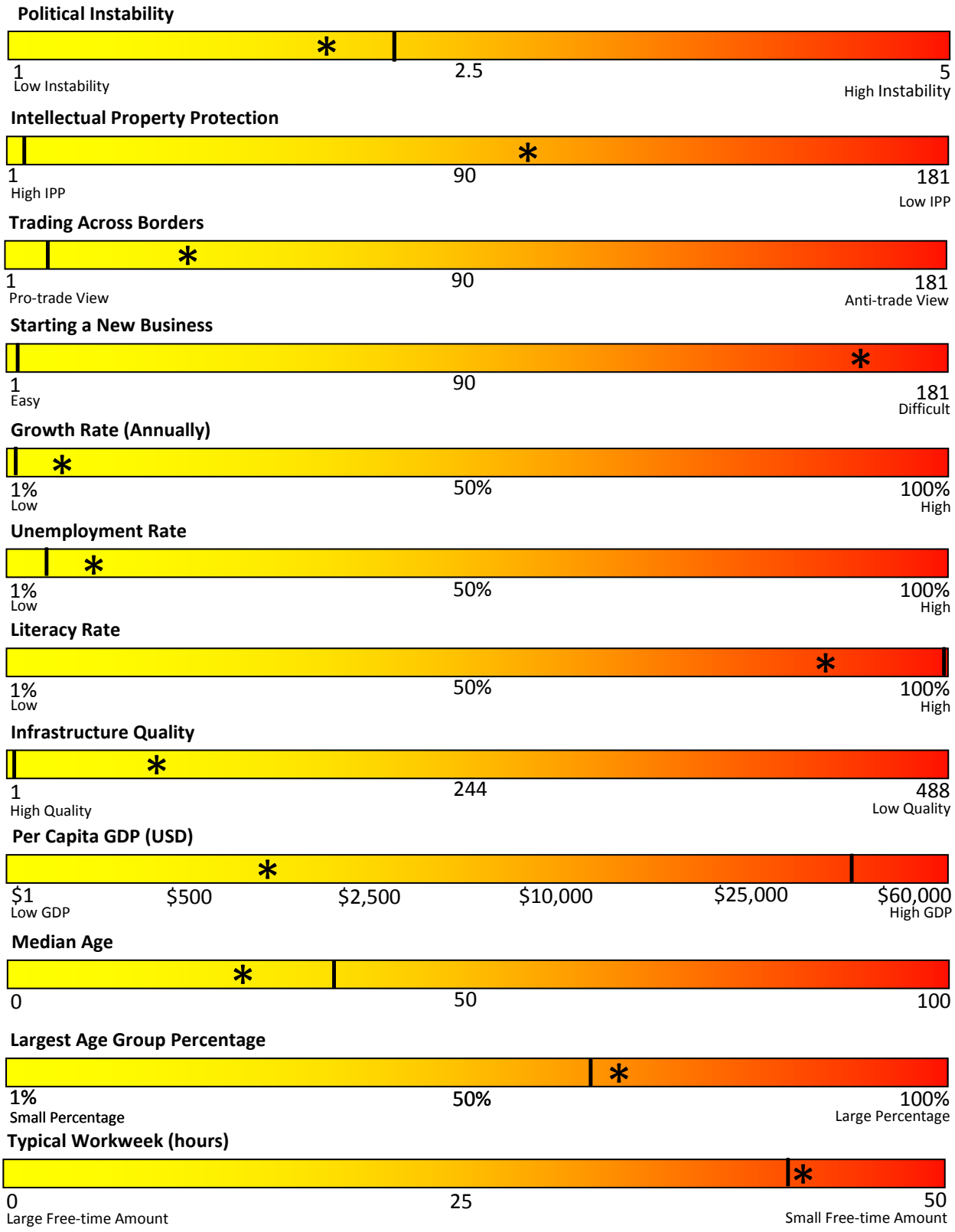
Technological Development



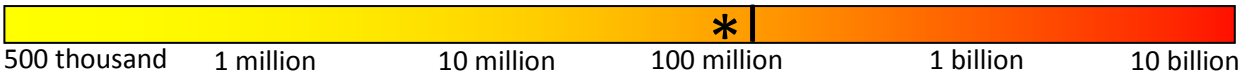
Technological Level



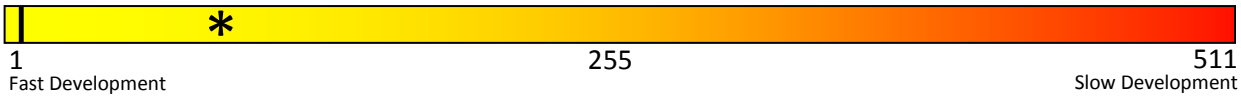
Indonesia (*) PEST Analysis



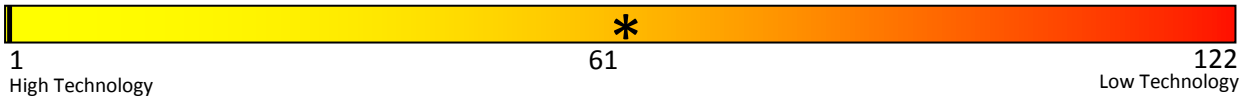
Population



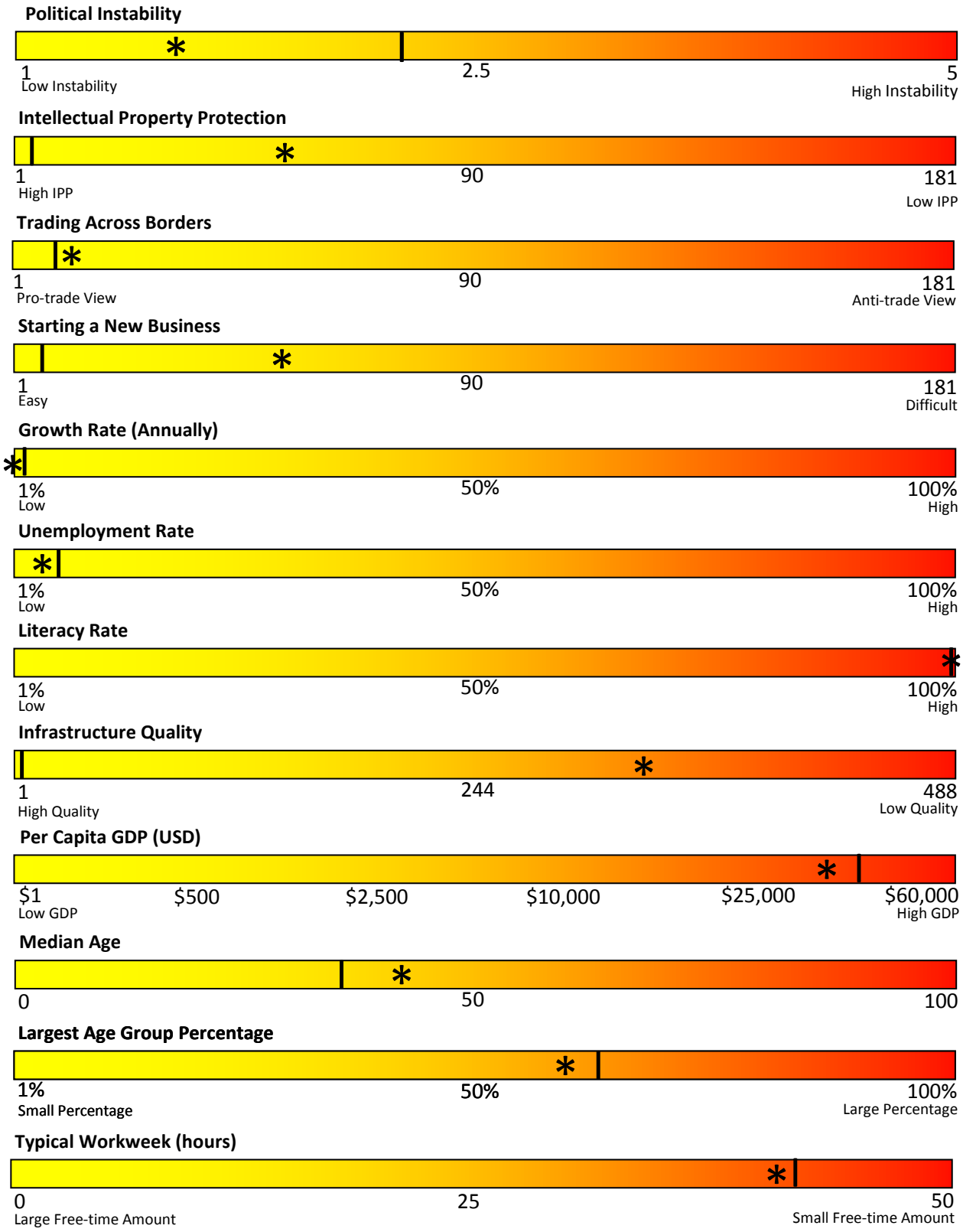
Technological Development



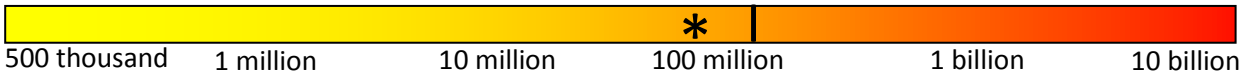
Technological Level



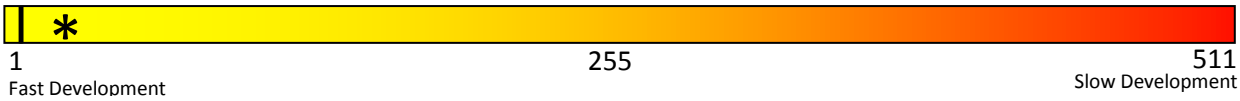
Japan (*) PEST Analysis



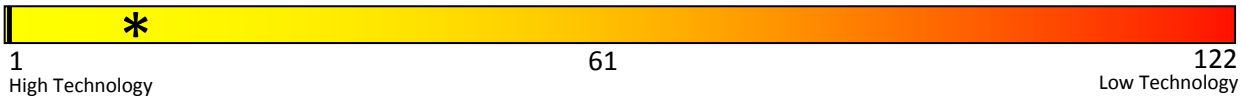
Population



Technological Development

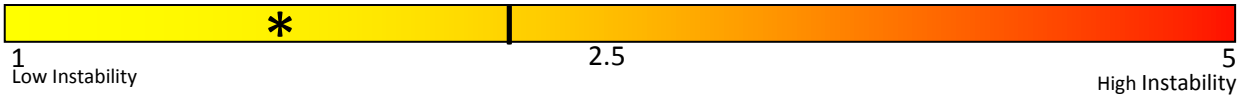


Technological Level

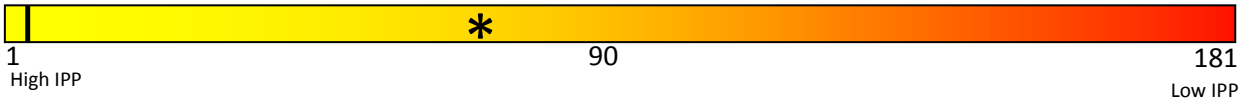


Malaysia (*) PEST Analysis

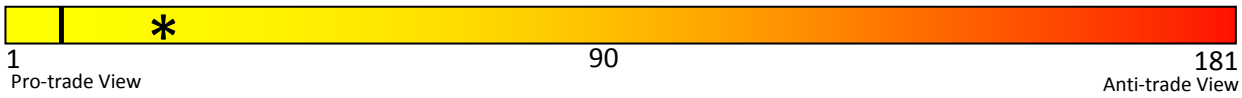
Political Instability



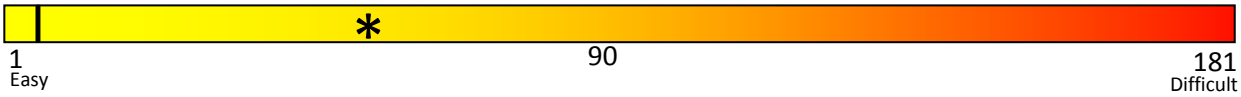
Intellectual Property Protection



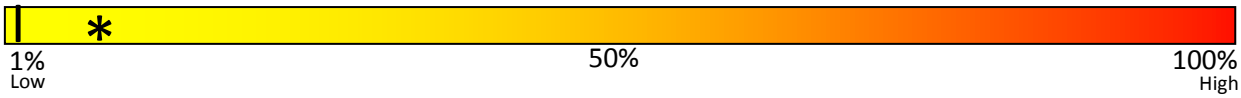
Trading Across Borders



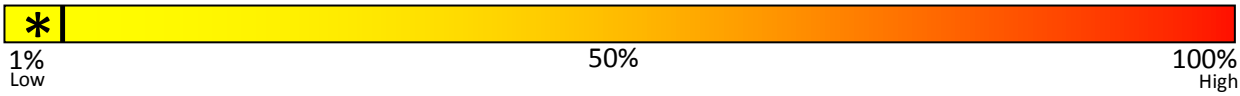
Starting a New Business



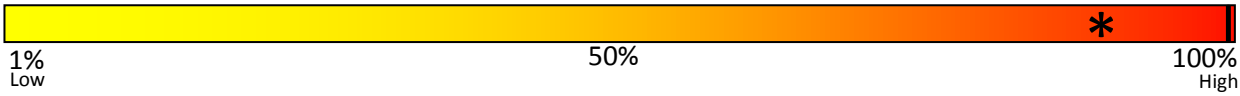
Growth Rate (Annually)



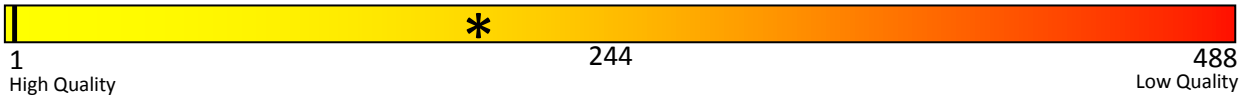
Unemployment Rate



Literacy Rate

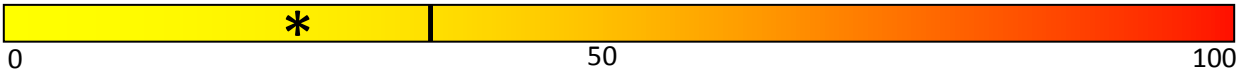


Infrastructure Quality

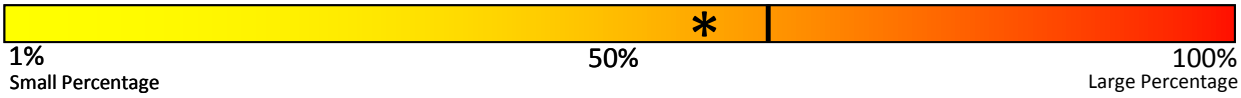


Per Capita GDP (USD)

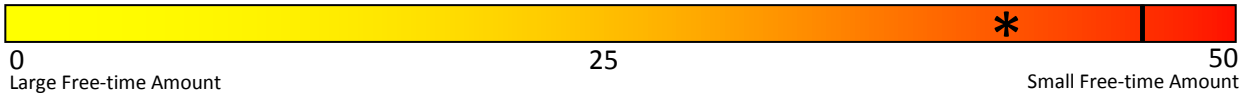
Median Age



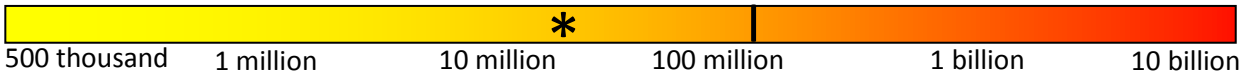
Largest Age Group Percentage



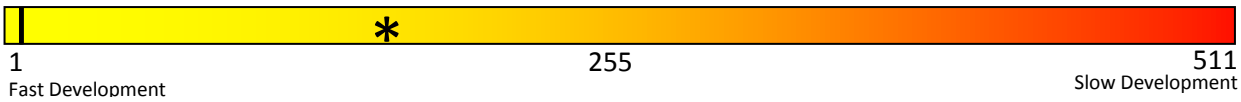
Typical Workweek (hours)



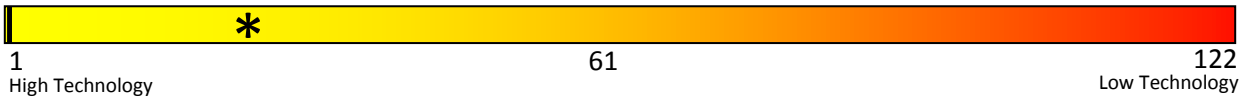
Population



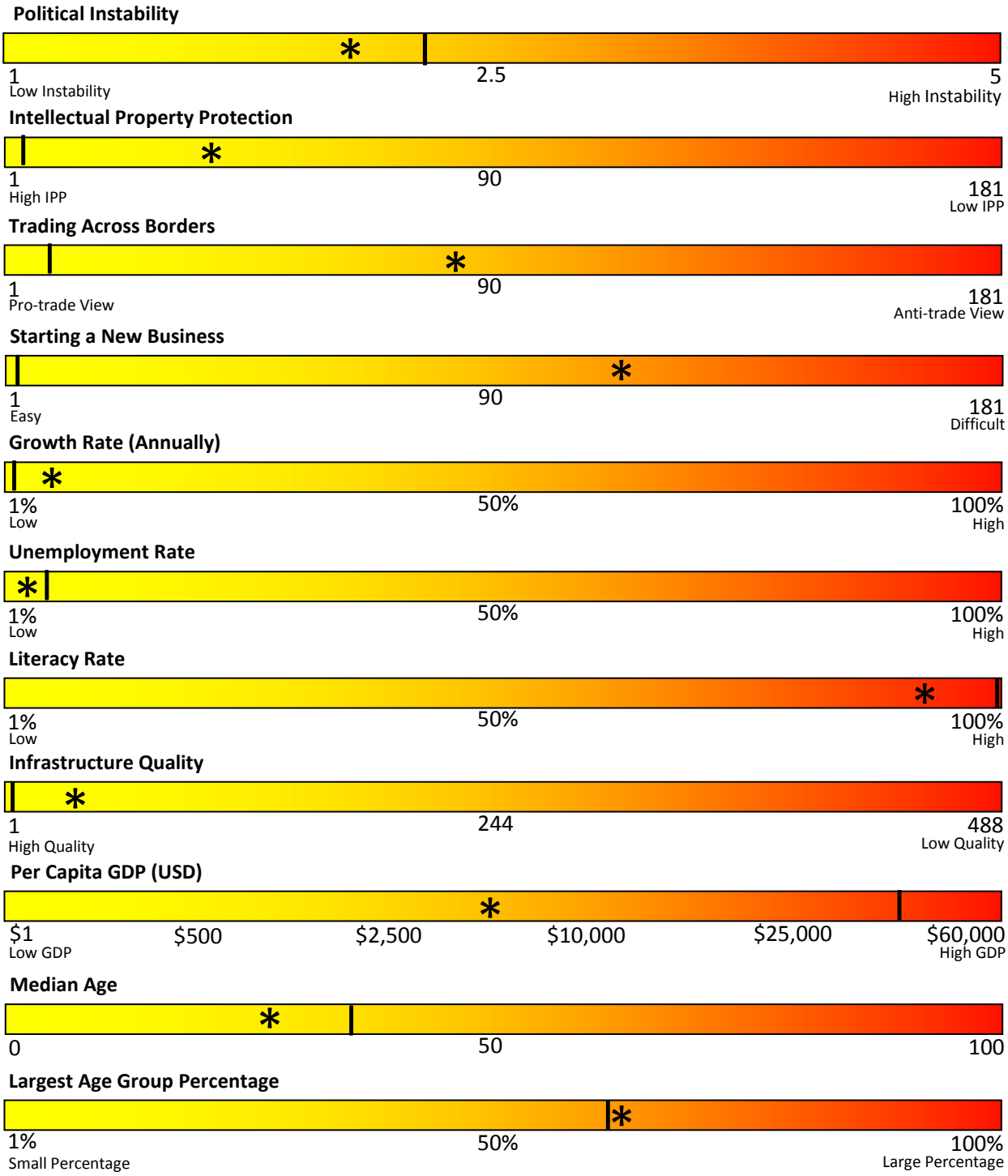
Technological Development



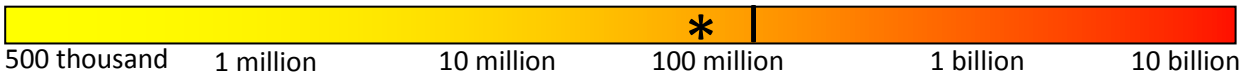
Technological Level



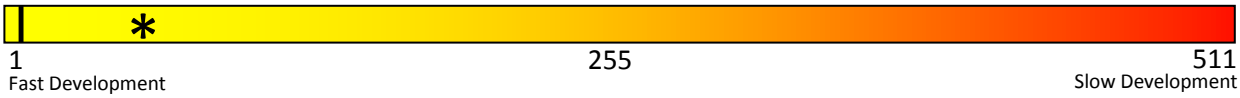
Mexico (*) PEST Analysis



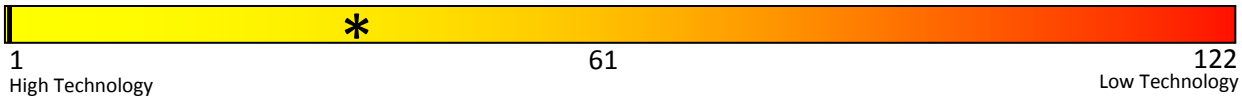
Population



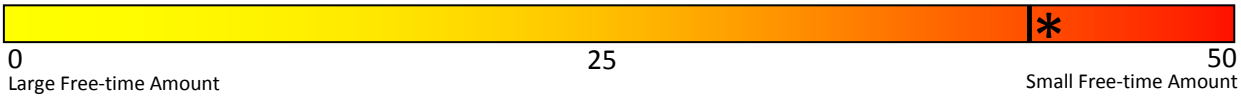
Technological Development



Technological Level

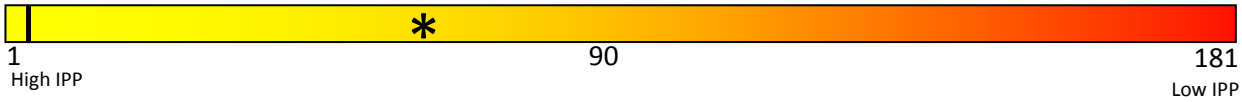


Typical Workweek (hours)

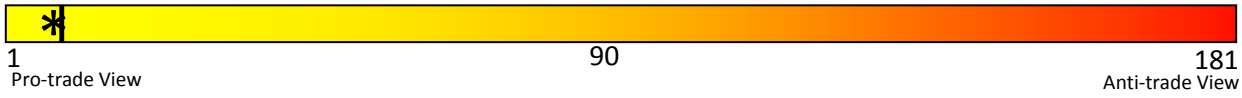


North Korea (*) PEST Analysis

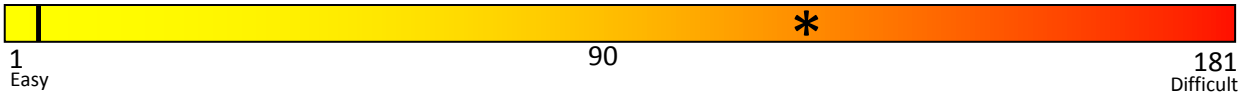
Intellectual Property Protection



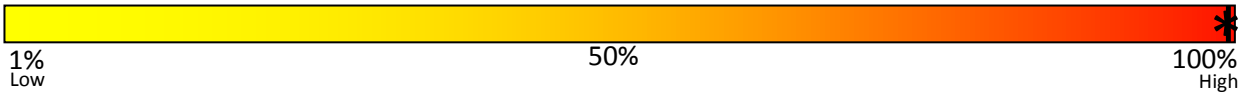
Trading Across Borders



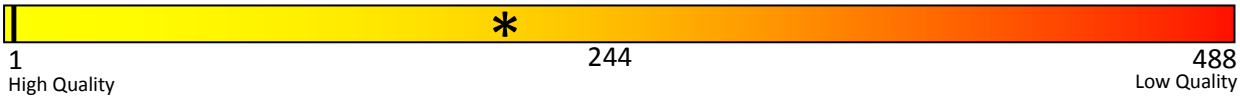
Starting a New Business



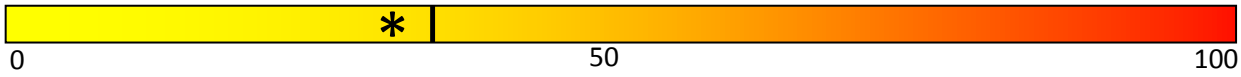
Literacy Rate



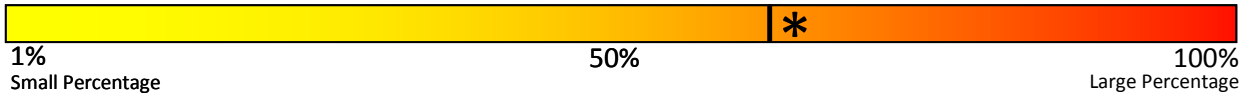
Infrastructure Quality



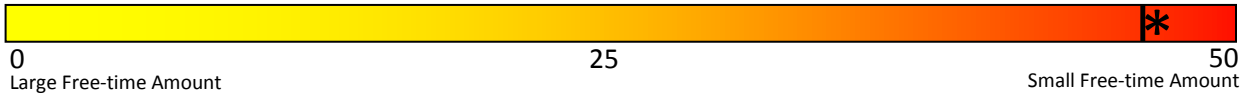
Median Age



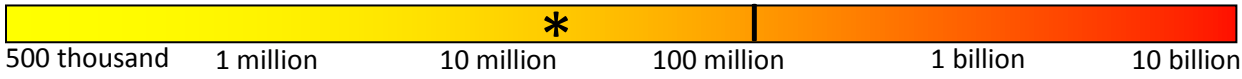
Largest Age Group Percentage



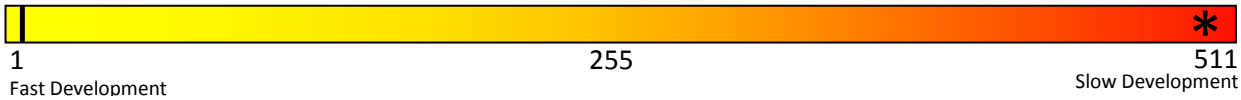
Typical Workweek (hours)



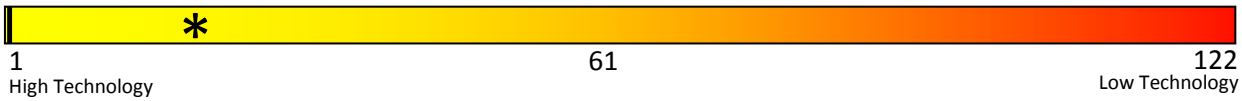
Population



Technological Development

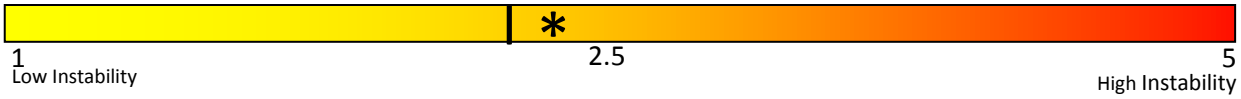


Technological Level

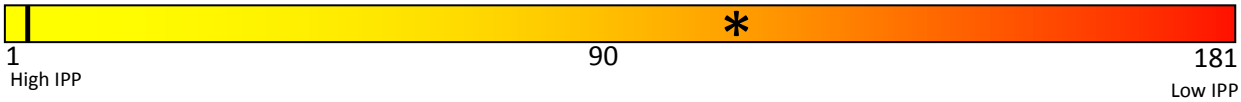


Philippines (*) PEST Analysis

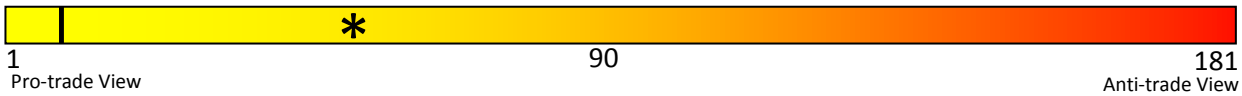
Political Instability



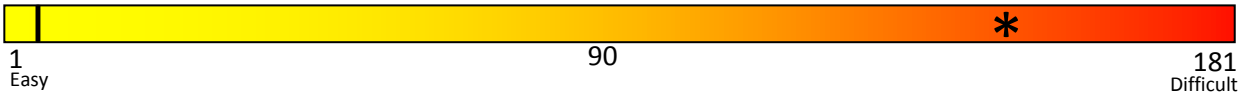
Intellectual Property Protection



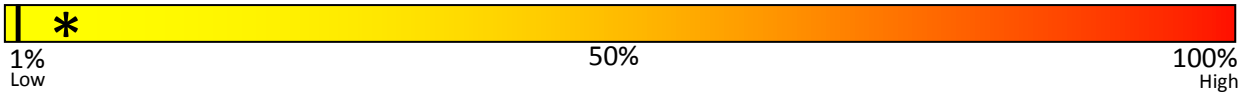
Trading Across Borders



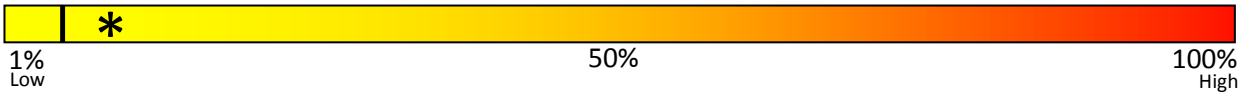
Starting a New Business



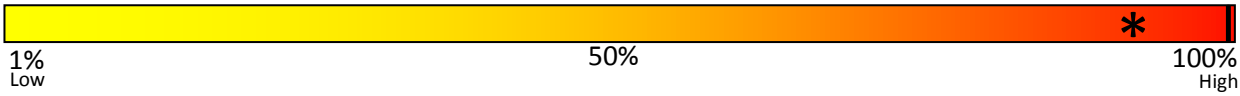
Growth Rate (Annually)



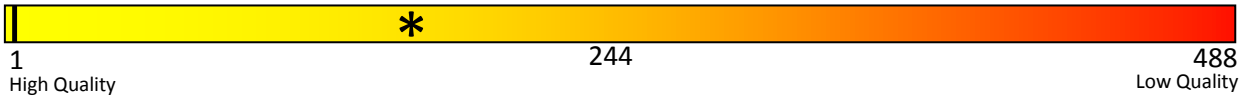
Unemployment Rate



Literacy Rate

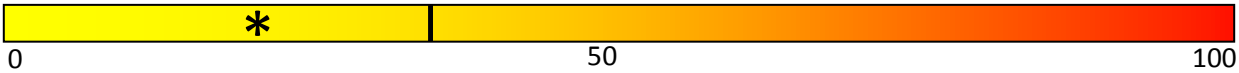


Infrastructure Quality

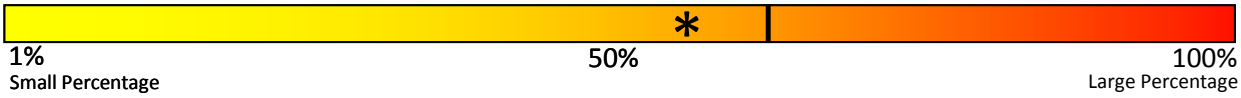


Per Capita GDP (USD)

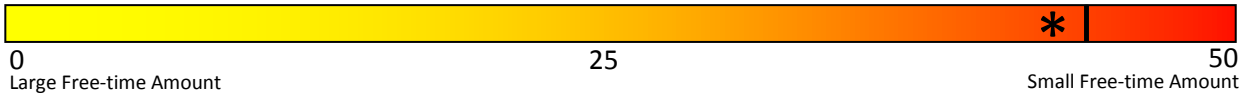
Median Age



Largest Age Group Percentage

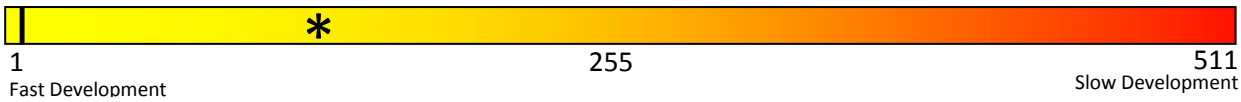


Typical Workweek (hours)

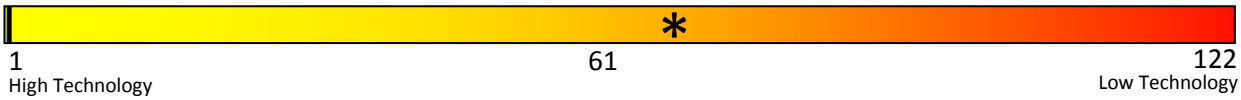


Population

Technological Development

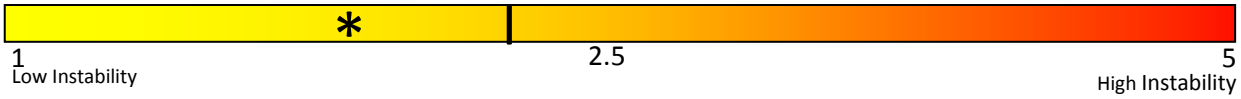


Technological Level

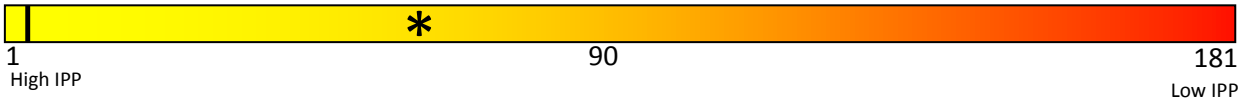


South Korea (*) PEST Analysis

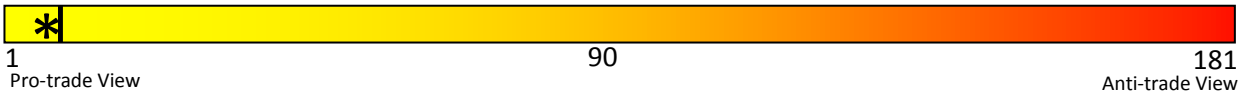
Political Instability



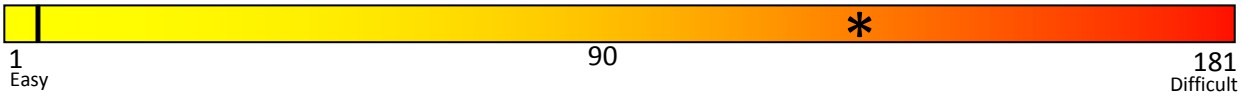
Intellectual Property Protection



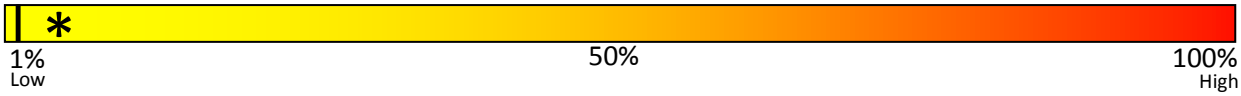
Trading Across Borders



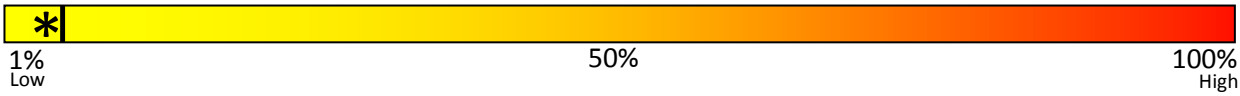
Starting a New Business



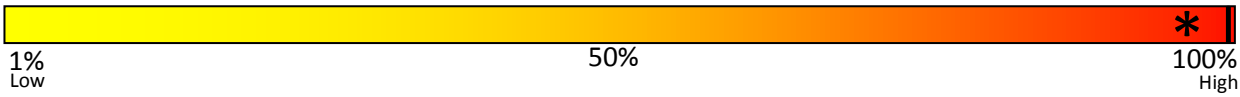
Growth Rate (Annually)



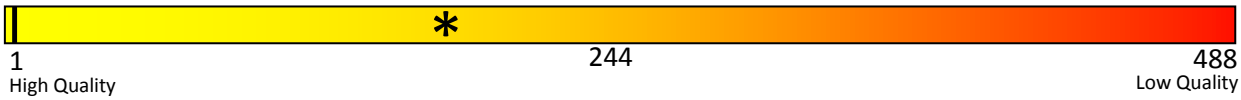
Unemployment Rate



Literacy Rate

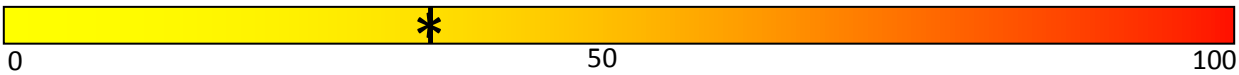


Infrastructure Quality

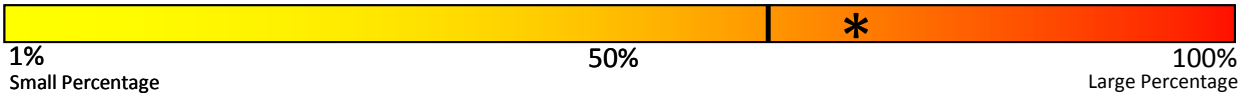


Per Capita GDP (USD)

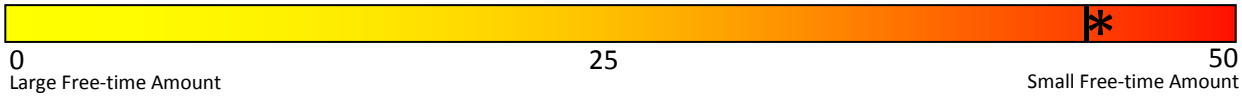
Median Age



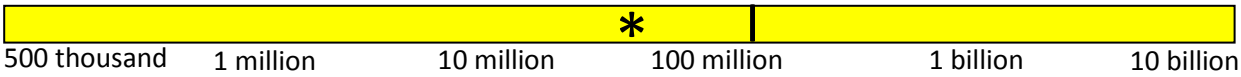
Largest Age Group Percentage



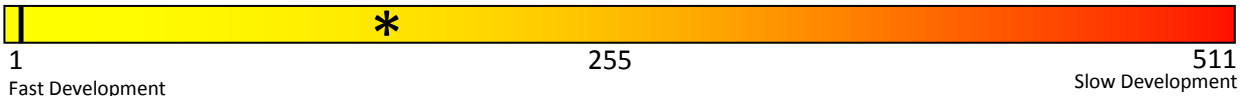
Typical Workweek (hours)



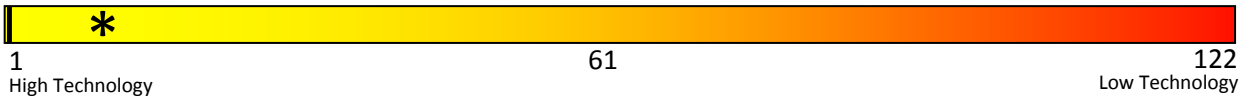
Population



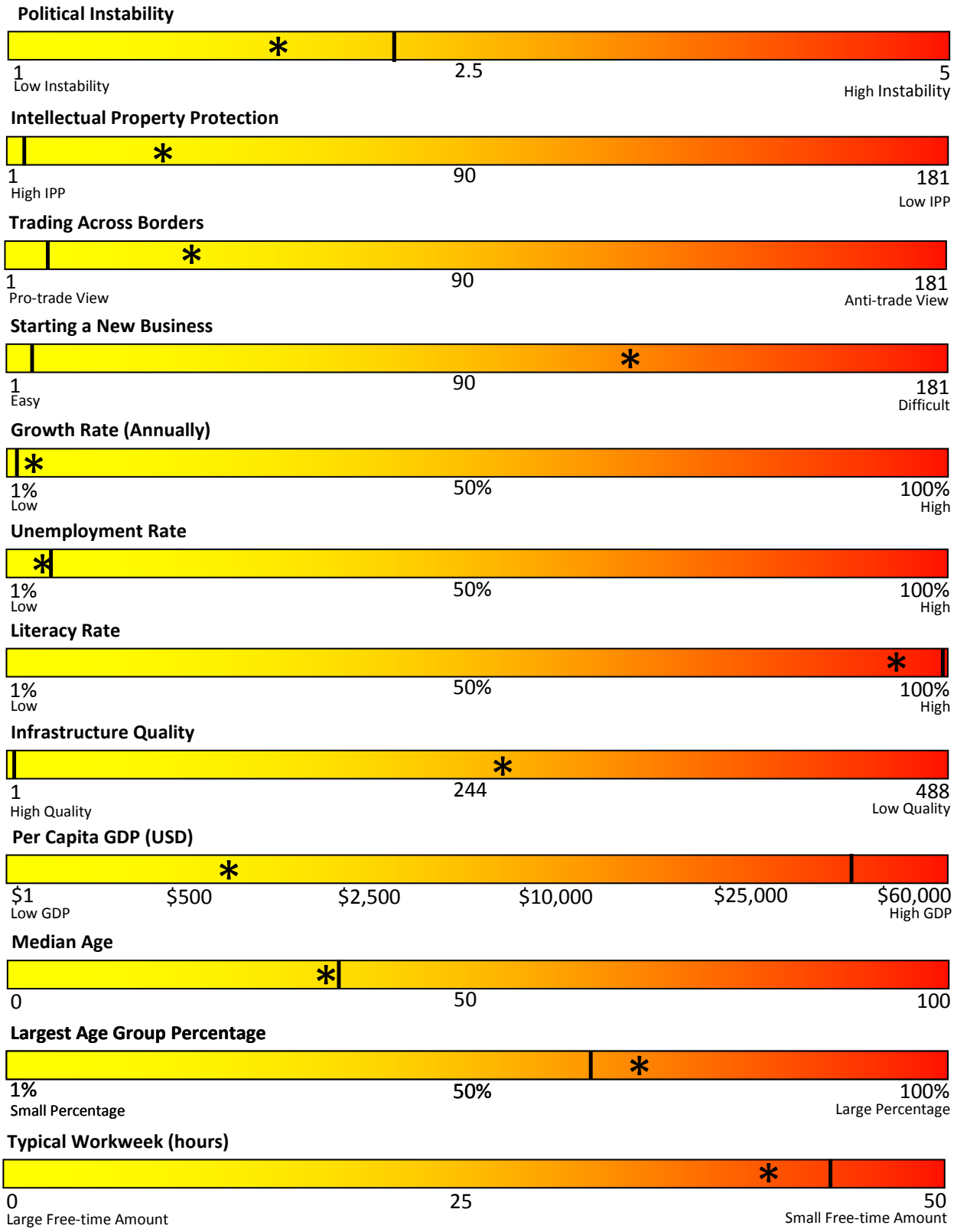
Technological Development



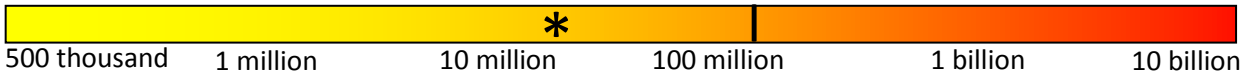
Technological Level



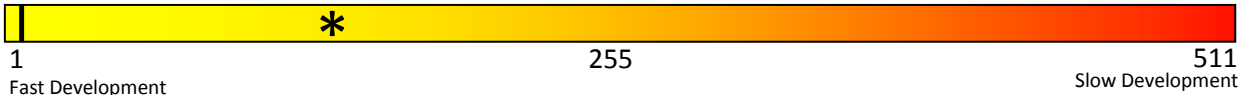
Taiwan (*) PEST Analysis



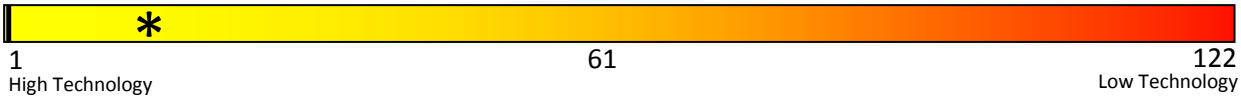
Population



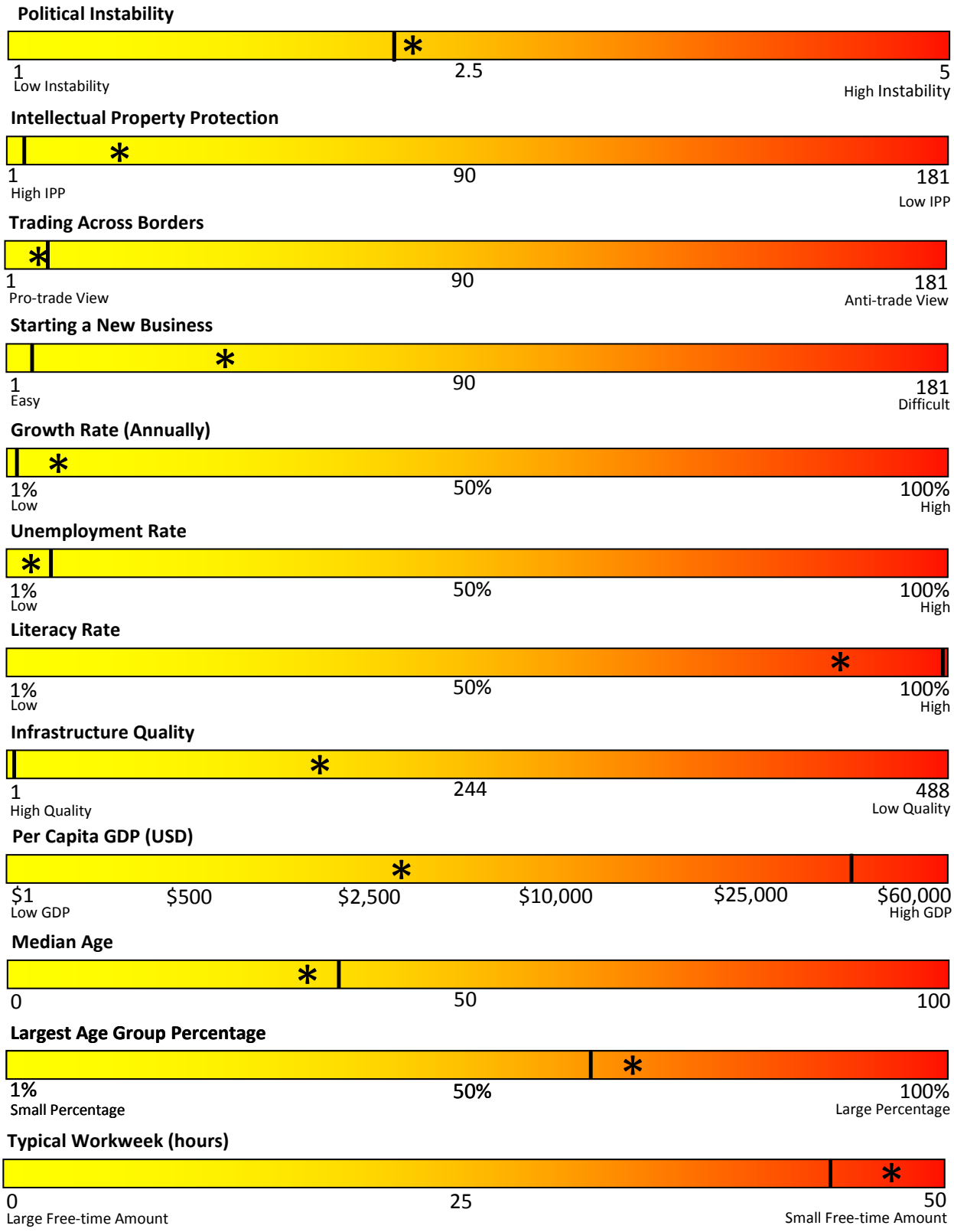
Technological Development



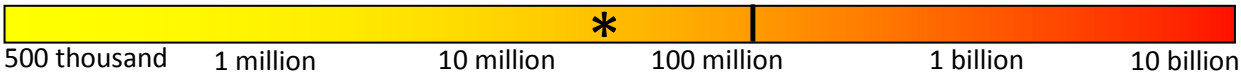
Technological Level



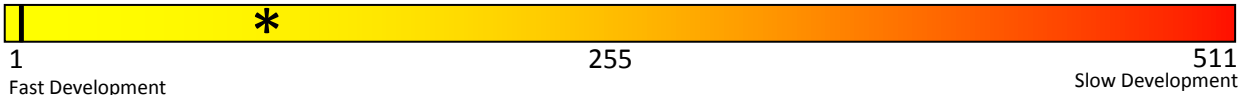
Thailand (*) PEST Analysis



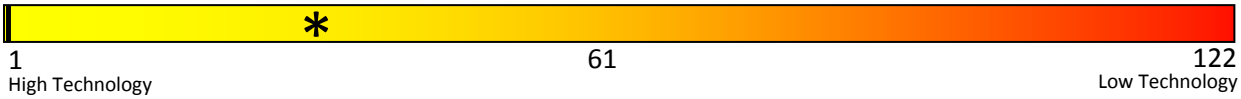
Population



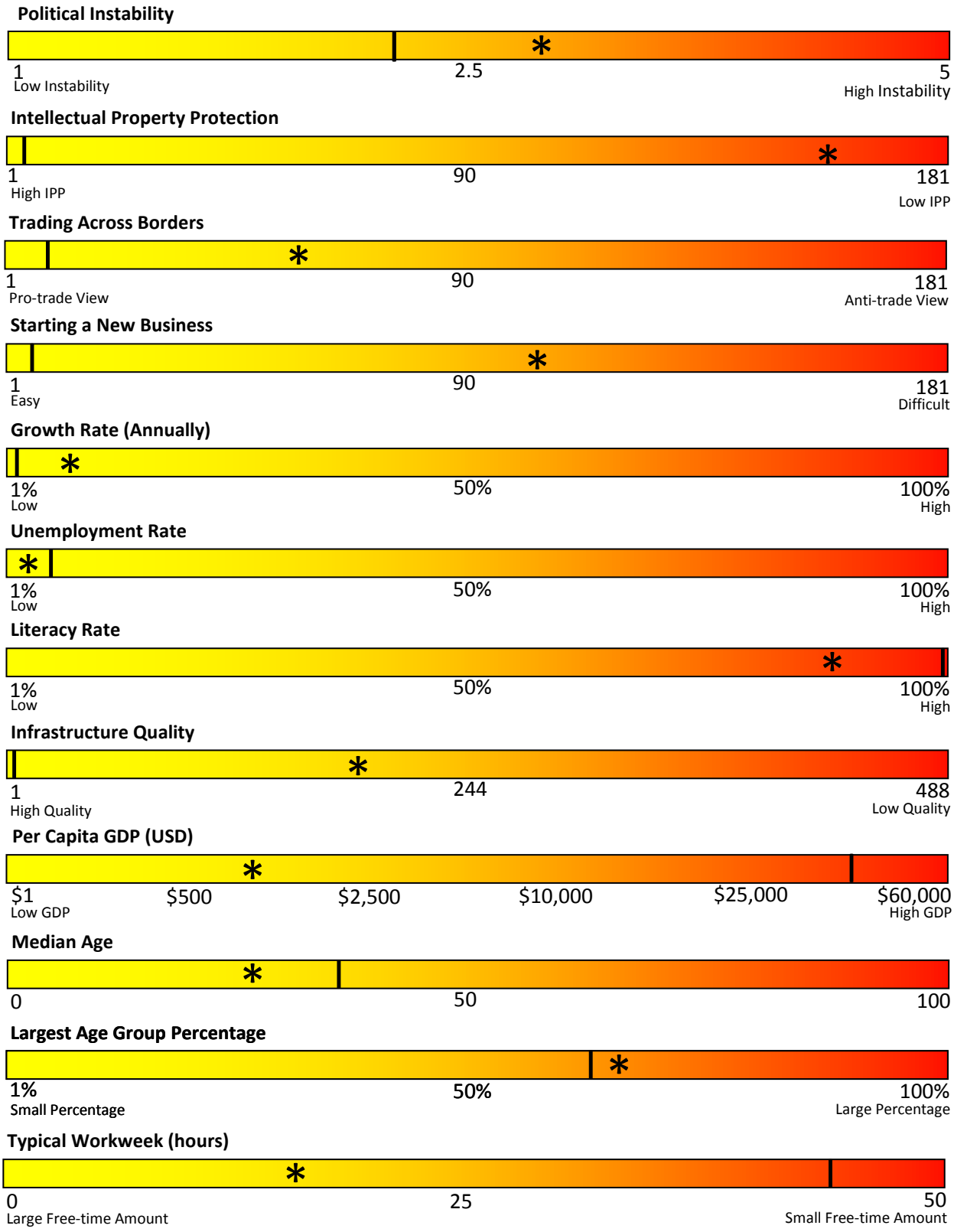
Technological Development



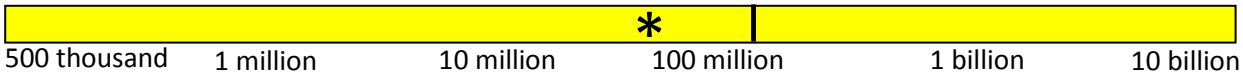
Technological Level



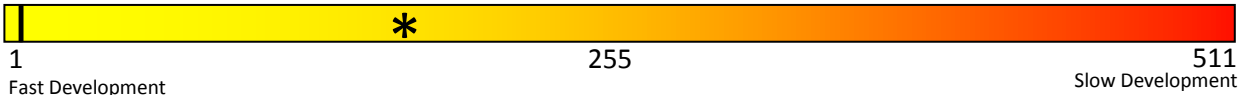
Vietnam (*) PEST Analysis



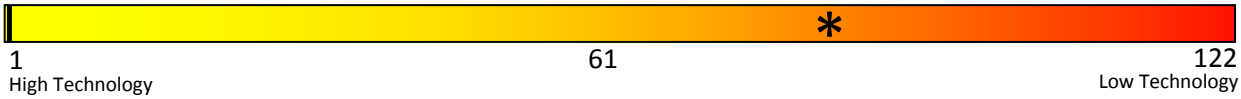
Population



Technological Development



Technological Level



Appendix 8—Additional Methods of Payment Used in International Trade

1. Standby Letter of Credit

Like the letter of credit, the standby letter of credit is a commitment of promise from the buyer's bank to pay the seller only if another business transaction specified in the standby letter of credit is not performed. For example, if the buyer and seller have agreed to an open account sale and the buyer defaults, the seller could present a sight draft and a written statement to the bank certifying that the buyer has failed to make payment on the shipment secured by the standby letter of credit and collects payment from the buyer's bank. Standby letters of credit are also frequently used as performance security such as when a seller is bidding on an international tender by a state trading company. In this case, the buyer may require the seller to open a standby letter of credit and if the seller is unable to perform the export sale contract, the buyer can draw on the value of the standby L/C as a penalty.

2. Credit Card

U.S. exporters who sell directly to the consumer may select credit cards as a viable method of payment. The rules governing credit card transactions differ from domestic use to international use. Exporters should check with their credit card companies for specific rules on international use of credit cards.

3. Consignment

Under consignment, the foreign distributor sells goods on behalf of the exporter, and the goods are available on a deferred basis. The exporter does not receive payment until the distributor sells the goods and transfers title of the goods. The exporter usually assumes the political and commercial risk for the goods until the payment is received.

4. Countertrade and Barter

Countertrade or barter may be necessary when selling to companies that cannot obtain convertible currency. In countertrade, the "buyer" agrees to undertake specified initiatives that compensate and benefit the "seller." Barter is the exchange of goods or services between two parties without using currency. These two methods of payment should be considered only in exceptional circumstances when extreme creativity is needed by an experienced exporter to complete the sale.

5. Mixed Methods

The payment options discussed in this section are not mutually exclusive. It is possible, and frequently practiced, that a seller will use a combination of payment methods. For example: the seller may require 50 percent of the payment as cash in advance using wire transfer and the remaining 50 percent documentary collections using a sight draft.

Appendix 9—Options for Financing Export Operations

1. Payment and Finance Terms

In addition to defining the terms of payment, provisions should be included for late payments, partial payments, and remedies for nonpayment. The terms of payment should consider the use of letters of credit.

There are many sources of financial assistance and insurance available to U.S. exporters in addition to their own working capital or their bank line of credit.

2. Commercial Banks

Commercial banks can assist you in financing export transactions. They can also help process letters of credit, drafts, and other types of payments. Banks make export loans backed by U. S. Government export loan guarantees.

Because many banks have international departments or correspondent banks in foreign countries, they can be a valuable asset in helping you export. When selecting a bank to handle your export transactions, it is important to identify a bank that is willing to serve your needs.

3. Export Management and Trading Companies

Both Export Management Companies (EMCs) and Export Trading Companies (ETCs) may be a source of financing on a limited basis, usually for a negotiated fee. They provide a range of services, including international market research and overseas marketing, legal insurance, product design, transportation, and warehousing.

One helpful publication is the Export Trading Company Guidebook.

4. Private Trade Finance Companies

Private trade finance companies utilize a variety of financing techniques in return for fees, commissions, participation in the transactions, or combinations thereof. International trade associations, such as a District Export Council, can assist you in locating a private trade finance company in your area.

5. Factoring Houses

Factoring houses purchase accounts receivable and assume full risk and responsibility for their collection. The buyer is notified and pays the factoring house directly. These organizations, many of which are subsidiaries of banks, charge a percentage for their services.

6. Foreign Credit Insurance Association

The Foreign Credit Insurance Association (FCIA) is a private entity serving the international marketplace. The Association writes a wide range of credit insurance and political risk coverage for experienced exporters. Great American Insurance Company, the Association's principal, is a large, privately held, multiline insurer founded in 1872.

FCIA offers a wide variety of policies for short-term sales (up to 180 days, exceptionally 360 days) and political risk insurance (policy periods up to 2 years). Both multibuyer and single buyer policies are available and there are no restrictions on content or sourcing of insured products. Multibuyer coverages include flexible premium options and short claim waiting periods.

The widely used Multi-Buyer Export Policy is generally written to cover shipments during a 1-year period and insures a reasonable spread on an exporter's sales. It enables the exporter to make quick credit decisions, so as to provide faster service to overseas buyers. The exporter can obtain

financing and offer competitive credit terms, such as tenure, to attract and retain buyers. The program is available around the globe, even in high-risk markets. Coverage is generally 95 percent for political and commercial risk, and the policy has a deductible similar to other forms of insurance.

For more information, please contact FCIA or your insurance broker.

7. Export-Import Bank of the United States

The Export-Import Bank of the United States (Ex-Im Bank) is a U. S. government agency that facilitates the export financing of primarily U.S. capital goods and services. Ex-Im Bank also helps U.S. exporters compete against foreign governments' subsidized financing in overseas markets. Ex-Im Bank offers four major export finance support programs: loans, guarantees, working capital guarantees, and export credit insurance.

Lending Programs-- Ex-Im Bank's loans provide competitive, fixed-interest-rate financing for U.S. export sales of capital equipment and services. Ex-Im Bank extends loans to foreign buyers of U. S. exports at low, fixed-interest rates according to the Organization for Economic Cooperation and Development (OECD) arrangement.

Guarantee Program-- Ex-Im Bank guarantees provide repayment protection for private sector loans to creditworthy foreign buyers of U. S. goods and services. The guarantees provide coverage for both political and commercial risks.

Working Capital Guarantee Program-- Ex-Im Bank also offers guarantees to lenders to support pre-export financial needs. The Working Capital Guarantee Program can help small and medium-sized exporters obtain the financing they need to produce and market goods for sale abroad.

Export Credit Insurance-- Ex-Im Bank's export credit insurance program offers insurance policies to protect U.S. exporters and banks against the political and commercial risk of nonpayment by foreign debtors.

8. Overseas Private Investment Corporation

The Overseas Private Investment Corporation (OPIC) is a U. S. Government corporation that promotes U.S. investment in less developed countries. OPIC's finance program is oriented towards medium-to long-term investments that involve significant developmental benefits. The program provides insurance coverage for U.S. investments against expropriation, inconvertibility of local currency, or losses resulting from war, revolution, or civil disorders. OPIC does not handle export financing directly, but may assist in financing complementary projects, such as a distribution yard for U.S. wood products. Insurance on letters of credit may also be obtained in the absence of FCIA or other commercial insurance. The insurance covers 90 percent of the investment plus attributable earnings.

9. Small Business Administration

The U.S. Small Business Administration (SBA) was created in 1953 as an independent agency of the Federal Government to aid, counsel, assist, and protect the interest of small business concerns, to preserve free competitive enterprise, and to maintain and strengthen the overall economy of our Nation. Small business is critical to our economy, to building America's future, and to helping the United States compete in today's global marketplace.

SBA works in cooperation with other Federal agencies and public- and private-sector groups to encourage small business exports and to assist small businesses seeking to export. SBA's outreach efforts include sponsoring or supporting export training conferences and developing "how to" and

market-specific publications for exporters. SBA directs and coordinates ongoing export initiatives, such as the Export Legal Assistance Network (ELAN).

SBA Export *Express* – SBA's Export *Express* loan program helps small businesses by allowing lenders to use streamlined and expedited loan review and approval procedures to process SBA guaranteed export loans of up to $250,000. Loan proceeds may be used for most business purposes, including: market development activities such as participation in a foreign trade mission; transaction-specific financing; general lines of credit for export purposes; and term loans for permanent working capital and fixed-asset financing.

Export Working Capital Program – In order to help small businesses export, SBA has developed the new Export Working Capital Program (EWCP). This program provides eligible small businesses with short-term, transaction-specific financing. Small businesses may use this program for pre-export financing of labor and materials, financing receivables generated from these sales, and/or standby letter of credit used as performance bonds or payment guarantees to foreign buyers. The EWCP provides repayment guarantees of 90 percent of $1.5 million (whichever is less) to commercial lenders and offers exporters preliminary commitments (PCs) that encourage lenders to provide credit. To be eligible, the small business concern must have been in operation, though not necessarily exporting, for at least 12 months. The EWCP offers a simplified application form. Interest rates and fees are negotiable between the lender and the small business exporter.

International Trade Loan Program – The International Trade Program (ITL) helps small businesses that are engaged in preparing to engage in international trade, as well as small businesses adversely affected by competition from imports. SBA can guarantee up to $2 million, less the amount of SBA's regular lending program. Loans are made by lending institutions with the SBA guaranteeing a portion of the loan. The applicant must establish either that the loan proceeds will significantly expand existing export markets or develop new export markets, or that the small business is adversely affected by import competition. Proceeds may be used for working capital and/or facilities or equipment. Maturities of loans for facilities or equipment may extend to the 25-year maximum.

Basic 7(a) Loan Program – SBA's Basic 7(a) Loan Program can fund the varied long-term needs of small businesses where necessary financing is unavailable on reasonable terms through normal lending channels. The program promotes small business formation and growth. SBA guarantees long-term loans to qualified firms. SBA's basic guaranty program makes loans available for many business purposes, such as real estate, expansion, equipment purchases, working capital, or inventory. Private lenders, usually banks, make loans which are guaranteed up to 75 percent of the loan by SBA. The borrower makes loan payments to the lender. SBA can guarantee up to $1.5 million.

Small Business Investment Companies- The Small Business Investment Companies (SBICs) exist to provide equity capital, long-term loans, and management assistance to qualifying small businesses. They are privately owned and operated companies that use their own capital and funds borrowed from the SBA to provide financing to small businesses in the form of equity securities and long-term loans. SBICs invest in a broad range of industries. SBICs may invest in export trading companies provided all other eligibility requirements are met.

U.S. Export Assistance Centers – The U.S. Export Assistance Centers (USEACs) offer a full range of Federal export programs and services. Clients receive assistance by professionals from the SBA, Department of Commerce, Ex-Im Bank, and other public and private organizations. It's a partnership that makes it easier for you to get the help you need to compete and succeed in the

global marketplace. Each USEAC, located in 19 cities nationwide, is ready to meet your business needs with: export marketing and trade finance assistance at convenient one-stop locations, customized counseling that best suits your company's experience and commitment to exporting, and customer service that uses the latest technology to bring export assistance to your doorstep.

For more information contact SBA with offices located throughout the United States and its territories. In addition, you can also contact the Small Business Development Centers (SBDCs) in multiple service locations and the Service Corps of Retired Executives (SCORE) offices to help you start and/or strengthen your own business.

10. U.S. Trade and Development Agency

The U.S. Trade and Development Agency (TDA) provides funding for feasibility studies of public and private sector projects in developing and middle-income nations that lead to the export of U.S. products and services. Helping U.S. businesses win contracts to implement major overseas infrastructure projects is one of TDA's main objectives. TDA funds studies on a variety of projects including energy and power, transportation, healthcare, mining & minerals development, telecommunications, agribusiness and environmental services. For additional information on country eligibility, development priorities, and U.S. goods procurement requirements, contact TDA.

Appendix 10—Export Market Information and Assistance

U.S. Department of Agriculture

1. Foreign Agriculture Service

- **The Foreign Agriculture Service** (FAS) of the U.S. Department of Agriculture is responsible for developing, maintaining, and expanding export markets for U.S. agricultural commodities-including solid wood products.
- **Overseas Offices**: FAS represents U.S. agriculture overseas through a network of agricultural counselors, attaches, and trade officers in 84 countries.
- **FAS Annual Reports**: FAS Annual Reports are prepared by FAS agricultural counselors, attaches, and trade officers overseas.
- **The Processed Products Group:** Through FAS services, agricultural exporters can keep abreast of foreign market development opportunities with marketing research reports, and listing of prospective foreign importers.

2. Agricultural Marketing Service

- **The Shipper and Exporter Assistance Program (SEA)**
- **Agricultural Marketing Service (AMS)**

3. Animal and Plant Health Inspection Service

- **Animal and Plant Health Inspection Service (APHIS)** actively participates in international programs to protect against the spread of plant and animal pests and diseases.

4. Forest Service

- **Forest Service** conducts research and analysis of the U.S. timber supply, demand, and wood products trade.
- **Forest Products Laboratory (FPL)** conducts wood utilization research and development to provide the science and technology needed to maintain and extend forest resources primarily within the United States, but also internationally.
- **The North Central Research Station** conducts research on genetic and silvicultural systems for sustainable, intensive forestry through the development of plant materials and production strategies necessary to deploy intensively managed tree plantations for multiple uses.
- **The Hardwood Tree Improvement & Regeneration Division** conducts research and technology development to improve genetic quality and regeneration success of hardwood species, including identification of the genetic structure of desirable traits in natural populations, advanced techniques for mass propagation of planning stock and development and demonstration of improved planning techniques.
- **The Northeastern Area, State and Private Forestry,** provides technical support and financial assistance to improve management of non-Federal land, including developing and expanding both domestic and international markets.

- **The Northeastern research Station** researches the hardwood supply and demand and solid wood fiber substitution trends in major industrial and consumer markets in the United States and overseas.
- **The Pacific Northwest Research** Station handles macroeconomic modeling of U.S. markets of wood products.
- **The Rocky Mountain Research Station conducts** research with emphasis on the Rocky Mountains, Great Basin and the Southwest.
- **The Southern Research Station** conducts forestry research that emphasizes measuring and monitoring forest resources, understanding ecosystem structure, function, and processes, managing resources for sustained and enhanced productivity, and protecting environmental quality in Southern forests.

U.S. Department of Commerce:

1. National Trade Data Bank

- The **National Trade Data Bank** (NTDB), the U.S. Government's most comprehensive source of world trade data, is a trade library of more than 200,000 documents.

2. International Trade Administration

- The **International Trade Administration** (ITA) of the Department of Commerce provides a wide range of services and programs to assist U.S. firms in developing export markets.
- Services of the ITA include:
  - Export Programs Guide: A Business Guide to Federal Export Assistance
  - International Partner Search (IPS)
  - Trade Opportunity Program (TOP)
  - Industry Sector Analysis (ISA)
  - International Company Profiles (ICP)
  - Commercial News (CNUSA)
  - Infrastructure Division
  - Office Materials and Machinery/Forest Products
  - Office of Trade and Project Finance

The Office of the U.S. Trade Representative

- **The U.S. Trade Representative (USTR)** is an agency of the Executive Office of the President.

State Departments of Agriculture and State Export Agencies

- **State Department of Agriculture** and related agencies cooperate with USDA in promoting and marketing U.S. foods and other agricultural products abroad.

Private Market Information Sources

- A variety of private credit-reporting, financial, and market-servicing firms target their services to the U.S. exporter.
- **Dun & Bradstreet (D&B)**- Offers a number of publications about international marketing, exporting, and foreign corporations and companies.
- **The Economist Intelligence Unit (EIU)**- The EIU is the business-to-business arm of The Economist Group, publisher of *The Economist*.
- **The Gale Group**- A Resource for researchers who want to know more about any company or industry.

Appendix 11—USDA Export Programs

Foreign Market Development Program

The goal of the Foreign Market Development Program**,** also known as the cooperator program, is to develop, maintain, and expand long-term export markets for U.S. agricultural products.

Market Access Program

The Market Success Program (MAP), authorized in 1996, uses funds from USDA's Commodity Credit Corporation (CCC) to help U.S. producers, exporters, and other trade organizations finance promotional activities for U.S. agricultural products.

Export Credit Guarantee Program (GSM-102)

The Export Credit Guarantee Program (GSM-102), administered by FAS, is designed to facilitate exporting financing of agricultural commodities or products.

Emerging Markets Program

The Emerging Markets Program is authorized by the Food, Agriculture, Conservation, and Trade Act of 1990 (FACT Act), as amended by the Federal Agriculture Improvement and Reform Act of 1996 (FAIR Act).

Quality Samples Program

The Quality Samples Program (QSP) is a pilot program designed to encourage the development and expansion of export markets for U.S. agricultural commodities, under the authority of the Commodity Credit Corporation (CCC) Charter Act, 15 U.S.C. 714c(f).

Section 108 Program

The Section 108 Program provides cost-sharing assistance in the form of foreign currencies to the private sector for the development, maintenance, and expansion of long-term export markets for U.S. agricultural products and agricultural technical assistance in participating countries.

Supplier Credit Guarantee Program

The Commodity Credit Corporation (CCC), U.S. Department of Agriculture, administers exports credit guarantee programs for commercial financing of U.S. agricultural exports.

USDA Market Development Cooperators:

1. American Forest & Paper Association's (AF&PA) is the umbrella organization for the U.S. wood products industry.
2. American Hardwood Export Council (AHEC) was created to serve the global demand for American hard wood products.
3. The Engineered Wood Association (APA), founded in 1933, represents engineered wood producers who manufacture approximately 80 percent for the structural panels (softwood plywood oriented strand board) made in the United States.
4. Southern Pine Council (SPC) is the promotional body for the Southern Pine lumber industry.
5. Softwood Export Council (SEC) is a trade council or U.S. softwood grading agencies industry trade associations, State export promotional development agencies, and others interested in promoting U.S. softwood internationally.

Appendix 12—Moisture Content of Wood

Air-dried or air-seasoned lumber in Missouri typically has a moisture content (MC) between 12 and 14 percent. Moisture content is defined as:

$$\text{MC percent} = \frac{\text{Green Weight - Ovendry Weight}}{\text{Ovendry Weight}} \times 100$$

The green, or wet weight, is the as-is weight. The ovendry weight is determined by drying at 212 degrees Fahrenheit until a constant weight is reached. Summers in Missouri provide low ambient humidity, prevailing winds, and the sun. This combination can dry 1-inch red oak boards to 20 percent MC in two to three months.

When drying lumber, the first removed water is known as free water. The energy needed for free water to evaporate is equivalent to the energy necessary to boil water. After the evaporation of the free water, the wood has reached what is known as the fiber saturation point (FSP). The FSP varies due to species variances between 25 and 30 percent moisture content. The remaining water in the wood below the FSP is called bound water. Bound water requires significantly higher energy levels to break its bonds with the wood.

Eventually, the wood will reach a moisture content that is in equilibrium with the surrounding ambient air and humidity. A one-inch red oak board may take two to three months, a two-inch board may take six to eight months, and even thicker lumber may take years to become air dry. Frequently, eastern hardwood lumber, such as red oak, is air dried to 25 or 30 percent MC and then placed in a dry kiln—an environment where the rate of drying can be increased and controlled.

Appendix 13—Surface Measure: The Surface Area of a Board in Square Feet

To determine surface measure, multiply the width of the board in inches by length of the board in feet and divide the sum by 12 rounding up or down to the nearest whole number. The percentage of clear wood required for each grade is based on the surface measure, not the board feet, and because of this all boards, no matter what the thickness, are graded the same way.

Some examples for surface measure calculations are as follows:

6 ½" x 8' ÷ 12 = 4 ⅓ = 4' SM

8" x 12' ÷ 12 = 8' SM

10" x 13' ÷ 12 = 10 (10/12) = 11' SM

Example of SM and BF:

The board above is a 2" thick, 6 ¼" wide, and 8' long.

6 ¼" x 8' ÷ 12 = 4 ¼, thus the SM is 4'. Multiply the SM by the thickness 2" and the BF is 8'.

Appendix 14—Determining Export Prices

A Worksheet to Guide Beginner's in Preparing an Export Price Analysis

Based on "Beginner's Guide to Export Price Analysis
(http://dnr.wi.gov/forestry/publications/pdf/BeginGuideExPriceAnalysis.pdf)

General Company Information

Name of Company Preparing Quotation	Banks Name
Address	Telephone Number
City	Fax Number
State Zip Code	Name of company requesting price quotation
Email Address	Address
Telephone Number	City
Fax Number	State Zip Code
Seller's Reference:	Email Address
Arbitrary number of identification transaction code assigned to the inquiry by the seller for racking the inquiry.	Telephone Number
Buyer's Reference	Fax Number
Arbitrary or code assigned by buyer normally found on inquiry. Similar to a purchase order number. Should be on all correspondence back to buyer.	Cable Complete Number and international code Telephone Number Complete number with area code

General Product Information:

Commodity:

Product being sold.

Schedule "B" Number: _____
The number is listed in the Federal Catalogue and can be reached by calling the USDA, Department of Commerce, Milwaukee, Wisconsin - 414-227-4063

Bill of Lading Description:

Commodity: What is being shipped, size, number, weight, 5,000 bd', 4/4 red oak (*Must match verbiage exactly in letter of credit and the commodity must also match the description quoted for steamship line tariff description. Forwarder or steamship line can tell you exact description quoted for the applicable rate).

Number of Units (not packages) in Shipment: _____
Volume (in units of measure agreed upon by buyer and seller)

Weight of Shipment: _____ Units of Measure: _____
Total weight (convert if necessary to buyers unit of measure; convert lbs. to kilos.). (lbs. x 0.4536 = kilos).

Dimensions of Shipment: _____ Units of Measure: _____
Convert to metric (2.54 cm/inch; the dimensions of freight are length x width x height)

Volume of Shipment: _____ Units of Measure: _____
Convert to metric "35.313 cubic ft/cubic meter. Example: 35.313 x cubit ft = meters cubed.

Manufacturing Origin:

Location of manufacturing plant.

Port of Shipment:
US port where product leaves the country.

Destination or Port or Customer's Plant:

Where product will be shipped and buyer takes possession from the ship (overseas); ie: destination port/customer plant).

Payment Method:

Method by which the seller will be paid

Export Price of Shipment, FOB Plant

Priced at point to which seller will deliver goods without charges to the buyer. Additional transporting charges become the responsibility of the buyer.

Inland Freight and Miscellaneous Charges:

Transportation cost from factory to export port.

From: _____ To: _____
Manufacturing Plant Port of Shipment

a. Via: _____ Rate: _____ $US per _____ Total: _____ $US
(i.e. rail, truck, etc.) Amount Unit of measure

b. Pier Delivery: Total: _____ $US
(containers - railroad to pier, usually included in inland freight)

_____ $US

Export Price of Shipment, Free Alongside Ship (FAS):

All FOB costs and all costs to alongside vessel from plant to port of export.

a. Unloading Charge: $US _____ per _____ Total: _____ $US
(charge to unload cars or truck at US Port) Unit of measure

b. Terminal Charge: _____ Total: _____ $US
(charges that are charged by port authority)

c. Export Crating: _____ Total: _____ $US

d. Wharfage: _____ Total: _____ $US
(storage fees at port)

e. Freight Forwarding Charges: _____ Total: _____ $US
(fees charged by freight to book ship and prepare documentation to match identical to letter credit if applicable)

f. Other Charges: _____ Total: _____ $US

g. Phytosanitary Certificates: _____ Total: _____ $US
(certificates obtained from DATCP when proper inspection and treating has to be done. Call the Department of Agriculture for more information.)

Total Export Price, Fee Alongside Ship (Items a-g): _____ $US

Total Cost of Drayage to Port: _____ $US

Ocean Freight and Ancillary Charges

All of the following charges can be obtained from the port of export or freight forward but should be identified individually.

a. Vessel Loading (bulk only): Total: _____ $US
(additional charges for loading bulk material into a vessel)

b. Heavy Lift Charge (bulk only) Total: _____ $US
(additional charges for heavy items)

c. Extra Length Charge (bulk only) Total: _____ $US
(additional charges for over-length items)

d. Ocean Freight: _____ $US per _____ Total: _____ $US
(all of the following charges can be obtained from the port of export or freight forward but should be identified individually)

e. Bunker Surcharge: _____ $US per _____ Total: _____ $US
(charge for moving and storage within ship)

f. Port Congestion Surcharge: _____ $US per _____ Total: _____ $US
(needs to be identified by port authority or freight forwarder)

g. Country Landing Charge: _____ $US per _____ Total: _____ $US
(needs to be identified by port authority or freight forwarder)

h. Currency Adjustment Surcharge: _____ %/Ocean Freight Total: _____ $US
(percentage of ocean freight)

i. Other Charges Total: _____ $US
(any other charges - i.e. offloading fees, in negotiation, identify when buyer takes ownership of goods)

j. Other Charges Total: _____ $US
(any other charges - i.e. offloading fees, in negotiation, identify when buyer takes ownership of goods)

Total Ocean Freight and Ancillary Charges: _____ $US

Consular Fees

Fees that are sometime charged by different consuls, probably included in forwarding fees.

---

1. Describe _____ Total: _____ $US
2. Describe _____ Total: _____ $US
3. Describe _____ Total: _____ $US

Total Consular Fees: _____ $US

Total Export Price, Cost and Freight (C&F): $US

Seller quotes price including goods and all transportation charges to the named point of destination (does not include insurance).

Ocean Cargo Insurance:

Sum Insured _____ Total: _____ $US

110% of C & F Price

a. Rate, Marine Risk _____ $US per $100 Valuation Total: _____ $US

b. Rate, War Risk _____ $US per $100 Valuation Total: _____ $US

Total Ocean Cargo Premium: _____ $US

Potential Locations for a Hardwood Products Export Facility in Southern Missouri

Prepared For:
Missouri Department of Agriculture

By:
Value Ag, LLC

VALUE AG, LLC
Innovating Tomorrow's Agriculture

1. Executive Summary

1.1 Introduction/Overview

This study is an extension of a Missouri wood products export feasibility study prepared by Value Ag, LLC for the Missouri Department of Agriculture. The feasibility study analyzed a proposed wood products export cooperative to be located in southern Missouri. This region contains several smaller sawmill operations that alone cannot easily fill large orders for exports, and the motivation for the study is to ascertain whether a group working cooperatively can tap into these export markets to capture further value. A strategy of utilizing the expertise of brokers to establish business relationships in key growth Asian markets for red oak, an abundant hardwood in southern Missouri, is recommended. This endeavor requires the cooperation of several sawmills to obtain enough critical mass to serve these markets with high quality FAS red oak. Southern Missouri is nicely situated with export access from St. Louis via the Mississippi River to the Gulf of Mexico or by utilizing surplus containers in Kansas City that need to return to Asia via the west coast. Forecasted growth in red oak prices and US exports of red oak to Asian export markets make the proposition promising.

This business proposition is positioned as a producer-owned operation, with producer-owners contributing 60% of start-up equity (investment and working capital) and with delivery obligations tied to an equal percentage of annual feedstock needs. The investments requirements pertain to the necessary equipment and facilities, such as drying kilns and storage at an accumulation site, and a semi truck, to operate the business proposition. The information presented here pertains to the identification of five potential locations in south-central Missouri at which the operation may be established.

Ideally, the facilities will be located on a five to ten acre plot that is mostly flat. As the land in this area is likely to be timbered, it will need to be clear-cut before the facilities are put in place. The firm will want to avoid exporting green lumber if possible. Although there are other types of drying methods, kiln drying is the recommendation for this firm. It is possible that the firm will choose to combine drying methods, possibly air or shed drying prior to kiln drying. This will allow for the lumber entering the kiln to have a reduced moisture content, which will in turn shorten the length of time the lumber will need to spend in the kiln. If the firm decides to build a kiln drying facility, they will need to take into account the amount of wood it wants to export. Capacity will be one of the biggest determinants of selecting a kiln drying system and model. Adequate access to transportation of various types will be key in keeping costs at a minimum. When choosing the location for the facility, highway and railway access will need to be considered.

1.2 Key Findings

This section highlights the key findings for each of the locations considered in this study. These key points include information on the amount of privately- and publically-owned forested land and the number of sawmills nearby, as well as access to transportation.

The site study was able to determine five viable locations for locating a wood export cooperative. Some market regions overlap, and this was allowed with the realization that not all viable site locations will ultimately lead to a viable business. Much of the information in the site study was based off the accompanying feasibility report related to access to lumber in the region, number of saw mills necessary to represent a viable supply for a wood export cooperative including kiln drying, and consideration for non-listed saw mills in the region. These independently owned saw mills are owned by individuals that saw wood as a hobby on their own land. Also, we took into account the ability for a collection truck to traverse the road and highway system on a regular schedule to pick up wood from the various saw mills.

Doniphan:

Highlights—

- 28 saw mills within 12-mile radius
- Mostly Ripley County, MO within radius
- Approximately 60% of radius is forested land
- Approximately half to a third of forested land is public land (Mark Twain National Forest, Mudpuppy CA, Little Black CA),
- U.S. and state highway access, but no rail access
- No urban area within 12 miles of Doniphan

Ellington:

Highlights—

- 13 saw mills within 12-mile radius; 3 mills slightly outside of radius
- Mostly Reynolds County, MO plus small portion of Shannon and Carter County, MO
- Over 90% forested land within radius
- A majority of forested land is public land
- Only urban area within radius is Ellington
- No U.S. highway access, only state highway access
- No rail access

Houston:

Highlights—

- 4 mills within 12-mile radius; 7 mills slightly outside of radius
- Centered in Texas County, MO
- Less than 50% forested land within radius
- Approx 10% to 20% of forested land is public land
- Only urban area within radius is Houston, however also includes small municipality of Raymondville
- Access to U.S. Highway 63 and State Highway 17
- No rail access

Salem:

Highlights—

- 20 sawmills within 12-mile radius
- Radius mostly in Dent County with small parts in Crawford and Phelps Counties
- Less than 50% forested land
- Approximately 15% to 30% of forested land is public land
- Only urban area within radius is Salem
- No U.S. highway access, only state highway access
- No rail access

Van Buren:

Highlights—

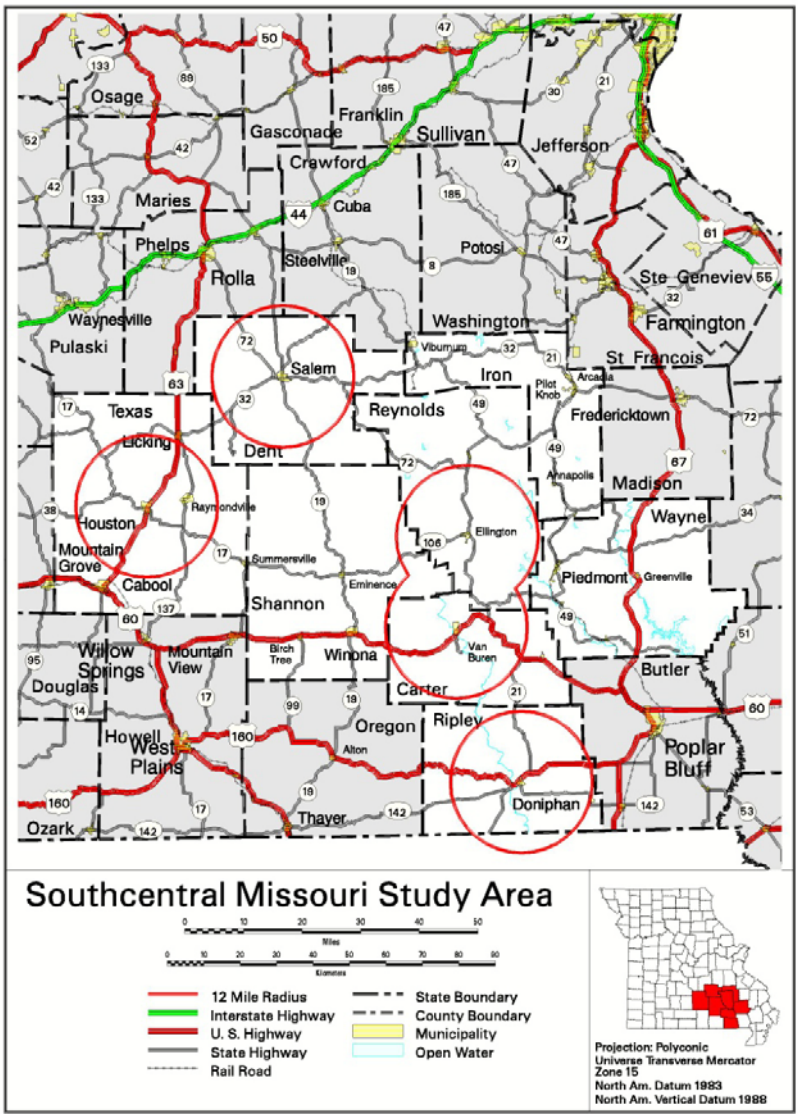
- 22 saw mills within 12-mile radius
- Radius mostly in Carter County with approx ¼ of area in Reynolds and Shannon Counties
- More than 90% forested land
- Approximately 50% to 60% of forested land is public land
- Only urban areas within radius is Van Buren and Fremont (both are very small)
- U.S. highway access and state highway access
- No rail access

2. Potential Sites

2.1 Overview of Region

The region of interest for this study is an eight country area in south-central Missouri comprised of Carter, Dent, Iron, Reynolds, Ripley, Shannon, Texas, and Wayne counties (Exhibit 2.1.1). This region contains both privately- and publicly-owned forested land and accounts for much of the wood and lumber production for the state. Each potential location shown in Exhibit 2.1.1 is centered near a municipality on major State and U.S. highways with a 12 mile radius of primary lumber sources from nearby sawmills. Red oak is the predominant species in the region. *(Note: Enlarged versions of each map can be found in the appendix.)*

Exhibit 2.1.1 Eight County Production Region



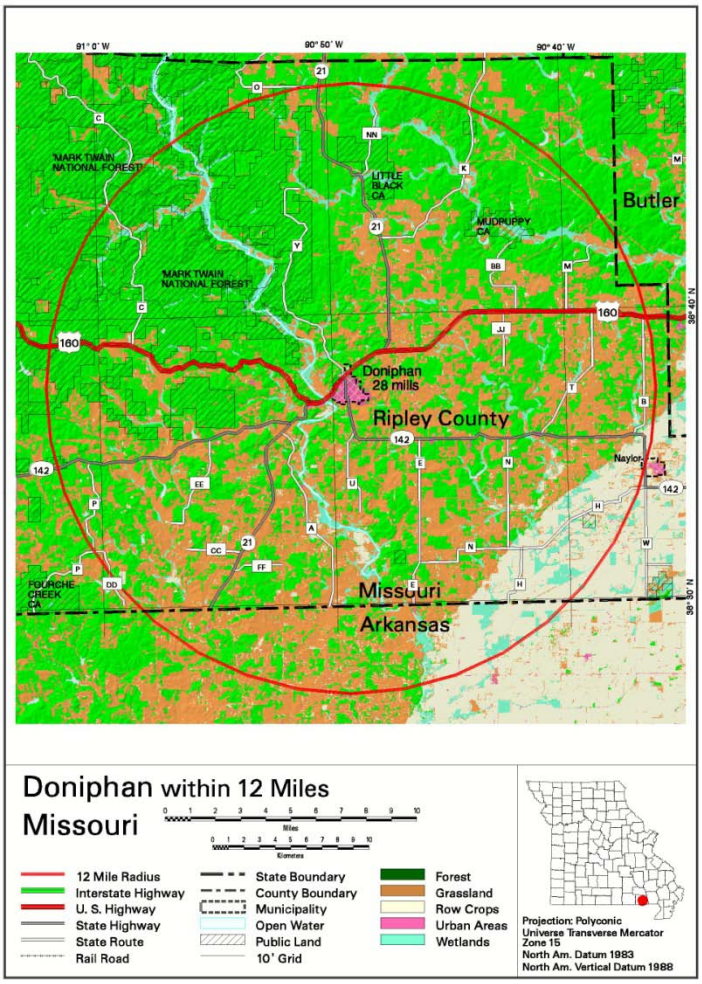
2.2 Specific Sites

This section focuses on the pertinent information for each of the five potential sites identified. Maps presented herein illustrate the proportion of privately- and publically-owned forested land nearby, as well as access to highways. Further, the number of sawmills within a 12-mile radius is also identified.

2.2.1 Doniphan, Missouri

Exhibit 2.2.1 contains a map of the potential site at Doniphan, Missouri. Doniphan is situated on U.S. Highway 160, but no rail access is available. No urban area exists within 12 miles of the city. In fact, nearly 60% of the land within a 12-mile radius of Doniphan is forested, with somewhere between a third to half of that being publically-owned. Twenty-eight sawmills operate in this region. This area is comprised mostly of Ripley County with the radius crossing a small part of Butler County and also into Arkansas.

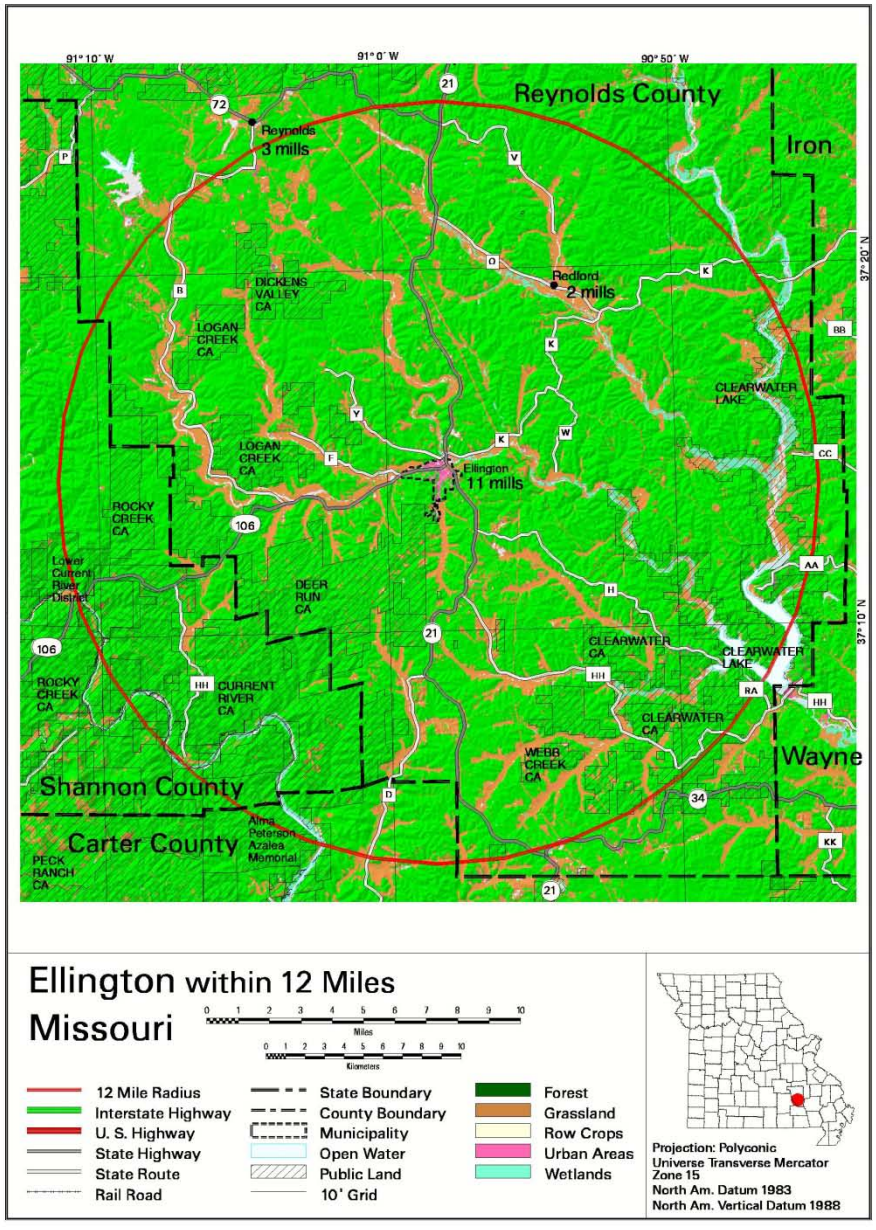
Exhibit 2.2.1 Potential Site at Doniphan, Missouri



2.2.2 Ellington, Missouri

Exhibit 2.2.2 contains a map of the potential site at Ellington, Missouri. Ellington is located on State Highway 106, but no immediate access to U.S. highway or rail is available. No other urban area exists within 12 miles of the city, as over 90% of the land within that radius is forested, with somewhere between a third to half of that being publically-owned. Thirteen sawmills are located within radius with three more slightly outside of it. The area is comprised mostly of Reynolds County plus small portions of Shannon and Carter Counties.

Exhibit 2.2.2 Potential Site at Ellington, Missouri



2.2.3 Houston, Missouri

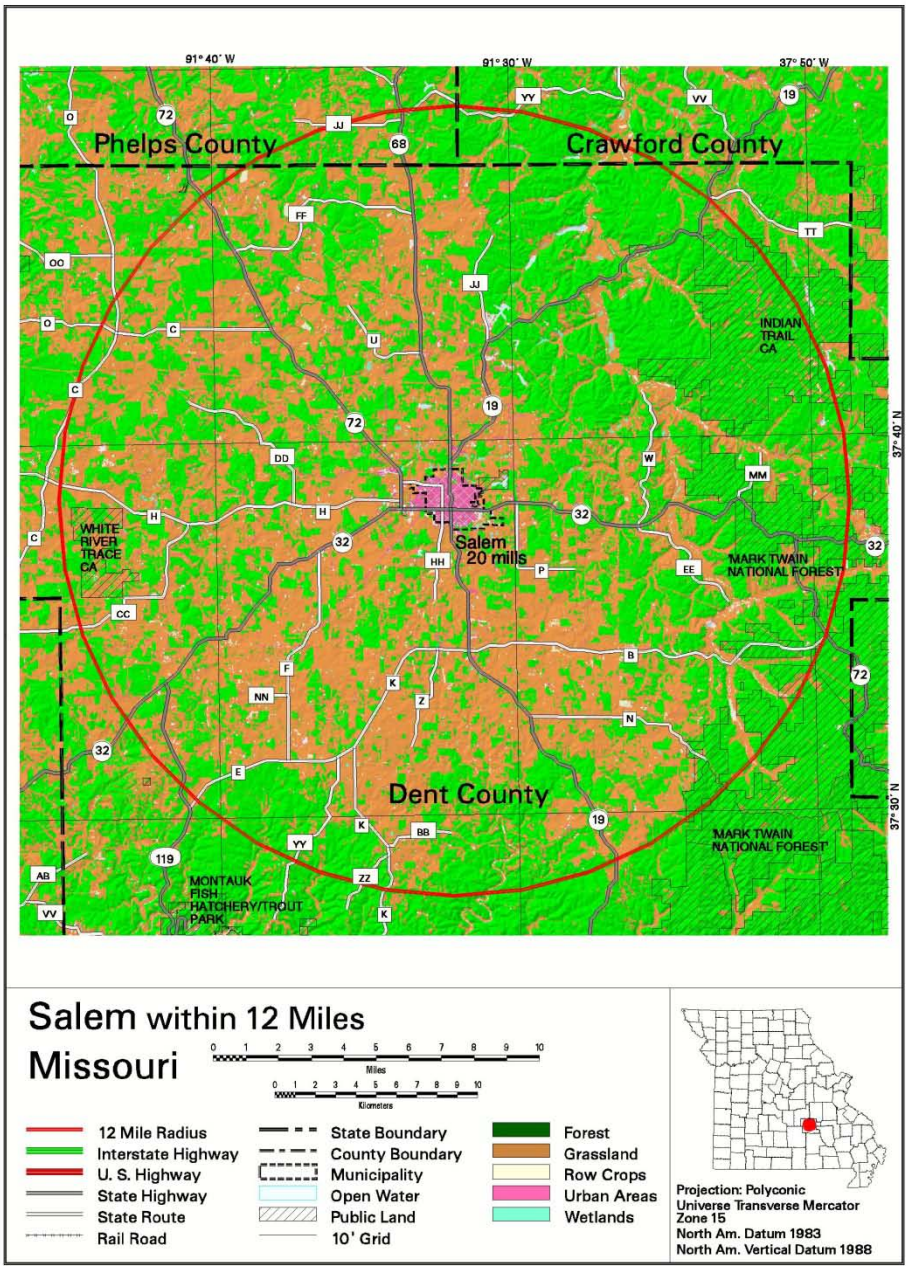
Exhibit 2.2.3 contains a map of the potential site at Houston, Missouri. Centered in Texas County, Houston is located on U.S. Highway 63 with no access to rail. The only urban area within the 12 mile radius is Houston and the small municipality of Raymondville. Less than 50% of the land within that radius is forested, with about 10% to 20% being publically-owned. Four sawmills are located within radius with seven more slightly outside of it.

Exhibit 2.2.3 Potential Site at Houston, Missouri

2.2.4 Salem, Missouri

Exhibit 2.2.4 contains a map of the potential site at Salem, Missouri. Salem is located in on State Highway 32 with no immediate access to U.S. Highway or rail. The only urban area within the 12 mile radius is Salem. Less than 50% of the land within that radius is forested, with about 15% to 30% publically-owned. Twenty sawmills are located within radius. The radius mostly spans Dent County and small parts of Crawford County and Phelps County.

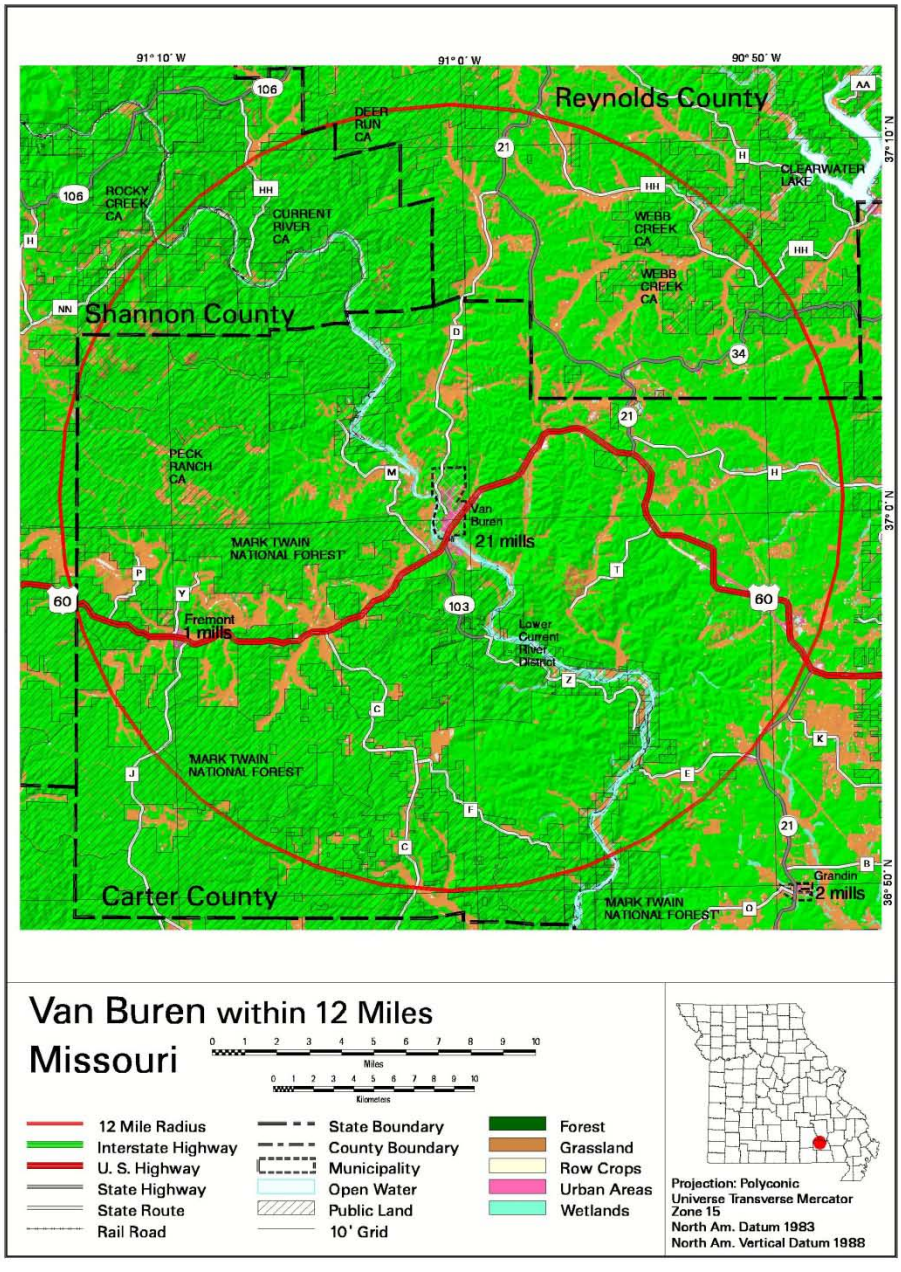
Exhibit 2.2.4 Potential Site at Salem, Missouri



2.2.5 Van Buren, Missouri

Exhibit 2.2.5 contains a map of the potential site at Van Buren, Missouri. Van Buren is located in on U.S. Highway 60 with no access to rail. The only urban areas within the 12 mile radius, Van Buren and Fremont, are fairly small. More than 90% of the land within that radius is forested, with about 50% to 60% publically-owned. Twenty-two sawmills are located within radius. The radius mostly spans Carter County with about a quarter of the area crossing into Reynolds County and Shannon County.

Exhibit 2.2.5 Potential Site at Van Buren, Missouri

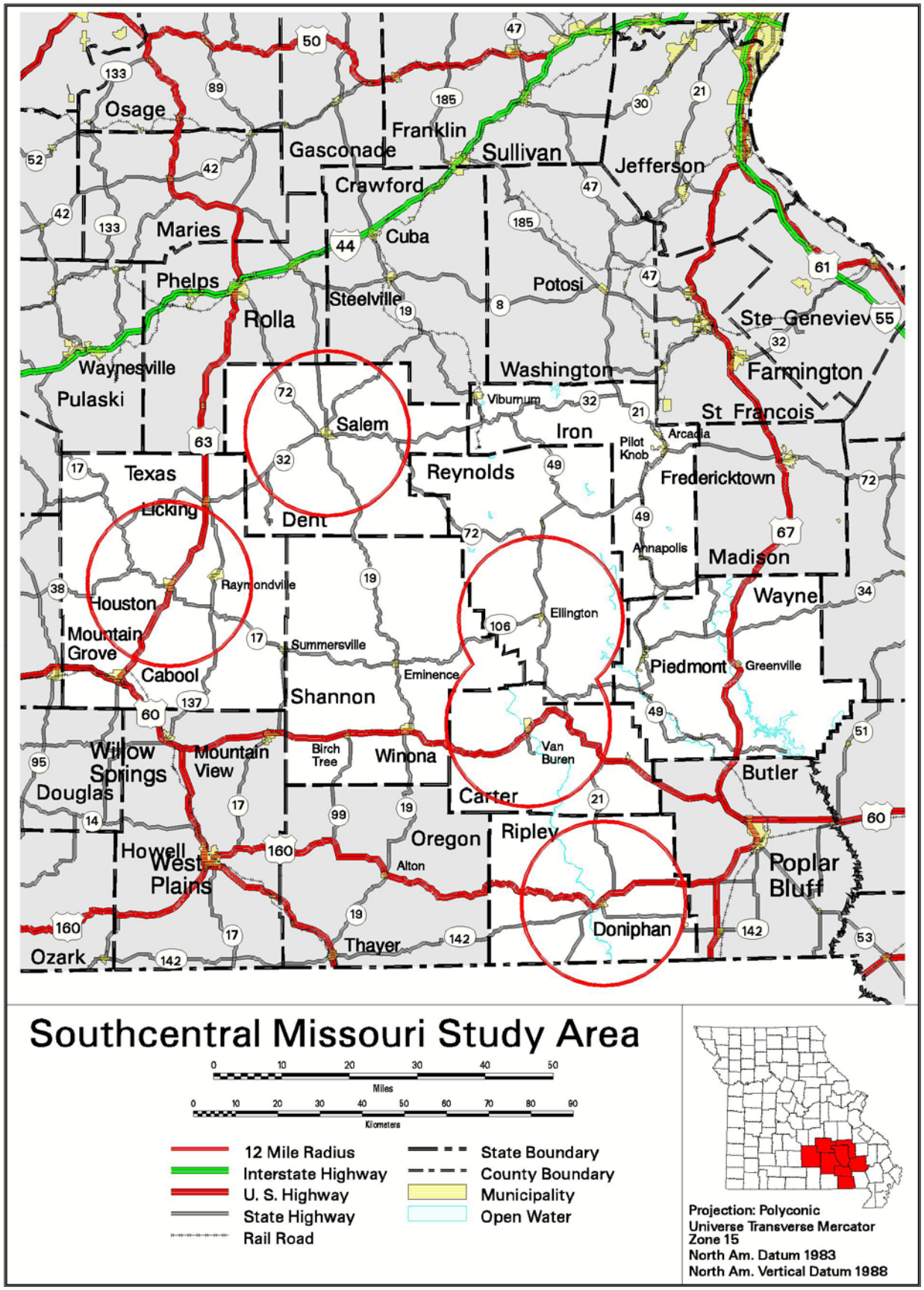


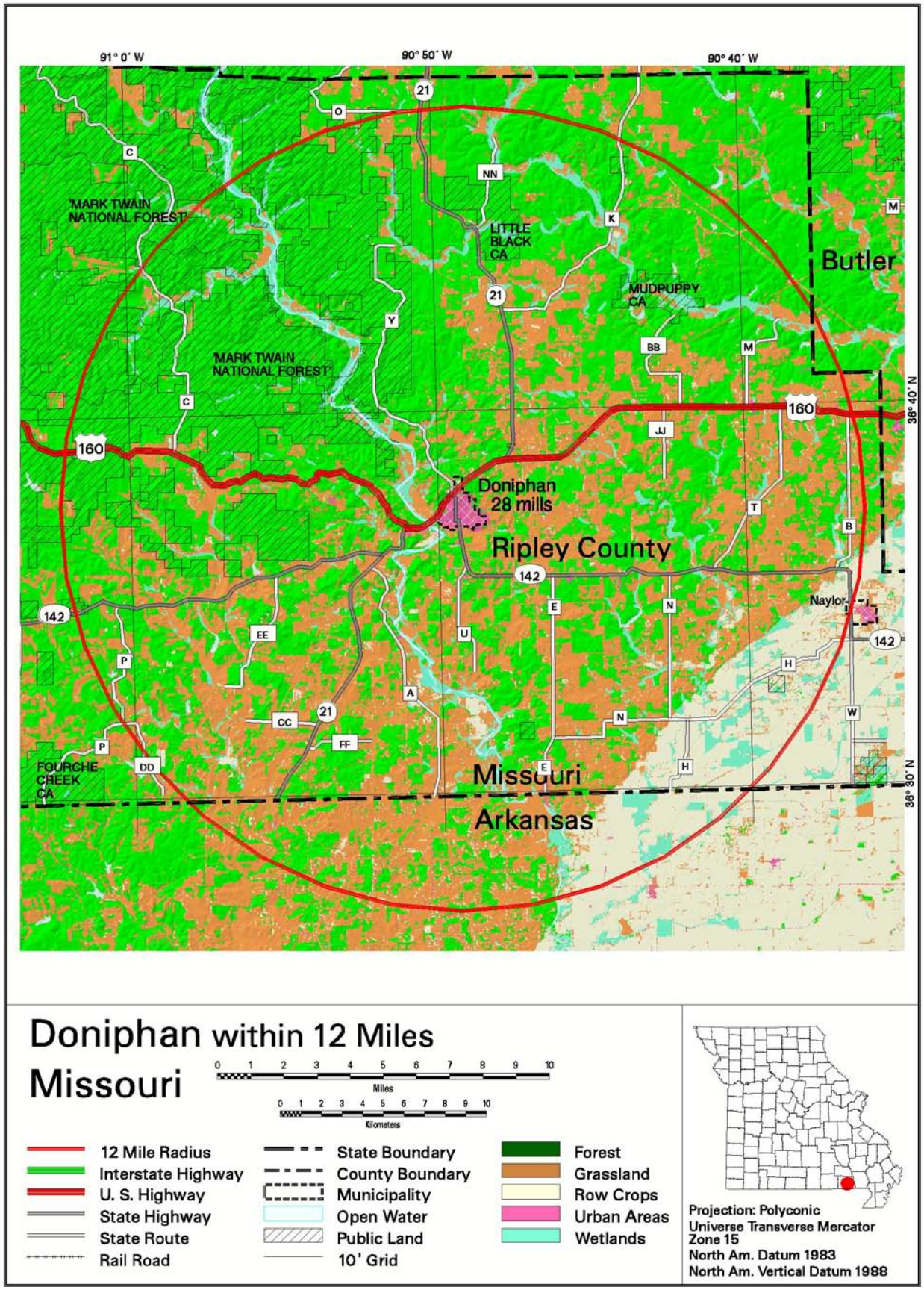
2.3 Conclusions

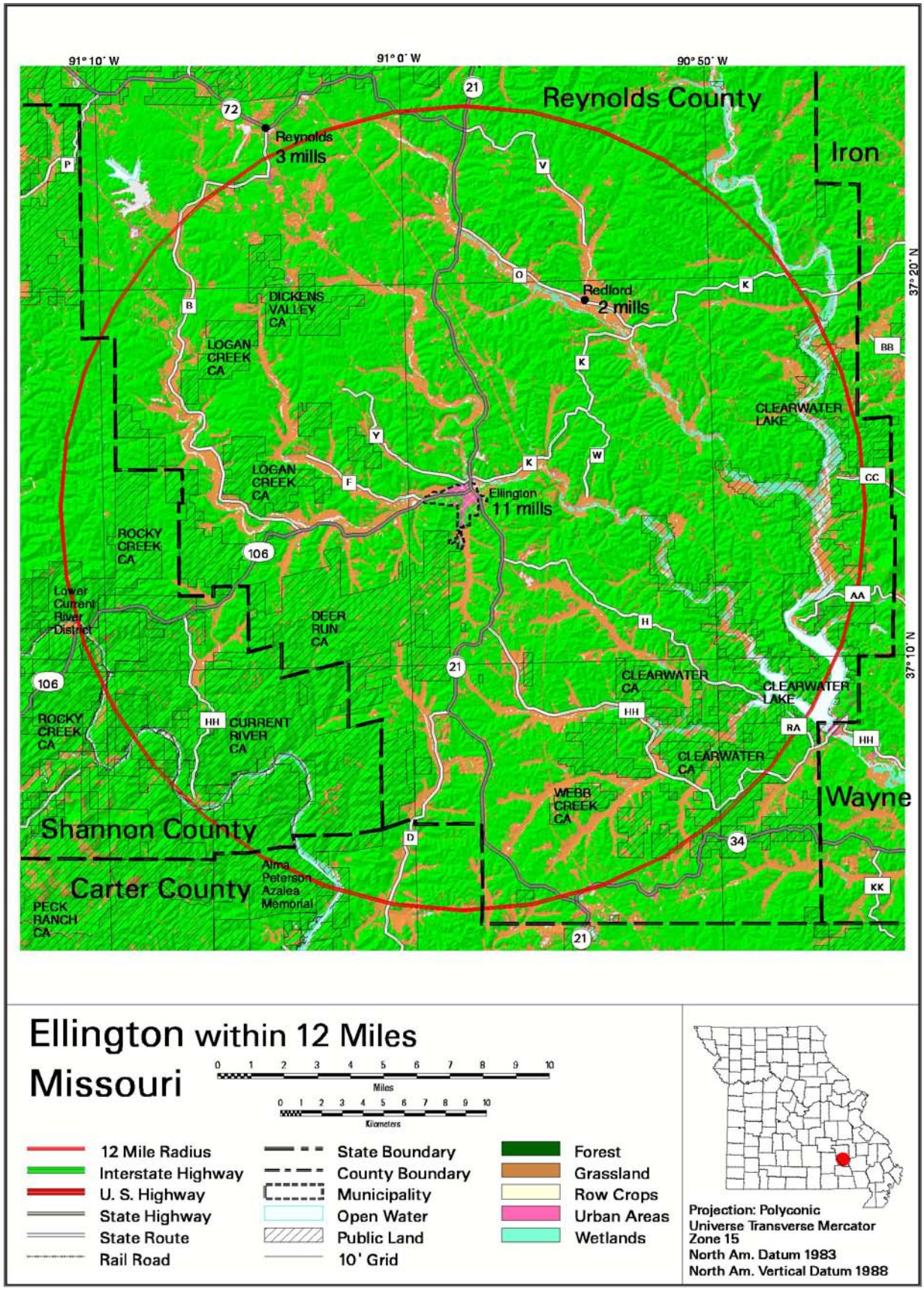
This study summarizes information on potential sites for originating lumber for a Missouri-based lumber exporting cooperative. Five potential sites—Doniphan, Ellington, Houston, Salem, and Van Buren—are identified. The number of sawmills and the amount publically- and privately-owned forested land within a 12-mile radius are ascertained.

While Houston is situated on U.S. and state highways, there are few sawmills in the immediate area and less than 50% of the land is forested. Ellington has slightly fewer nearby sawmills than other locations, and furthermore, lacks immediate access to U.S. highways. Notably, Ellington's most promising feature is that over 90% of the land within a 12-mile radius is forested. While Salem has a larger number of nearby sawmills, it too lacks immediate access to U.S. highways and less than 50% of the land within a 12-mile radius is forested. The most promising locations appear to be Van Buren and Doniphan. Van Buren has 22 sawmills nearby, with more than 90% of the land within a 12-mile radius in forest, and access to major U.S. and state highways. With 28 sawmills, Doniphan also has access to U.S. and state highways, and about 60% of the land within a 12-mile radius is forested.

Appendix


Osage
Franklin
Gasconade
Sullivan
Jefferson
Crawford
Maries
Cuba
Phelps
Steelville
Potosi
Rolla
Ste Genevieve
Waynesville
Washington
Farmington
Pulaski
Viburnum
St Francois
Salem
Iron
Arcadia
Pilot Knob
Texas
Reynolds
Fredericktown
Licking
Dent
Annapolis
Madison
Raymondville
Houston
Wayne
Ellington
Mountain Grove
Summersville
Piedmont
Greenville
Cabool
Eminence
Shannon
Willow Springs
Mountain View
Birch Tree
Winona
Van Buren
Butler
Douglas
Carter
Ripley
Howell
Oregon
West Plains
Alton
Poplar Bluff
Doniphan
Thayer
Ozark
Southcentral Missouri Study Area
Miles
Kilometers
12 Mile Radius
Interstate Highway
U. S. Highway
State Highway
Rail Road
State Boundary
County Boundary
Municipality
Open Water
Projection: Polyconic
Universe Transverse Mercator
Zone 15
North Am. Datum 1983
North Am. Vertical Datum 1988


91° 0' W
90° 50' W
90° 40' W
36° 40' N
36° 30' N
MARK TWAIN NATIONAL FOREST
MARK TWAIN NATIONAL FOREST
LITTLE BLACK CA
MUDPUPPY CA
FOURCHE CREEK CA
Butler
Doniphan
28 mills
Ripley County
Naylor
Missouri
Arkansas
160
142
21
Doniphan within 12 Miles
Missouri
0 1 2 3 4 5 6 7 8 9 10
Miles
0 1 2 3 4 5 6 7 8 9 10
Kilometers
12 Mile Radius
Interstate Highway
U. S. Highway
State Highway
State Route
Rail Road
State Boundary
County Boundary
Municipality
Open Water
Public Land
10' Grid
Forest
Grassland
Row Crops
Urban Areas
Wetlands
Projection: Polyconic
Universe Transverse Mercator
Zone 15
North Am. Datum 1983
North Am. Vertical Datum 1988

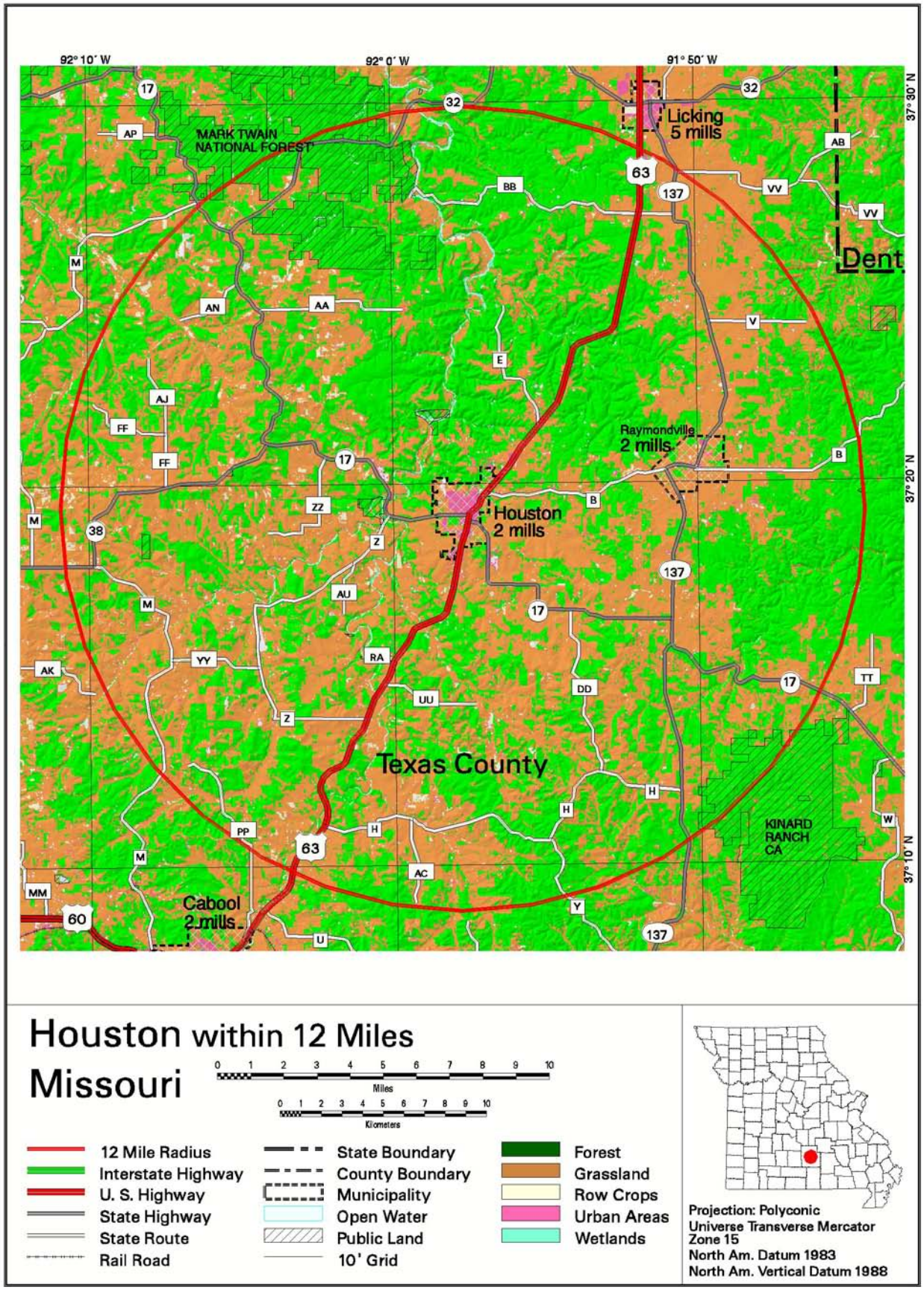


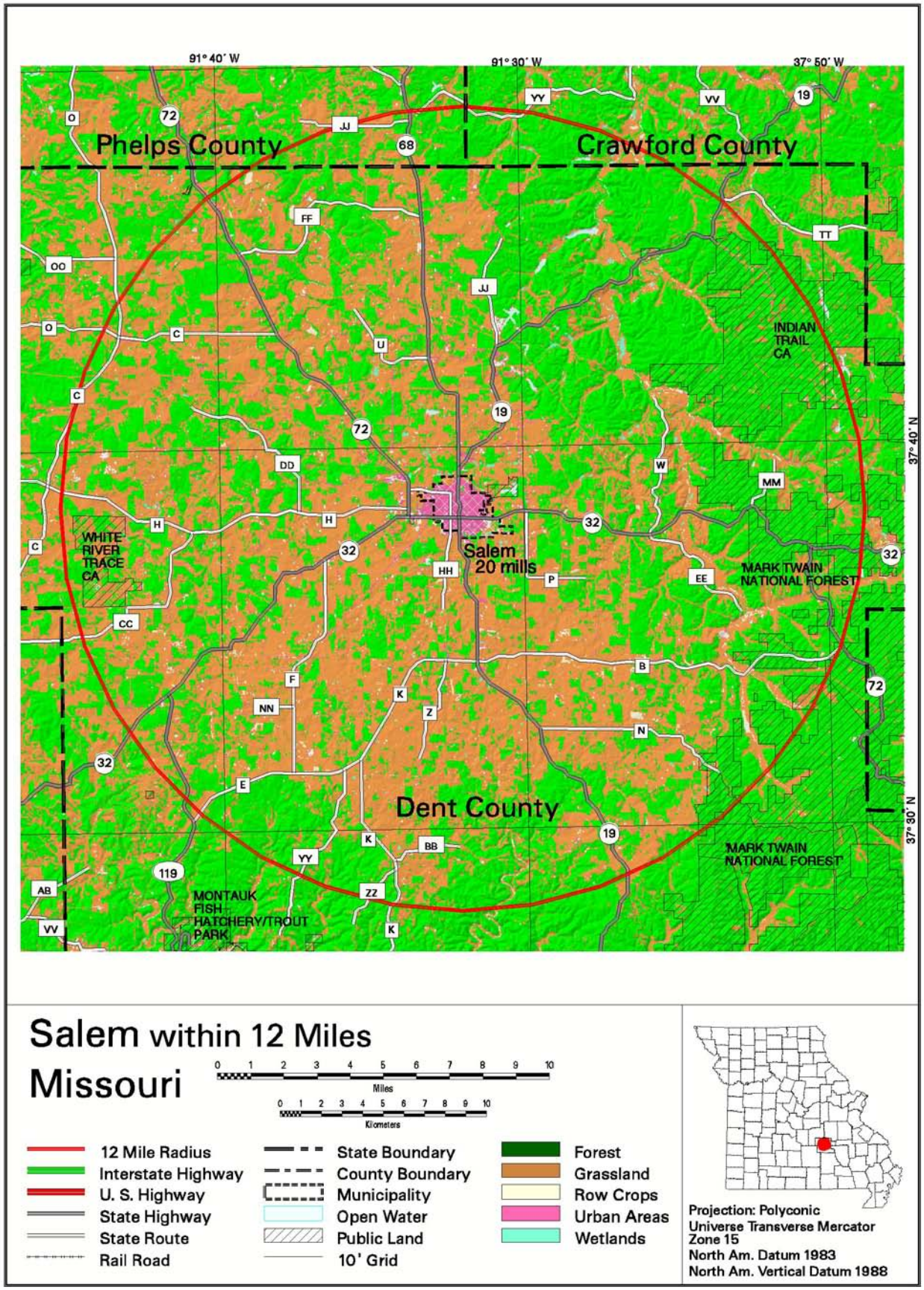
Ellington within 12 Miles
Missouri

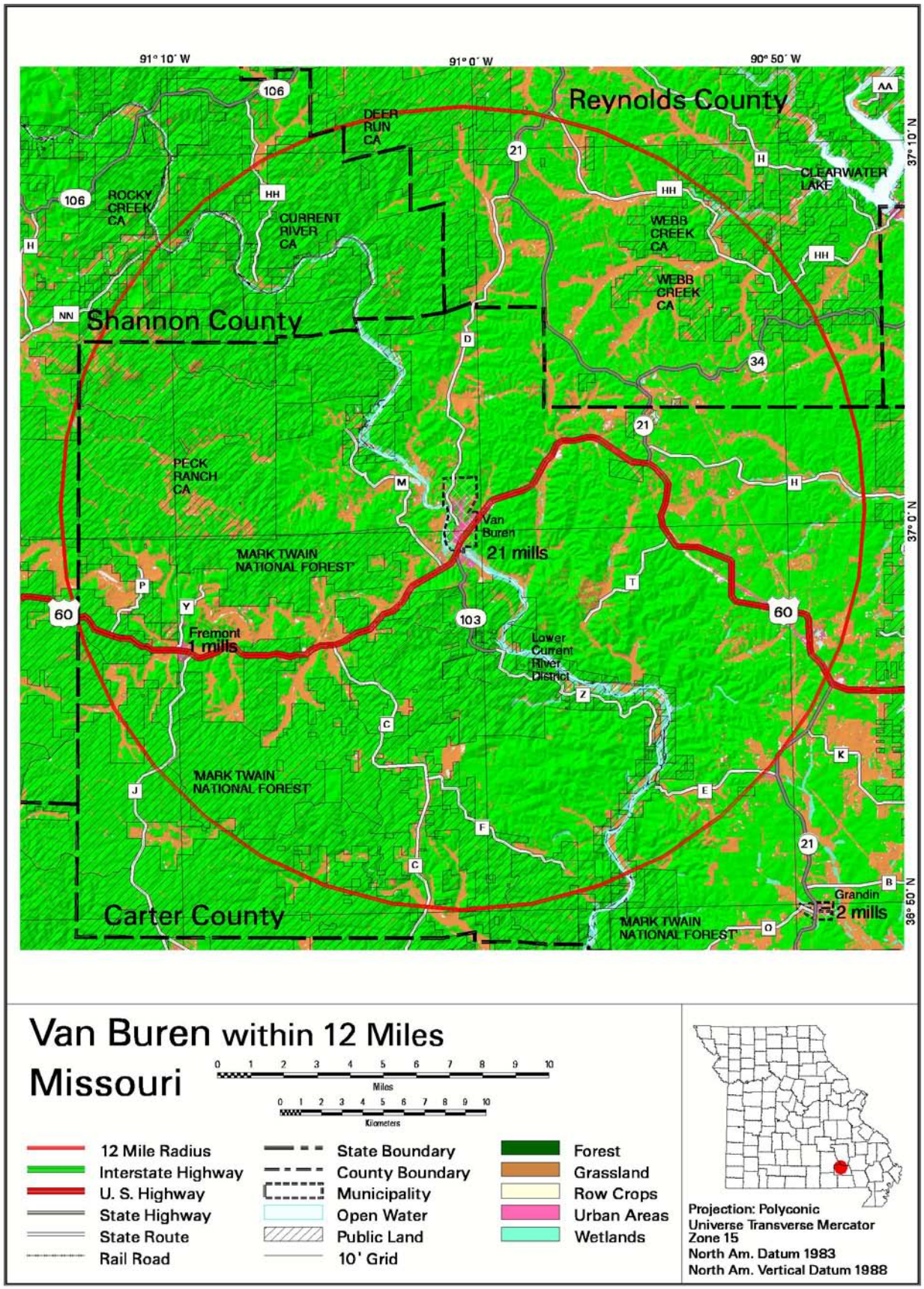
0 1 2 3 4 5 6 7 8 9 10
Miles
0 1 2 3 4 5 6 7 8 9 10
Kilometers

- 12 Mile Radius
- Interstate Highway
- U. S. Highway
- State Highway
- State Route
- Rail Road
- State Boundary
- County Boundary
- Municipality
- Open Water
- Public Land
- 10' Grid
- Forest
- Grassland
- Row Crops
- Urban Areas
- Wetlands

Projection: Polyconic
Universe Transverse Mercator
Zone 15
North Am. Datum 1983
North Am. Vertical Datum 1988


92° 10' W
92° 0' W
91° 50' W
37° 30' N
37° 20' N
37° 10' N
MARK TWAIN NATIONAL FOREST
Licking 5 mills
Dent
Raymondville 2 mills
Houston 2 mills
Texas County
Cabool 2 mills
KINARD RANCH CA
Houston within 12 Miles
Missouri
Miles
Kilometers
12 Mile Radius
Interstate Highway
U. S. Highway
State Highway
State Route
Rail Road
State Boundary
County Boundary
Municipality
Open Water
Public Land
10' Grid
Forest
Grassland
Row Crops
Urban Areas
Wetlands
Projection: Polyconic
Universe Transverse Mercator
Zone 15
North Am. Datum 1983
North Am. Vertical Datum 1988


91° 40' W
91° 30' W
37° 50' W
37° 40' N
37° 30' N
Phelps County
Crawford County
Dent County
Salem
20 mills
INDIAN TRAIL CA
WHITE RIVER TRACE CA
MARK TWAIN NATIONAL FOREST
MARK TWAIN NATIONAL FOREST
MONTAUK FISH HATCHERY/TROUT PARK
Salem within 12 Miles
Missouri
Miles
Kilometers
12 Mile Radius
Interstate Highway
U. S. Highway
State Highway
State Route
Rail Road
State Boundary
County Boundary
Municipality
Open Water
Public Land
10' Grid
Forest
Grassland
Row Crops
Urban Areas
Wetlands
Projection: Polyconic
Universe Transverse Mercator
Zone 15
North Am. Datum 1983
North Am. Vertical Datum 1988



Van Buren within 12 Miles
Missouri

Miles
Kilometers

- 12 Mile Radius
- Interstate Highway
- U. S. Highway
- State Highway
- State Route
- Rail Road
- State Boundary
- County Boundary
- Municipality
- Open Water
- Public Land
- 10' Grid
- Forest
- Grassland
- Row Crops
- Urban Areas
- Wetlands

Projection: Polyconic
Universe Transverse Mercator
Zone 15
North Am. Datum 1983
North Am. Vertical Datum 1988