

# The Social and Cultural Perception of the Timber Industry

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By

Eugene Wright

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The United States of America is challenged by the idea of capitalism in our economy and society. Capitalism has found a way to adapt to the capitalist idea of falling into a need for greed and this forces exploitation economically, socially, and also less broadly in the Timber Industry. The timber industry found times in history that were damaged by the abuse of overusing the natural resources like in the late 1980's when the spotted owl controversy forced timber harvest in the Northwest to be halted. The industry also found times when it had continual and constant growth over a good amount of time and aloud for the industry to gain huge profits; like in the mid to late 1900's when the baby boomer and World War II made the market increase substantially. Though these highs and lows occur with time, the industry found it more stable if it could find sustainable practices that would enhance the regrowing process of the forests after they were harvested. This idea is known as Silviculture in which forests can be managed but, without the idea of the environmentalist there would be no critics to enforce the environmental affects. Though the timber industry can't survive without solid ground to grow, the industry based over history has been rather unstable and was shaped by two major factors; silviculture and capitalism are the building blocks to how the timber industry is still standing.

### **History, Operations, and Change**

This is a nation that relies heavily on the manufacturing of wood products to not only supply the world, but also to provide thousands of our countries jobs. Forestry is the science, art, or craft of creating, managing, conserving, or using forests in a justifiable way to produce goods for human kind. This is an industry that pulls from all different directions to meet any aspect or goal that the human mind can create. It is an industry that is practiced in controlled farming techniques or in natural habitats with the main goal of sustaining what this world has naturally given us. The timber industry must attain two main goals to maintain operations which are

sustaining the forests for the long term use and to make a profit through meeting the wants and needs of society. These two goals push toward one common interaction that we want to look at which is between human kind and the forest and it can be best understood in the ideas of Silviculture.

The Indiana Department of Forest Service (2012) explains that Silviculture “examines characteristics of individual trees in a forest and the interactions of those trees with each other and with the forest ecosystem as a whole” (www.in.gov, 2012). Silviculture essentially is explained by the agriculture of trees; how to grow them, how to maximize growth and return, and how to meet the goals of what the consumer wants. Silviculture is taking in to account what kind of tree is trying to be grown, where it is being grown, how fast the trees grow, and what is being grown around the trees to produce the best quality tree nature can produce. It’s an aspect of producing and choosing the harvest of a forest that can sustain itself long after the harvest of the trees has occurred. As far as harvesting forests go, there are many techniques that can put pressure on forests to regrow or deplete as time goes on.

Taking into account for why harvesting occurs and what goes into harvesting forests will give the forest management sector a better ability to properly manage their plans. It is also important to look at who the owners are and the different rights that those owners have over their property which, will help understand who is making the decisions on forests. The United States has about 736 million acres of forestland to contribute to the worlds 4 billion hectares of forest. 249 million acres of the US forest land is owned by the government and the rest is left to be owned by state or local governments, private parties, or companies; an amount of 487 million acres. (<http://www.epa.gov>, 2011) Of this land it is important to understand that the land occupied by the government is the land that is called public land and made of several different

types that the public can recreationally use and interact with. Public land typically is used by campers, hikers, cattle grazers, hunting, watershed protection and environmental or natural habitats and provides a place for people to interact with a preserved section of forest. 191 million acres of this public land is also labeled as the National Forest System (NFS) and is managed by the Forest Service in the US Department of Agriculture where they seek to protect forests, water, and wildlife. (<http://www.epa.gov>, 2011) In the US there is also the sectors of private land, which make up for most of the forests in this country.

Nearly 2/3 of the forestland in the US is occupied by timberlands which make up the parts of the forest that are used for the commercial production of wood products. The timberland that is used for commercial production is also where the use of Silviculture is found. Of this Silvicultured forest land some 131 Million acres are owned by state, federal or local governments, while non-industrial private entities make up for about 288 million acres of the total 490. (<http://www.epa.gov>) These non-industrial entities are made of the small tracts of privately owned land and only a small percentage of these land owners own more than 100 acres of timberland. (<http://www.epa.gov>) The final 70 million acres of timberland is owned by forestry products industries such as home furnishing lines, where the US has shown to be the largest producer and consumer. (<http://www.epa.gov>) Understanding the different ownership right in the US give society the chance to see who is calling the shots but, these shots can't be called in present times without the knowledge of past history.

In the United States we see a very large, competitive timber industry that leads other nations by producing 481,092,992 cubic meters of timber every year ([www.mapsoftheworld.com](http://www.mapsoftheworld.com), 2006). This number shows that the United States leads the second highest producing wood country, India, by nearly 62% but, first it is very important to focus on

the history behind the industry and the great lengths it has gone to transform from a profit maximization oriented industry, to one that focuses heavily on the environmental and sustainability needs. This is an industry that is and has to be heavily regulated so that it for one, can't exploit the forests, two, ruin the natural environment, and three, take advantage of the communities living among these forests.

After the industry began to regulate the forest devastation, the industry didn't realize it needed a balance point between human production and re-growth. But, because one side outweighed the other, Historians like Nancy Langston, "argues it was misguided attempts at forest management that eventually destroyed forests and crippled the local timber industry" (www.wou.edu, 2006). However it is good to point out that many issues that appear in this industry are confronted by an environmentalist's viewpoint and mostly seem to focus on how the countryside is overused, but because of this they neglect to look at how regulating the industry the wrong way may cause huge damage to communities and individuals. One of these environmentalist viewpoints is presented by Nancy Wood who is a, "staunch opponent of clear-cutting because of its powerful negative impact on forest ecosystems" ((www.wou.edu, 2006).

For years and years, towns like Coos Bay and Lebanon, Oregon, identified themselves with more than just living among the great forests of the northwest, they became towns known as mill towns or timber towns. These towns built their cultures and livelihood off of two things; one, what the forests produced and two, the industry built to produce from those forests. The timber industry has two sides of its critics that must be discussed and they are two issues that must be regulated by the government but represent both sides of the timber market. The industry has to deal with the issues of depleting forests as well as, issues of depleting community identities. Both of these issues stem from the policies of governmental agencies and private

industries that have undergone significant changes since the early 1900's. The biggest issue in all of this is that policies and regulations have to find a balancing point that will sustain the environment but, also be able to sustain a community economically.

It is important to understand where these environmentalists are coming from, as it is true that forests were heavily depleted from the early 1600's to the early 1900's. As of 2011, nearly 30 percent of today's forests or about 736 million acres of the 2.3 billion acres of US land is forestland, compared to about 1 billion acres of forestland in 1600.

([www.Forestry.about.com](http://www.Forestry.about.com),2002) But it is also estimated by [www.forestry.about.com](http://www.forestry.about.com), that "some 300 million acres of forest land have been converted to other uses since 1630, predominantly because of agricultural uses in the East" ([www.forestry.about.com](http://www.forestry.about.com), 2002). Also it is important to note that in all four regions of the United States, the South, North, Pacific Coast, and Rocky Mountains, all regions have either begun to recuperate or stopped depleting by as soon as the early 1900's. To completely understand how the environmentalist and the communities among the forests pull against each other, the changes in industry related to capitalism and historical events, must be understood as it has created constant change and adaption by both people and environment.

Forestry policies and regulations have undergone immense changes sense the early 1900's that created a complete sense of profit maximization in the early stages of Capitalism but, these issues kept the timber farmers from looking at issues that may occur in the present or in the future. In a sense the companies were concerned with implementing policies and procedures that would insure the highest levels of production for their facilities. The healths of the forests were not taken into account and neither were any of the possible long term negative effects on the communities that surround. This mindset continued through the 1980's though it began to change

shortly after World War II. To understand the values of the forestry policies before WWII it is important to look at the attitudes of both the policy makers and industrial leaders.

The mindset of pre WWII expressed little to no compassion for forests and it showed that humans put little value on forests other than producing for the betterment of mankind. In most cases the forests that were being exploited were considered as natural forests or old-growth forests and these are the ones that were typically over used and destroyed. They were considered to be very inefficient because it took so long for anything to grow back in that area. Because these were typically the only forests that the earth had and because silviculture didn't have a definition till the late 1800's there had been no attempt at re-growth in these "natural forest" areas. The need to cure the constant depletion of these areas brought agencies like the US Forest Service to attention. Pressure on this agency forced it to re-structure the policies and regulations towards ideas like scientific management. The agency created a philosophy that humans could manage and control the forests through constant manipulation. This is how silviculture became a mainstream idea to forest managers.

This idea came about in the 1920's and was pushed heavily to be regulated by not only the Forest Service but also by the private industry leaders. Though they finally found a reason to be sustainable the regulators and the industry had two different reasons for doing so. Industry leaders typically enforced these policies so that they could prevent the destruction of a profit for production and harvesting but, the regulators then realized that the past harvesting techniques were exploiting the forests. Because the early foresters had their faith in the idea that they could regulate and use silviculture in the early 1900's, the Forest Service was so positive they could effectively manage harvested old growth forests into secondary growth forests, that they were not concerned with the speed at which they were depleting the old growth.

What the officials became mostly concerned with was the fact that the companies had little to no concern in the harvested areas once they removed all of the timber they could from the area. But if private industry couldn't cooperate they found that it would be impossible to realistically sustain any forest. In the article the Timber Industry and its Effects on the Pacific Northwest by Ron Vorderstrasse, he explains that "private industry leaders hoped the policy would lower harvesting levels and ease the market strain that had been created by over production, thus raising prices. Market forces had coincidentally brought the goals of the Forest Service and private industry together, albeit for different reasons" (www.wou.edu, 2006). This sustainability idea got pushed out the window with the approach of WWII and the demands that the war had on the timber industry put pressure once again on the Forest Service to open regulation and allow private industry to produce.

Old growth forests became the main target of heavy extraction before WWII and it was brought to the attention of the Forest service but, they didn't look to governmental agencies, the Forest Service only went after private land owners with constant threats of regulation. These threats became interrupted by the Second World War when America's priorities drastically changed. For a period from 1907 to 1940 the lumber industry had entered and remained in a long period of low demand and cut-throat competition. Partly because of the Great Depression, no one had the money to spend on the products that the mass harvesting of the old growth forests produced and circumstances made profit turning abilities difficult. When companies can't turn profits, they also can't stay in business and this heavily affected the communities that lived among and off of the forests. The push for many communities to continue high harvest rates and the fact that no one was buying forest products, pushed communities like Lebanon now

accumulate two devastations; depletion of forests and the loss of businesses that typically produced those products.

The expansion that came with WWII was aided by a few other factors like new technology that came about making it easier and faster to harvest forests. New technology made it possible for harvesters and sawmills to take full advantage of the need for more timber products and the market conditions that were present. Though the industry saw that they could eventually run out of timber, they took full advantage of the heightened loyalty to this country, and they used this as an excuse to exploit forests. Sustainable practices were moved down the list of importance and being able to provide during war time became the main concern. Threats that were made during the 1920's and 1930's by the Forest Service disappeared also and production skyrocketed.

The happenings of WWII caused a huge rise in the demand for timber products and pushed the federal government to declare timber as an essential war material. The overflow of timber products from the 1920's to the 1940's became an issue of the past and showed that if forests were sustained much before the war, the harvesting levels could be controlled in any way they wanted whenever they wanted. Private industry now had hard facts to keep policy from being the number one regulation provider. The huge production demand pushed the industry to have large economic gains during the war times and this showed that sustainability needed to be present to keep the industry in business. However, the demand during war time showed that harvesters needed to somehow create a secondary growth; it pulled implementation of sustainable practices away from the harvesters because regulators at the time cared more about production.

During WWII harvesting continually grew and gave the Forest Service a new sense of importance but, it also put pressure on them to open and find new forests to harvest. Historian Paul Hirt explains that WWII was the moment when the Forest Service transformed from being “a custodian of the national forests,” to being “a major provider of lumber and pulpwood.” (Hirt, 1994) After WWII there became a huge housing boom to go along with a boom in our national economy and that caused the industry to continue its high levels of production. A growing US population pushed for more privacy and a stimulation of the housing industry created easily affordable mortgages for returning member of the military. The US saw an economy that rose from \$200,000 million in 1940 to \$500,000 million by 1960 and at the same time the baby boomer population increased the number of births and consumers in the US.

(<http://www.muralmosaic.com>)

Prior to WWII the goals of the forest service focused mostly on moving forests quickly towards heavy regulation in a time when everyone wanted max profits to pull themselves out of the Great Depression. Regulation was the first step toward attempting to yield a sustained forest that would give lumberman the free chance at trying to harvest trees at “rates equal to their growth,” and this would also keep the amount of overall destruction to a minimum. The idea was to push old growth forests in a way that could produce a sustainable yield and provide a perpetual supply of timber. The Forest Service realized that the old growth forest that contained most of the mature trees did not produce enough new growth to meet the needs of production, so the next idea was to increase the production of secondary growth timber. Because the Forest service enforced harvesting at rates equal to growth, old growth forests did not produce enough new growth to meet the needs of equality. In order to meet these demands of the new policy, old growth forests were considered as inefficient, and second growth timber which grew much

faster, was used to replace the old growth. This pushed harvesting companies to harvest these selected old growth forests as quickly as possible to make room for the secondary growth.

During the same period of time, companies and landowners didn't use their profits like the Forest Service implied them to and didn't reforest the old growth forests with secondary growth. The companies showed no concern to fix the issue and pushed the industry in a direction that focused harvesting techniques to make big profits. To make maximum profits in this industry clear cutting, stripping the trees of the excess, selling that timber, then moving on to the next plot of land is the process that will produce the most money. The industry saw many harvesters with an abundance of old growth timber and a lack of economic reason to attempt to find a way to create a sustainable yield. The industry didn't get any short term profits from replanting the forests, they just cut them down and it kept the future from having timber in these areas. As more and more land owners realized that they were running out of forests to harvest they realized that being sustainable was the only way to continually make money on their land. This eventually pushed companies to change their views so that they had constant timber to harvest during hard economic times and when they ran out of old growth forest property. Along with the exploitation of the old growth forests, the timber companies also fell deep into the capitalist mindset and began to exploit the people who worked for the industry.

In 1963, 800 workers walked off the job at Lebanon, Oregon's mill in strike of the treatment of their employees. Mill companies incorporated a seven day work week clause that had employers working on the weekends for the first seven weeks of their job; they called it the big six but, this strike influenced six more timber companies to lose more than 19,000 workers. This issue lasted for another four weeks and included the industry to withdraw the seven day clause, and in result and after a long strike, 500 workers finally returned to work in Lebanon's

mills. (www.wou.edu, 2006) This strike was known as the longest worker union strike to date and just like WWII pushing environmental and social issues out of the way, the Cold War kept harvesting levels and the availability of federal timberlands in high necessity.

Before and during the Cold War the economy was on the rise and at a decent pace due to the baby boomer generation and the accumulation of new consumers. The Cold War era affected the timber industry the same way and the additional consumers created a very high demand for the industry to supply. The high demand for lumber came in due part to the housing industry boom, more consumers, and war needs but, what this brought to point was the fact that the forests were depleting faster than ever. This issue had been appointed in 1976 when the National Forest Management Act brought the means for environmentalists to challenge public forest management processes and it also enabled sustainability to be practiced.

(www.humanecologyreview.org, 2001) The past industry had thrived off of exploiting the forests to supply for many different booms and busts in economy but, it did it without much social conflict. When the National Forest Management Act responded to all of its goals in 1985, it responded to the social, economic and ethological issues that had been present at the time. This gave way for an idea about bad moral decisions by the industry to be vocalized by the environmentalists.

Environmentalists looked at how the industry affected the environment and natural habitat but, the timber industry focused a lot of its past production on the harvesting of large old growth forests and didn't worry too much about the regrowth of secondary forests. The inflation of the environmentalists' idea created a social conflict between those that needed to produce for their livelihood and those that wanted to protect the wildlife. This caused the industry to completely retool its production strategies and pushed researches to try to understand the

relationship between forests and society. If they didn't do so it was seen as bad moral judgment on behalf of the industry and they would lose consumer demand. A man named Robert Lee wrote an article in Timber Press titled, *Stable Communities Rather than Community Stability*. Lee highlights the idea that "Normative stability in timber communities undergoing rapid structural change was as critical as structural analysis in comprehending the intensity of timber conflicts in the Northwest" (Lee 1989). He explains that social conflict arose through the advancement of the timber industry and the outrunning of what the natural environment could actually produce. In a series that Lee continued to write on the same topic he found that "Moral Exclusion" to timber conflicts gives way for the opportunity to look at the difference between the jobs and the environment.

Moral exclusion is the idea that the management of the conflicts make immoral decisions on the behalf of the company. Lee explains that moral exclusion leads to the lack of economic and political participation in the extraction of the natural resources. Lee looks at these issues in the side of the environment and people like Susan Opotow wrote in regards to the societies who revolve around the industry. She continues the idea about moral exclusion and explains that some individuals find themselves forced outside the limits of where moral or ethical values can apply. Opotow explains that "environmentalists delegitimize hardworking loggers by valuing endangered species survival over human subsistence and, in the process, justify environmental reforms that impose cultural destabilization and economic insecurity on logging families" (Opotow 1990). She explains that the way the industry was structured from the beginning causes harm to society's processes if it is changed due to the needs of environmental deterioration. Opotow looks at the issue between the jobs and the environment very neutrally by pushing the idea that there is a balance point between the two that must be found. If there is too much

environmental devastation then there needs to be slowing of production but, if the industry produces too little then they cannot continue to provide jobs or profit. Environmentalists often times are only credited for being advocates of the forest but, they advocate for all wildlife and forests and the timber industry fell subdue to issues like this with the spotted owl controversy in the late 1990's.

The spotted owl that lives in the Pacific Northwest of the US and mostly in the old growth forests that have been heavily harvested since the early to mid 1900's. The owl was put on the endangered species list because its habitat was being devastated but, to protect the species the industry had to change. The timber industry reduced its harvesting of timber by 15-20 percent in 1990 and looked to import 40-50 percent of its lumber from Canada to make up for the loss of production. This hammered many communities by cutting jobs, closing mills, and stopping production in some places. It pushed mill towns to lose their identity and find new ways to accumulate profit. (<http://www.scu.edu>)

The industry was devastated by the new attempt and like Susan Opatow explains, the environmentalists called for an endangered species to be more important than "cultural destabilization." The spotted owl controversy was settled in court by Judge William Dwyer with the decision to ban new timber harvest on 24 million acres in 17 different national forests. (<http://www.scu.edu>) This banning led to a heavy increase in unemployment and poverty in those areas and also pushed reduced timber harvests from 15.7 in 1988 to 8.3 billion board feet in 1996. ([www.uoregon.edu](http://www.uoregon.edu), 1999) The judgment by Dwyer led the industry to lose about 22 percent of its employees by 1996 and the need to import to meet supply, became apparent. (<http://www.scu.edu>) Though many people thought that this would devastate the national economy, it actually mostly affected just those in the industry. The solution to this issue was

explained by Kirk Johnson at the University of Washington in 1993 who explained that the needs of the environment and the needs of the society must be balanced to keep both views happy and continuing to produce.

The initiative to find this balance between the environmentalists and societal desires, is found difficult by many communities and in an article written in 1993 called Reconciling Rural Communities and Resource Conservation by Kirk Johnson of the University of Washington, Johnson wrote about the difficulties that confront these communities. He explains that many of the communities distrust the environmental groups that have formed in fear that they will lose control over the decision making process. Though in the end governmental policy, controllers of capital and the market force have the most power in these communities, business leaders still correlate the idea of environmentalist to have negative connotation for the industry. Johnson explains that the only way to ease this issue is for community and business leaders to engage environmentalists and begin to write a simple dialogue that seeks to find mutually beneficial solutions for both sides. (<http://www.wou.edu>, 2006)

In 1994 the timber industry took a turn for the better when Judge Dwyer pulled his ban from the timber market and after President Bill Clinton invested in the Northwest Forest Plan (NFP). The NFP convinced the environmentalists and Judge Dwyer that the forests could be processed while protecting the natural habitat. The NFP had five principles that it chose to follow in its plan which were; never to forget human and economic dimensions of issues, protect long-term health of forests, wildlife and waterways, focus on scientifically sound, ecologically credible and legally responsible strategies and implementation, produce a predictable and sustainable level of timber sales and non-timber resources, and ensure that federal agencies work together. (<http://www.reo.gov>, 2006) The NFP did exactly what Kirk Johnson predicted needed

to happen in 1993 and appointed the issues of both the stability and sustainability of societies and environment but, it took another three years to regulate the NFP. Despite the controversies of the early 1990's the timber industry continued to expand, and industrial home improvement companies began to take over in supplying for it.

The timber industry grew rapidly in the 1990's in part due to the growth in home improvement retailers in 1997 and because the retail lumber and building materials companies accumulated a 215 billion dollar profit. (business.highbeam.com, 2012) The home improvement industry caught hold selling lumber that could produce for a specific hot commodity in the market. During this time the housing industry and home improvement industry rose consistently to persuade a constantly growing demand in the market. To supply for societies want to achieve the "American Dream," the markets for bouth housing and home improvement became in hot demand. The American Dream created a competition for society's individuals to achieve social popularity and an opportunity through good morals and hard wark. This involved another competition to attain a high amount of material goods and structures between the individuals. This idea of the American Dream drove people to want bigger and fancy home arrangements which sometimes involved accumulating large amounts of deabt but, the timber industry and the economy both continued to grow. The American Dream continued to ride this growth through the beginning of the twenty-first century until companies in the US began to adapt to the challenge of finding ways to keep and increase their share of the market. This trend kept the timber market creeping upward especially after the terrorist attacks of 9/11/2001. The terrorist attaches in New York made people scared to travel abroad and redirected societies focus mostly on improving their living situation. Because the society invested in their personal space, the home improvement and housing industries both continued to grow and because of this the

demand to supply timber for those projects increased to 3.4 billion cubic meters by 2007.

(<http://www.unece.org>, 2011) Though the industry continued to grow, society began to find themselves in debt to all of the money they had spent and this in turn affected how people could eventually spend their money. This issue created the 2008 financial crisis and lasted till 2009 causing also the timber industry, after reaching \$100 billion in 2007, fall substantially.

(<http://www.unece.org>, 2011)

The financial crisis of 2008 was in reaction of a system of interactions between the major buyers in the stock market and a major liquidation of the US banking system. The over investment of private properties by Americans and organizations alike, caused the banks to loan more money than they could give out. The housing market crashed first and the value of securities that were tied to US real estate's crashed with it. This issue caused investors to lose confidence in the financial systems and the US found that over supplying in capitalism will cause an impact on the global stock markets. The global economy then tightened its trade regulations and quantity of trade and to slow the economy more, many corporations had to be bailed out of their crash. The timber industry was very affected by this recession and it caused for a lot of damage to the industry.

An article in the Herald News, written by reporter Joel Aschbrenner, explains that "The collapse of the housing market in 2008 is to blame for much of the timber industry's current woes, said Dave Schott, executive vice president of the Southern Oregon Timber Industries Association." "A lot of this industry is contingent on new home construction," he said.

"Unfortunately, new home construction is horrible right now. We've had the worst three years ever" (<http://www.heraldandnews.com>, 2011). The collapse of the housing market has continued to cause affects in our economy and to the timber industry the flooding of foreclosed homes on

the market has kept society from needing to build new homes. Though the market stalled during the time period, the market crash forced the industry to lose about 1.5 million new home starts in 2005 compared to 500,000 new home starts in 2011 and that amounts to an extravagant amount of forest products to not be consumed. (<http://www.heraldandnews.com>, 2011) During this time there had become another issue noticed and after a few wildfires and droughts the environmentalists made a heavy push to try to influence sustainability once again.

After a huge forest fire endemic and mass drought in 2007 the environmentalists criticized the management of the forests for having too many young trees, underbrush, over harvesting plots of land, and a lack of fire suppression in the forests. This led President Obama to pass the American Recover and Reinvestment Act in 2009 in which the forest service was to create 700 new forest enhancement projects. These projects led to the investment only a year later of fixing 16,000 acres of water and soil resources, 5,500 miles of road, 127,000 wild fire treated forest areas, and 19,000 acres of forest treated for control of invasive species. ([www.http://business.highbeam.com](http://business.highbeam.com), 2012) This enactment to reinvest in the forests and ecology, was one of the more proactive attempts to take place in the history of the timber industry and would be continued through 2012.

As 2012 and the future approach, the timber industry is predicted to have small financial gains and the Forest Service to have continued to increase their approach of trying to sustain the forests. Though the social need for wood has not climbed completely out of the financial crisis of 2008, investing in new home starts is forecasted to rise slightly above the amount of starts from 2011. But, because people are scared to invest in single-family homes, people have begun to move into apartments and multi-family homes, where they can share their investments. The only issue is that this means the need for lumber will continue to stay low in the industry as

apartments cost less to remodel, and having multiple people in a house would cause those families to rely on accumulation of everyone's resources to remodel, rather than having those separate families remodeling in their separate home. This new fad has caused the timber industry to forecast ineffectively and created an oversupply of timber but, the problem is that excess timber will take a while to use. [Www.woodsourcing.com](http://www.woodsourcing.com) explains that the other problem is that "the remodeling market index compiled by the National Association of Home Builders showed declines in activity every quarter from the end of 2005 through the present" (<http://www.woodsourcing.com>, 2012). The timber industry is proactive in fixing their issues if the market and regulations will allow it but, the one thing they have done is attempt to refine the harvesting techniques in the industry by applying new technologies and harvesting plans. Though the timber industry has evolved from the 1600's with a long tract of social contact and close to 490 million acres of forestland accumulated for harvest, most of the interaction between people and the forest in the 21<sup>st</sup> century comes with the interaction during harvest processes.

### **Silviculture**

The different harvesting techniques in Silviculture explain how we harvest but, they also show how the techniques are used to sustain different crops in different climates and how humans interact with the forests during the harvest process. (<http://www.epa.gov>, 2011) The harvesting process is first accompanied by creating a strategic plan to harvest the plot of land in which all aspects of harvesting are taken into account.

Forestland on the Earth accumulates about 33% of the world's landmass and must provide enough wood for 6.84 billion consumers but, the industry needs to be able to find a way to sustain, produce, and reproduce at the same time because the US alone consumed 346 cubic meters in 2009. (<http://www.unece.org>, 2011) Though it is impossible to fix overnight, the

timber industry is trying to fix issues with harvesting by using two different strategies in what the Forest Encyclopedia calls, the Strategic and Tactical harvest plans. The strategic harvesting plan considers how to control the harvesting practices of a group of forest stands over a large area over a long period of time. First looking at where and when the harvest needs to take place is vital in perusing a process. The forest encyclopedia presents the idea that strategic planning, “may consider factors such as the availability and capability of local contractors, the need to provide a reliable supply of certain forest products, and annual weather patterns” (<http://www.forestencyclopedia.net>, 2009). This plan also takes into account a transportation plan and all of the available access to the different parts of the forest so that the least amount of damage occurs to the forest. The strategic planning of a forest harvest is the more general attempt at planning a harvest and is more of a on the fly kind of a plan. Knowing cost, tools, market for the logs, and amount taken out of the forest are all factors that are found out in the field. (<http://www.forestencyclopedia.net>, 2009).

The better of the two planning methods is known as the tactical method which is typically different for every site and looks more in depth than that of the strategic plan. This plan looks at all aspects of the area that is being harvested before it is harvested so that things like budget, cost, environmental damage, and weather can be accounted for before the harvest begins. This part of the process identifies the type of harvest method used and makes a map layout of the roads, landings, trails, forest access, and special features that lay in and around the soon to be harvested forest. Because this planning method has such a high level of detail the budget and cost can be estimated before any work is done. It also makes it possible to attempt to implement different logging techniques and more cost efficient and environmentally friendly ways of harvesting that stand of forest. In the planning process there are a few other areas of interests that

must be accounted for including the terrain, slope, erosion, skidding distance, the size of the tract, type of tree, tree sizes, and the type of the cut. (<http://www.forestencyclopedia.net>, 2009).

It is important to understand that the terrain that the forest is a part of greatly affects the cost and environmental damages that could happen to the harvested part of the forest. This issues will help decide what type of logging system will be used to pull the wood out of the forest and to the landing spot. Because cost changes with the slope and it is a necessity to get maximum profit out of the forest it must be known if the slope changes and by what percent so that different types of equipment and techniques can be used for different slopes. As slope increases, payload decreases by the ratio that [www.forestencyclopedia.net](http://www.forestencyclopedia.net) explains; “for each 1 percent of adverse grade, maximum payload volume decreases by 2.5 percent” (<http://www.forestencyclopedia.net>, 2009). Therefore it may be more efficient to use cable skidding systems to pull logs up and down hills to their proper landing zones rather than using ground skidding practices if the slope is too steep. As slope also plays a huge role in what types of equipment can be used for different percentages of slope, “generally, wheeled machines are limited to operation on slopes less than 30 percent while tracked equipment can operate up to 50 percent” (<http://www.forestencyclopedia.net>, 2009).

When using machines and different logging systems it is easy to get caught up in only how it affects the people using the machine and how it affects the profitability of the forest but, environmental issues like erosion is a huge issue during the harvesting process. Skid trails and logging roads immensely effect the diminishing habitat around the forest and in particularly in the quality of the soil. While pulling the logs uphill, debris are kicked back down but, while pulling the logs downhill a direction for excess water runoff is made and it may affect the streams and forests underneath. These two factors also effect what types of equipment are being

used because wheeled machines diminish more of the environment during the harvest while cable logging systems are much more efficient and are capable of logging more area. The ability to log more, means more profits and by using “cable logging systems,” loggers “are capable of logging 80 acres of forestland for every mile of road, while wheeled skidders log only 20 acres for every mile of road” (<http://www.forestencyclopedia.net>, 2009). Because the cable system affects less of the environment we are capable of using it for more land area.

In the harvesting process we see that there are five steps to getting these trees out of the forest starting with felling and followed by extraction, processing, loading, and trucking them to the mill. Felling is the process of cutting the tree down, which originally was performed with an axe or a bow-saw but, the 21<sup>st</sup> century and the advancement of technology produced the chainsaw which, is now used on steep terrain. On flatter ground the use of a feller-buncher, or an excavator with a harvesting head on it, performs the task well. In the harvesting plan there is a depicted map of what trees will be harvested and how many trees will be harvested but, it will also give the details about the technique that will be used to help sustain the forest in five different cutting techniques.

There are five cutting techniques used to produce timber products while attempting to control the reproduction and sustain their constant growth including clear-cutting, shelter wooding, seed-tree harvesting, group selection, and single-tree selection harvesting methods. These methods promote continuous growth in many different aspects of the natural habitats and environments while also giving human kind what we need to produce wood products. These aspects range from improving the health of the forest; controlling the types of trees that grow on the site; attracting certain wildlife species; and jump starting the re-growing process.

The clear cut method is the type of harvest that people most commonly can pick out in a forest setting. A Clear cut is exactly what it sounds, the process of cutting a whole group of trees with a set of given parameters. This technique is used mostly in areas where the type of tree needs full sunlight to regrow itself like most pine, yellow poplar, cherry and maple forests. Clear cuts are also proven to be a very effective way to restore the health of a plot of forest because after the forest is harvested it is simpler to manage what and where each type of tree may regrow. Though clear cutting may deplete a large sector of forest and underbrush, it may replenish the wildlife in and around the plot by pushing some wildlife out and intriguing others to move in. As far as human use, it is a huge necessity to have an edge between two plots of forest within the managed forests so that it is much easier to see the two groups. Not only does this create a good division in types of crop but, clear cutting also makes for simple human access inside the forests when other plots are being harvested or researched.

The shelter wood harvesting technique allows for a few separate cuts over a long period of time. This harvest plan picks out the old growth timber to cut first and then lets the middle aged timber mature and the underbrush grow taller so that a cycle of old growth timber can hopefully be made. These separate cuts are usually made over a period of ten to fifteen years, allowing for the growth of medium to low-shade growing vegetation and trees to continue or start growing between them. It may also give way for some seedlings to begin their growing process with the protection of their older relatives and then once the last wave of trees is cut, they have a jumpstart to their life cycle. This method benefits in the sense that it continues to somewhat cover the floor of the forest and gives way for some wildlife to move in and start new ecosystems before the entire forest is harvested. On the other hand, this technique is not for the types of trees that have shallow roots and it also creates a need for access roads which enhances

the chances of disturbing the remaining forest and the soil needed to grow the seedlings that have just tried to regenerate. It does allow however for the chance at picking and choosing which trees to harvest now and which to continue to let grow for a larger value in the market.

A seed tree harvest is planned in a way that will leave a certain percentage of left over older trees overlooking the complete cut so that there is a source of natural seeds continuing to disperse while the rest of the replanted seedlings are beginning to grow. This harvest plan will clear cut almost a whole plot of forest land but, it will leave several old growth, high seed producing, trees standing alone so that they will hopefully replenish its depleted forest with its seeds. These trees are selected based on a few different aspects depending first on where the harvest occurs and second the marketability of the seedlings the left over tree may produce. Other factors that give way for trees to stay are the structural integrity and the seeding ability of the trees left so that the best quality and chance of life will continue.

The group cut harvesting technique is explained as a small scale clear cut where a group of trees in a given area is harvested in sections over a long period of time, usually 40-50 years. By the end of the time period the whole stand of trees should have been cut. This method is used where high- quality wood stands, to produce top dollar logs for market and to give the area a steady and constant production of top dollar logs and new growth. It also gives a simple way to manage what trees are growing in behind the recently cut timber as more or less shade can be made by cutting larger or smaller groups of trees. Because there is a constant management need in this type of cut, it can cause depletion in the soil and undergrowth because of high human traffic, but it can also cause for a very expensive harvesting technique.

In the most expensive harvesting technique, managing a single tree harvest gives way for a plan of picking which tree is harvested and when. This method also does the best at sustaining the natural habitat of the forest by allowing the trees to naturally produce its seedlings and continues to maintain its original habitat. The downside of this method is that it requires heavy traffic and damage to the undergrowth and the roots of the remaining trees because human traffic is constant while the selected trees are being harvested. These techniques are all a part of what gets decided in the planning process but, the process alone is the next step.

The second step in harvesting a plot of land after the planning process, is the extraction process which is either done by pulling the trees out, called skidding, or by carrying them out, called forwarding. Though it seems more likely that carrying the trees out would be a simpler task than the rest, during this part of the process it seems easy to find out that this may be the most difficult and dangerous part of the harvest. Navigating several logs through a stand of trees while it snags continually in the front by excess forest materials, tends to throw other logs, boulders, etc. out of the way so that the fallen dragging logs can make it to what is called the landing. At the landing the processing begins.

The third step in harvesting a stand of timber is called the processing step which separates all of the unwanted material and branches from the log resource, and cuts the log to the right specifications for the mill it will be shipped to. If the wood that is harvested is going to be used as paper or pulp it may be chipped on site and taken to the mill after. The next two steps are done simultaneously and involve loading the truck from the landing and then getting them on their way to the mill. After the trees are harvested and loaded on the trucks at the landing, the raw logs are transported to different processing facilities in a process known as, the stump-to-mill path and also known to be the most expensive part of the procedure.

Due to the fact that harvested timber is transported in different sizes, types, or amounts determined by what the material is going to be used for and where it will be shipped, raw timber transportation is the most costly part of the whole harvest process. It costs nearly half of the whole harvest budget to get a stand of timber to its mill location. In this industry it is illegal to ship raw materials on axles that cannot handle the weight, therefore it is important to understand that the maximum legal payload of each truck shipment is determined by the axle weight limits. For instance, single-axle trailers may only have a maximum payload of 9 tons, while a triple-axle trailer may have a maximum payload of up to 26 tons ([www.forestencyclopedia.net](http://www.forestencyclopedia.net), 2009). Not only do the harvesters have to deal with the different sizes and max load weights of truck axles but, the harvester has to take into account the different gas prices in different states and the fact that the landings and the roads the trucks will be traveling on may or may not be suitable for normal tractor trailers. The landings for instance may be in a very tight spot where a triple-axle trailer cannot fit and in this case the harvesters must send their materials on smaller trucks. This issue would force not only more trucks to have to use the different roads but it would also cause the harvesters to cut the trees to different sizes than they would for larger trucks. For these facts, it shows to be important to use the tactical plan of harvest that was previously talked about. Because taking into account every little detail before the process begins, the tactical plan will give the total budget of the project from beginning to end and give the harvesting company a chance to do this at a much cheaper, sustainable, and efficient price.

Once the trees have left the forest and found their way into the mill they are separated by logs being sold to other processing mills, coal logs, which are removed for pulp and firewood, and the logs that the mill is looking to process. The wood that is bought by secondary mills after it has made it to the first, is typically wood that is called veneer wood. Veneer wood is cut into

small slices of usually about 1/8 inch thick and glued onto core panels of particle boards or fiberboards. Veneer wood is used for flat wood paneling in different home furnishing products like doors, tops and panels for cabinets, or other types of wood furniture. It is also used in plywood as these specialized mills would glue the different layers of veneer to produce a very sturdy flat panel of wood.

The coal logs are separated for pulp and firewood. Pulp is the main ingredient in the making of paper in which we as humans interact with on a daily basis. As for the logs that the company harvested a whole stand of forest for, we see that these are also further separated and processed. Though pulp production is very evident in society, these logs are separated into various types such as hardwoods and softwoods which typically is where the different markets of wood in the industry are scene. The Hardwood market consists of the rough lumber or the lumber that will be used for furniture making and other products that will need further cutting and shaping. Hardwoods are produced from broad-leafed trees that are typically found in temperate and boreal climates and are mostly deciduous. Hardwoods can also be produced from tropical climates but are found in the evergreen family of trees. As for the Softwood market or the finished lumber market, we find many other types of lumber produced by coniferous species of trees like pine, fir, spruce, cedar, and hemlock that are found in mostly the Northern Hemisphere. Of the two, softwoods grow faster and tend to be the less expensive in the market. They also are used for a broader range of products including construction of structures and some furniture, and are known as the easier of the two woods to work with. Once the lumber is now completely separated it is then stacked with sticks in between in which it will be kept or it will be put into a kiln to dry. After the wood is dry it is ready for shipment to its consumers for the construction of the company's final products. Though the harvesting process is very important,

the process doesn't happen without a demand for the products of the forest and the attention in the economy.

### **Capitalism: Timber Forces**

Comparing between the environmental issue and humanities need for profit will explain how the change of an industry can affect both viewpoints but, it is important to also explain why humanity needs a profit based on the timber industry and how it is bought and sold in the United States capitalist society. Without the supply and demand of this economy we know as the Free Trade economy in the US, there would be no need for harming the environment or a need to build an ever-growing large industry.

In the US our founding fathers chose to have our nation be known as Democracy for our government with a Capitalist economic system. After the failure of feudalism where wealth and power was accumulated through owning land in exchange for service or labor, capitalism came into the picture for America. The first economy lasted from the early 1600's until 1790 with an emphasis on handcraft-subsistence production along with a fundamentals of what Meyer Weinberg wrote in an article about the history of capitalism, a "semi-capitalist economy" that developed in the early stages of tobacco production. (<http://www.newhistory.org>). This economy gave way for an increase in demand in timber and an apparent acknowledgement by individuals that forests may need to be treated sustainably for future generations. In 1664 John Evelyn wrote that forests need to be sustained in his works called "Silva, or a Discourse on Forese Trees" (<http://www.forestguild.org>, 2006). However, this form of an economy relied heavily on the exploitation of certain levels of the workforce and environment and most of the profitable market was serviced by enslaved and semi-enslaved workers. With the Constitution of the United States

in 1787 and the Bill of Rights coming to order in 1791, America found itself with a more organized but vastly changing nation. These two documents pushed our country to have a set of regulations to society, the economy, and the government and many parts changed. The book Laws, Business, and Society helps us define the purpose of the Constitution as to try to provide for the goals of society, “such as unity (among the various states), justice, domestic tranquility (peace), defense from outsiders, increasing general welfare, and liberty” (McAdams, Neslund, Zucker: 2009).

With the changes that became apart of the US Constitution, the second period economy in our nation’s history formed and lasted from 1790 until 1865. This economy involved many industries pushing towards the Capitalist mindset like, the manufacturing industries, while industries like agriculture and timber lagged behind until they found their place in the marketplace at the end of the period. The end of this period brought with it a heavy need for free and un-free workers and a labor force to supply the growing nation with products and services. This meant that wages must be divided in order of specialized skill and in exchange must get some type of material value for the services and products traded. This force pushed for the next period which found its placement from 1865 to the variations that drive performance in the present. It brought with it a heavy inspiration on economy development and industry in which agriculture becomes a huge player in the Capitalist economy. As capitalism became instilled in Americas values, the agricultural industries began to be exchanged heavily and with this a disruption in the ecosystem as well. The timber industry found its roots during this time period as the idea that forests need to be sustained began to appear more often and a better idea of how to manage forests came with trial and error. This capitalist idea brought with it the need to be commercialized through the subject of commodities, in this case, forest products. In 1867 Karl

Marx set the way for early and modern Capitalist ideas. He does this by explaining commodities built by society, through his book called *Das Kapital* or *Capital*.

Karl Marx explains that commodities are objects that are used to satisfy human needs and wants. Capitalism is the basis of accumulating such objects by buying and selling those objects to make a profit. Marx explains that commodities are an assigned price based on the usefulness of the object. These prices are unique to each separate product and they also are given an exchange value based on the worth in relation to another commodity. This would only work however, if all of these commodities were based on the same amount of standard units in which money becomes these units. Exchange value is determined to be a monetary value in terms of having value in a market based off of the ability to give each value a standard unit. The units are a universal measurement of value and expressed in terms of money, in relation to the amount of labor time that goes into making that commodity. Marx next poses “the question of where this value comes from. How is it that commodities with different use-values can be measurable in the same units?” (Marx). His answer is that universal measure for value, or money, corresponds to the amount of labor time that goes into the making of each commodity. Labor is the only thing that all commodities with different use-values have in common and makes it the only aspect to compare to economic exchange. This is Marx’s labor theory of value. (Marx; pg 35-41)

The timber industry falls susceptible to capitalism by using the forestland as its commodity to satisfy societies needs. To make a profit the timber industry invests in the forestland we naturally have on the Earth, processes that resource, and sells the processed product for a profit. Forest products are assigned a price based on the exchange value between different types of wood, what the product is, where it is from, and how it is processed. The exchange value is based off of other forest products that find their way on the market and what

the standard exchange rates due to inflation are for the time period. Because the timber industry is a very risky industry to work in as far as safety for the individual is concerned, and it is very physically demanding, the timber industry places high value in the labor that goes into forest production. The timber industry places high value on their labor and because this translates into the expense of the final product, the industry is able to accumulate a very large profit and grow with the demands of capitalism but, it also must entertain some social conflict.

Marx continues to explain that production and exchange are social institutions, and their organization has social consequences. Capitalism, founded on a principle of private ownership, has the owners of the means of production depending on wage labor to create profits. Marx explains that the production of commodities is a social process, dependent on exploitation and giving rise to struggling relationships among classes. In the timber industry the separation between corporate managers and workers creates a large gap and this conflict creates situations like in Lebanon, Oregon where, companies must make decisions to shut mills and harvesting down to accommodate the changing times. When times are tough in the economy and the industry, the industry doesn't give the communities who create the forest products any leeway and they are the ones that see the most harm done. Though timber companies and capitalism create social conflict between decision makers and workers, the company has a commodity that must meet demand.

After Marx explains the ideas of exchange value, he then goes on to explain the idea of Capital in this economy. He clarifies that commodities must be circulated with the idea that a commodity can be transformed into a value of money. This value is then transformed back into a commodity as someone else sells a commodity for money and then uses that money to buy the commodities they need. This characteristic is supposed to naturally surface with the formal

division of labor based on hierarchical levels of specialization of production of different commodities and creates a want or demand for that commodity at different social levels based on the hierarchical value of that commodity. This is a simple way to understanding supply and demand as it rotates around in circles up a hierarchical social tract. For the timber industry, money is exchanged for the production of forest products and it is then divided based on value of the original commodity which, is produced for a certain social level. The commodities in this industry are wood products that are processed to meet different standards at different levels of those social values. The commodity then is sold for another value that can after be reinvested. Through the accumulation of other material commodities by different levels of society, the individual who invested in the original commodity will gain a profit. Marx then attempts to explain that capitalist do not, like in early history, produce a commodity for the exchange of another commodity, they actually use money to transform into a commodity, and then attempt to transform that commodity back into more money. Capital is based on the idea that money will be used to obtain more money rather than trying to attain more commodities. (Marx) Marx gives way for better understandings of capitalism and it helps understand how it pushes so heavily on the way the timber industry is used by capitalist but, as time continues, capitalism falls susceptible to new trends.

Ideas like globalization have taken over social, economic, and political values starting from the beginning of oversea transportation, though globalization transformed with time and pushes heavily on the current day market. Globalization is explained by William Scheuerman in an article on Stanford University's Encyclopedia of Philosophy as "the pursuit of classical liberal (or "free market") policies in the world economy ("economic liberalization"), the growing dominance of western (or even American) forms of political, economic, and cultural life

(“westernization” or “Americanization”), the proliferation of new information technologies (the “Internet Revolution”), as well as the notion that humanity stands at the threshold of realizing one single unified community in which major sources of social conflict have vanished (“global integration”)” (<http://plato.stanford.edu>, 2010). Sheuerman’s interpretation of globalization considers all aspects of social, economic, and political life and it has begun to be the descriptive word for this phenomenon since the early 1800’s. Even before Marx explored the idea of Capitalism, the advancement of communications between countries and continents pushed the idea of globalization. It connected all aspects of life and social structure. Like Marx explains, Capitalism invests heavily in the relationships among societies and is what structures the hierarchy of our economies.

Capitalism was an investment to the future of America as it has continued to push through time. Though it has continued to evolve from the early forms in the 1600’s, capitalism is has changed with the economic forces of different speeds of social evolution. As societies evolve through the affects of technology, war time, generational differences, different societies found different ways to control their idea of capitalism. Some ideas succeeded quickly, some slowly, and some in between but, the capitalist idea put pressure on these societies to grow based on the same principles of Marx’s Theory of Labor Value just, at a much larger scale. Societies grow their way out of developing plans by specializing in a level of labor and as they grow bigger, the value of their labor and products that they produce go up. Societies invest in a resource to create a commodity in hopes that they can turn around and sell it for a profit. The value of the commodity is created through the strength in relationships one society can create with another. The values that the consumer societies will place on that commodity depends on the value they place on the interaction between them and the producing society. This gives the commodity

producing society a bases to start earning profit by reinvesting the standard value made from the first commodity, into one that is equal, better in value , higher quantity, or quality. This commodity then can be recycled through the same system and accumulation of profits will pull the society out of the developing stages. This idea has not only drove America to be one of the most successful economies in the world but, also it to drove the timber industry to produce the largest amount of timber product in the world. The timber industry falls susceptible to the impressions of capitalism through the course of history and for the future the US timber industry should continue to be a leader in consumption

### **Future Endeavors**

The future of the timber industry is estimated by the Federal Forest Resource Coalition to bounce back from the financial crisis of 2008 in supply and in demand.

(<http://www.foresthealth.org>, 2011) After its ability to supply from 1997 to 2008 declined by nearly one billion board feet harvested a year, the industry has regrown its ability to supply by about two-tenths of a billion board feet in 2010 and proved that it could still consume well over that amount. The industry is predicted to consume 42 percent more forest product by 2050 as the increase in domestic production will bring more employment and industry back to the US.

(<http://www.foresthealth.org>, 2011)The drivers behind these two increases in industry however, fair much different reasoning as the rise in supply of timber products goes up, due to an increase demand in by growing populations in societies, housing industry growth, and technological advancement. Societies like China have seen huge gains in economic levels and also population levels which, creates more demand by the industry to need more attention by resources. Just like the US saw after WWII, the timber industry follows suit to a growing capitalist economy like China, and it will follow until there is an unbalance in the distribution of the profit.

The housing industry after 2008 can only increase and as single families begin to reinvest in their homes, the industry finds more and more new house starts and projections by the Joint Center for Housing Studies of Harvard estimate that by 2020 the industry will increase by 1.75 million new housing units built a year. (<http://www.foresthealth.org>, 2011) Technological factors should also push the industry to drive itself in an upward fashion as areas in this field contain ideas for new energy sources. Because fire is the original source of heat and energy by mankind, Technology advanced this idea and created the idea that appliances could run off the use of wood pellets. Now wood pellet technology can boil water, heat rooms and heat buildings and can also save a fortune in fossil fuel costs. The city of Gardiner, Maine enacted the idea to heat all municipal buildings with wood pellets and expects the installation to save the residents of Gardiner and estimated \$195,000 in fuel costs over the next 25 years. (<http://thevalleyvoice.org>, 2010) The ideas to use technology to help out one of the oldest working industries, is a great way for people to save money and help out the environment.

The increase in demand for timber products in the US is driven by the increase in the housing and home improvement industries that [www.foresthealth.org](http://www.foresthealth.org) predicts will continue to happen over the next few decades. This will allow for letting sustainable practices take place and domestic production and consumption to increase and accumulate demand. As people continue to climb out of the financial crisis of 2008, people find themselves more able to get back on their feet, and are looking to reinvest in the property and housing they couldn't improve during the crisis. As the economy rises people will find themselves more confident in the US's money making abilities and this will reinsure the reinvestments wont flop. As people build confidence, they will be able to recreate their backbone and risk a little more investment as time goes on.

The timber industry grew substantially with the investment in the capitalist economy and it supplies for a large profit every year but, it also accumulated critics like the environmentalist that would slow down the growing industry. The knowledge accumulated over time through trial and error in the ideas of sustainability, gave mankind the chance to rebuild the Earth's forests in a relatively short time compared to the length of time it took for Silviculture to be developed. The idea that forests could be managed influenced the advancement of timber products and research that produces, consumes, and regrows for the future. The timber industry was affected by their own continual devastation to the forestlands that they harvest from but, it also fell heavily susceptible to the historic events that follow the ideals of capitalism. Capitalism is a economic system that, like Karl Marx explains, in terms of the Labor Value theory will explain commodity, exchange-value, monetary value, labor, a social hierarchy through trade, and a capital for the goal of the economy. Capitalism gives the timber industry an institutional standard that is created in the same ideals as trying to attain a capital. In this, capital calls for the division of labor and creates social conflict that drives for one part of society to be exploited at the expense of the rest of society. The forest land finds to be expensive to harvest and humankind finds ways to exploit the forests also but, the industry and capitalism did appoint out the environmentalist view which, looks to clean up the act and responsibility that humans have over the forest. The interactions between society and nature have been tested heavily in the timber industry in its ability to accumulate profit and find sustainable practices.

## Sources

1. Indiana Department of Natural Resources. (2012). What is Forestry?  
<http://www.in.gov/dnr/forestry/4411.htm>
2. United States Environmental Protection Agency. (2011). Forestry. EPA Agricultural Center. Nov 3, 2011. <http://www.epa.gov/agriculture/forestry.html>
3. Haynes, Richard W., coordinator. 1990. An analysis of the timber situation in the United States: 1989-2040. An Analysis of the Timber Situation in the United States:1989-2040. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 268 p. <http://www.fs.fed.us/pl/rpa/timber89.htm>
4. Maps of the World. 2006. Top Ten Timber Industry Producing Countries.  
<http://www.mapsofworld.com/world-top-ten/countries-with-most-timber-producing-countries.html>
5. Vorderstrasse, Ron. 2006. The Timber Industry and its Effects on the Pacific Northwest. June 14, 2006. Western Oregon University.  
<http://www.wou.edu/las/socsci/history/hist%20pdf%20scans/timber%20industry.pdf>
  - a. Langston, Nancy. "Environmental History and Restoration in the Western Forests." *Journal of the West*. 38 (1999):45-55.
  - b. Wood, Nancy. "Clearcut: A Conservationalist Views America's Timber Industry." *American West* 8 (1971): 10-15, 58-60
  - c. Hirt, Paul W. *A Conspiracy of Optimism*. Lincoln: University of Nebraska Press, 1994.
  - d. Johnson, Kirk. "Reconciling Rural Communities and Resource Conservation." *Environmental* 35 (1993): 17-33
6. 2002. Forest Land Area from 1630-2002. United States Forest Acreage Trendline.  
[http://forestry.about.com/library/bl\\_us\\_forest\\_acre\\_trend.htm](http://forestry.about.com/library/bl_us_forest_acre_trend.htm)
7. Lavoie, Lewis. Mural Mosaic. World War II. The National WWII Museum.  
<http://www.muralmosaic.com/usa/epu/panels/40.html>
8. Clark, Charles. 2001. Stability and Moral Exclusion: Explaining Conflict in Timber-Dependent Communities. *Human Ecology*, Vol.8, No.1. University of New Mexico. Department of Sociology.  
<http://www.humanecologyreview.org/pastissues/her81/81clark.pdf>
9. Lee, Robert G. 1989. Community stability: Symbol or social reality? In Dennis C. Le Master and John H. Beuter (eds.), *Community Stability in Forest-based Economies*, 36-43. Portland, OR: Timber Press.  
<http://www.humanecologyreview.org/pastissues/her81/81clark.pdf>
10. Opotow, Susan. 1990. Moral exclusion and injustice: An introduction. *Journal of Social Issues* 46, 1-20. <http://www.humanecologyreview.org/pastissues/her81/81clark.pdf>
11. Andre, Claire. Velasquez, Manuel. Ethics and the Spotted Owl Controversy. Santa Clara University. <http://www.scu.edu/ethics/publications/iie/v4n1/>

12. Niemi, Ernie. Whitelaw, Ed. Johnston, Andrew. 1999. The Sky did Not Fall: The Pacific Northwest's Response to Logging Reductions. ECONorthwest. April 1999.  
<http://pages.uoregon.edu/whitelaw/432/articles/SkyDidNotFallFull.pdf>
13. Regional Ecosystem Office. Northwest Forest Plan (NWFP) Overview. Nov 28, 2006.  
<http://www.reo.gov/general/aboutNWFP.htm>
14. Highbeam Business. 2012. Forestry Service. Cengage Learning.  
<http://business.highbeam.com/industry-reports/agriculture/forestry-services>
15. Pepke, Ed. 2011. Sustainable Development in the Forest Sector: Balancing Production and Consumption in a Challenging Economic and Political Environment. UNECE/FAO. Feb 15, 2011.  
<http://www.unece.org/fileadmin/DAM/timber/other/PepkeSustDevtForSect140211.pdf>
16. Aschbrenner, Joel. 2011. Timber Industry Climbing Slowly out of Recession. Herald and News. Dec 17, 2011. [http://www.heraldandnews.com/top\\_story/article\\_87931c08-2860-11e1-b092-001871e3ce6c.html](http://www.heraldandnews.com/top_story/article_87931c08-2860-11e1-b092-001871e3ce6c.html)
17. Wood Sourcing. 2012. US: An Economic Forecast for the Timber Industry, 2012-2013. Jan 5, 2012. [http://www.woodsourcing.com/view\\_news.php?ref=160](http://www.woodsourcing.com/view_news.php?ref=160)
18. Rummer, B. 2009. Basic Steps in Timber Harvesting. Forest Encyclopedia. Jan 20, 2009.  
<http://www.forestencyclopedia.net/p/p2259>
19. Weinberg, Meyer. A Short History of Capitalism. <http://www.newhistory.org/CH01.htm>
20. Evans, Zander. 2006. What is Ecological Forestry? The Forest Guild. Sep 2006.  
[http://www.forestguild.org/ecological\\_forestry/Ecological\\_Forestry\\_evans\\_06.pdf](http://www.forestguild.org/ecological_forestry/Ecological_Forestry_evans_06.pdf)
21. McAdams, Tony. Neslund, Nancy. Zucker, Kiren D. 2009. Law, Business, and Society. 9<sup>th</sup> Ed. McGraw-Hill Irwin. P. 176.
22. Marx, Karl. Capital Vol. 1 section 2. The Twofold Character of the Labor Embodied in Commodities. <http://www.marxists.org/archive/marx/works/1867-c1/ch01.htm#S3a1>
23. Scheurman, William. 2010. Globalization. Stanford Encyclopedia of Philosophy. June 4, 2010. <http://plato.stanford.edu/entries/globalization/>
24. Brink, Steve. 2011. Federal Forest Resource Coalition. Feb 19, 2011.  
<http://www.foresthealth.org/pdf/Federal%20Timber%20Demand%20Feb%202011.pdf>
25. Tibbetts Jr, George L. 2012. Gardiner Replaces Oil Boilers with Wood Pellet Boilers- Open House 3/14/12 The Valley Voice. Mar 5, 2012.  
<http://thevalleyvoice.org/2012/03/05/gardiner-replaces-oil-boilers-with-wood-pellet-boilersopen-house-31412/52920/>