

SOAR - Analysis of the Forest Industry's Potential in Eastern Kentucky¹

Overview

This report summarizes the findings of an economic analysis indicating that the timber based forestry sector could sustainably provide \$1.5 billion in additional direct economic contributions in the 54-county SOAR region including 7,498 new jobs. Economic contributions could total more than \$2.3 billion including induced and indirect contributions generated from this sector. The analysis considered both expansion of existing forest industries and new industries that can use the low quality and degraded forest resources that are present and underutilized. While this report focuses on economic contributions of the forestry sector, it is recognized that the region's forests have the capacity to generate income from non-timber industries. The analysis was also sensitive to the conservation of forest resources and the regions forest ecosystems as a whole. While this report provides the overall economic potential and industry mix that facilitates sustainable use of the region's forests, it does not attempt to address implementation strategies. This would necessarily require site-specific analysis and was beyond the scope of the analysis and this report. However, the report is designed to provide a platform for reasoned discussions regarding the potential of the forestry sector to provide sustainable economic contributions to the SOAR region.

Forest Resource

Forests dominate the region, occupying over 80 percent of the land base of many of the 54 counties in the SOAR region. Forests provide a host of significant values to communities that exist in this landscape. Forests are also the preeminent renewable natural resource in the region and can provide foundational sustaining economic and social benefits if used and managed wisely. Analysis of the forest resources of the SOAR region and the economics associated with the strategic and sustainable use of the region's timber resources suggests there is potential to generate additional revenue and jobs. This is possible through expansion of existing industries as well as the development of additional industries to utilize currently under-used forest resources. Expansion of the forestry sector must also consider the growth capacity of the forest and the non-timber resources and benefits that must be maintained to ensure sustainability. Further, the availability and quality of timber reserves, the structure of the existing forest industries, and the region's infrastructure are important considerations and, where appropriate, were included in the analysis. It is important to recognize

¹ Analysis was conducted by the University of Kentucky College of Agriculture, Food and Environment, Department of Forestry - Extension (J. Stringer, B. Ammerman, B. Thomas) upon request by parties engaged in the SOAR process. It specifically addresses sustainable forest industry development. We thank those who provided review of this report including the Kentucky Forest Industries Association (KFIA), Kentucky Division of Forestry, and individuals in the forest and wood industry and Cooperative Extension Service. This summary, as well as forestry economic reporting for the entire state is available at www.ukforestry.org.

that the full economic potential of the forestry sector cannot be achieved immediately. In many cases detailed site-specific analysis will be required to determine how to best implement forestry based economic strategies, and significant time may be required to realize the forestry sector's potential within the 54 county region.

Overall Forestry Sector Potential

This report outlines the types and economic contributions of forest industries that can sustainably develop in the SOAR region without threatening the area's forest growth potential and established forest industries. The analysis was based on sustainable utilization of one-half of the region's annual forest growth that is not currently harvested. This provides a needed buffer to help ensure sustainability. The analysis also focused on the appropriate mix of industries to maximize the value added to primary forest products grown and produced in the SOAR region. Maximizing the production of value-added forest products minimizes the export of raw timber and primary products (such as green lumber) to other states, regions, or countries and captures the full economic potential of the region's timber based resources. Finally, the analysis used the types of industries compatible with the transportation, workforce and utility infrastructure of the region. The selection of the appropriate industries is necessary to accurately predict the economic potential of the forestry sector.

Overall, our analysis indicates that the majority of industry growth must occur through the use of lower quality timber resources that are currently underutilized in the region, as well as better utilization and processing of higher quality timber. Analysis indicates that an additional \$1.497 billion in new revenue and 7,498 new jobs can be generated directly from the forestry sector. The potential gain in direct revenues is from a range of forest industries that can utilize the quality and quantity of timber resources currently found in the region and that can be grown sustainably in the future. The gain would be realized by landowners selling timber, loggers cutting and hauling timber, and a wide array of industries; including those processing raw timber (primary industries) and those manufacturing wood components and finished products (secondary industries). These direct contributions are estimated to result in an additional \$820 million and 6,519 jobs in indirect and induced economic activity, resulting in a total contribution of \$2.317 billion and 14,017 jobs. While the \$2.3 billion is significant, it represents only 18 percent of the total annual economic contribution that the forest industry provides to the commonwealth. Over time these additions in combination with the current economic activity of the forestry sector can be expected to yield a total of \$4.914 billion and 29,252 jobs in the SOAR region. This represents a viable long-term target to be considered for improving the economic stability of the region, including sustainable jobs development. It is important to note that while there are some forestry sector contributions that can be tapped into relatively quickly, realization of the full forestry sector potential is a long-term process.

Forestry Sector Details

The Table indicates the most significant forestry subsectors and their total potential dollar and job contributions: a total of \$1.497 billion in new revenue and an additional 7,498 jobs to the region. Approximately \$1 billion of this contribution is from new or expanded primary industries including logging, sawmilling and other primary processors of timber and fiber resources.

The remainder is primarily from new secondary industries that manufacture intermediary or finished products. The analysis also indicated other forestry subsectors that could be enhanced or established including new industries to fully utilize the logs and lumber produced by primary industry. It also included industries, both new and existing, that are capable of using the region's abundant low quality timber resources.

The overall increase in forest industry will improve the economic vitality of those businesses and services directly supporting forest industries such as transportation and parts distributors. The increased vitality of the

forest industry will also contribute to increasing other non-forestry sectors such as health care, rental/housing, petroleum, and retail and wholesale trade. These other aligned and affected sectors are estimated to result in an additional \$820 million and 6,519 jobs ultimately yielding a total new annual contribution of \$2.317 billion and 14,017 new jobs to the region.

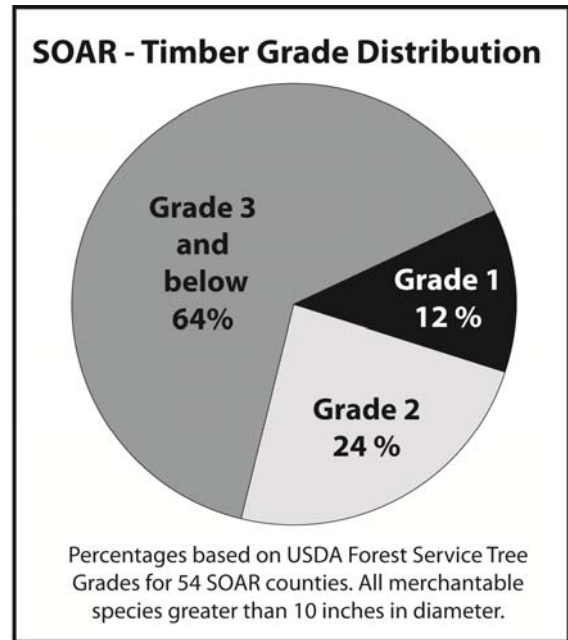
Forest Resource and Management

The focus on the increase in primary industries is based on the region's preponderance of underutilized lower quality growing stock. It is also recognized that current industries are actively using high grade (quality) growing stock. The figure shows the current distribution of timber growing stocks by grade. Grade indicates quality. Larger trees that possess characteristics such as soundness, straightness and a minimum number of branches and defects are designated as grade 1 trees. High valued products such as veneer, stave logs for the production of whisky and wine barrels and quality grade lumber must come from grade 1 trees. On the other end of the spectrum are below grade and grade 3 trees that are only capable (from a timber perspective) of producing low valued products. It is recognized that some of these trees have significant non-timber values,

Table 1. Forestry Subsectors - Dollar and Job Contributions Above Current Levels

Significant Forest Industry Subsectors	Annual Contributions	
	Dollars (in millions)	Jobs
Primary Industry		
Logging, Sawmilling	1,054	3,987
Secondary Industry		
Wood container / pallet	269	2,127
Wood windows, doors and millwork	101	618
Nonupholstered wood household furniture	73	775
Forest Industry Subtotal	1,497	7,498
Other Forest and Nonforest	820	6,519
Total New Contributions	2,317	14,017

for example wildlife habitat. Regardless, some of these lower grade trees are small and may eventually grow into grade 1 trees. Some of these trees, however, are large, but because of mismanagement or neglect are not, and never will be, capable of yielding high quality timber products. Good examples are trees that are fire damaged and rotten or are crooked and have been left in the forest because they were unmarketable. The development of markets for this material is required to provide the economic base for their removal, increasing the growing space for higher or potentially higher valued trees. The figure clearly indicates the regional preponderance of low quality (below grade or grade 3)



trees. This data indicates the importance of utilizing the lower grade trees, particularly the portion of this growing stock that does not have the potential to grow into grade 1. However, it is critical that these removals are conducted using principles of sustainable forest management. This ensures that harvests are conducted to improve the forest, leaving potentially valuable trees to grow and/or encouraging the proper regeneration of the forest. These principles also require that non-timber forest resources, special sites, wildlife habitat and populations, and cultural and ecosystem values are protected. Without proper forest management, the health and resiliency of the region's forest are in jeopardy, and the forest will fall short of yielding the economic, ecologic and societal values that are possible in the region. This indicates that opportunities and incentives for landowners to conduct sustainable forest management are important, as are markets for degraded and low valued growing stock. Further monitoring of the forest resources is necessary. Fortunately, we have programs in place that, if appropriately supported and strategically developed, can provide these required elements for sustainable conservation and use.

Summary

The results of this analysis indicate an annual addition of \$2.318 billion in direct, indirect and induced economic contributions resulting from increases in the forest industry. This, in addition to the current economic contributions, can provide a total of \$4.914 billion and 29,252 jobs to the SOAR region. This is based on utilizing one-half of the available growth (thus providing for substantial positive net growth), and does not impede the continued environmental and economic sustainability of the region's forest resources, providing opportunities for income from ecosystem services, recreation, eco-tourism and non-timber forest products. Data also suggests that with proper management over time the region's forests could increase in growth and value with a subsequent improvement in economic contributions for forest owners, industry and

the SOAR region collectively. Kentucky currently possesses a healthy mix of forest industry sectors, and those listed are poised to expand. There is also strong potential for developing additional industry types. Workforce expansion can be facilitated by technical training opportunities and facilities in the SOAR region (ex. University of Kentucky's Wood Utilization Center). In addition, organizations, agencies and market forces to facilitate sustainable forest management are present and, if supported, can help to ensure the sustainability and health of the region's forests. In summary, strategic expansion of the forestry sector represents what could be considered "low hanging fruit" in the search for providing a sustainable economic base for the region.

Analysis

This analysis was conducted using Kentucky's Forest Inventory Analysis (FIA) data provided by the Kentucky Division of Forestry and the U.S. Forest Service to determine the net timber growth and the species and tree grade distribution for the 54-county SOAR region. The analysis assumes that one-half of the net growth above what is currently being removed could be reasonably harvested providing a significant buffer against over-harvest. The volume of hardwood lumber by grade and the volume of below grade fiber that was available were determined using tree/lumber grade conversion estimates from FIA tree grade data. Forest industries were then selected that could utilize this material and that fit the infrastructure profile of the region. For example the region can easily facilitate loggers, sawmills, pallet and furniture manufacturing, but the region's infrastructure would not facilitate the development of a pulp and paper mill, nor would the grade distribution indicate the feasibility of developing greater veneer mill capacity in the region. Once the industry mix was determined, employment data from Kentucky's Forest Industry Directories, maintained jointly by the Kentucky Division of Forestry and the University of Kentucky Forestry Extension, was used to determine average employee numbers for each of the forest industries selected. These employee numbers were applied to IMPLAN data to provide the direct, indirect and induced outputs for the forestry subsectors selected as well as the economic improvement in affiliated and affected industries. It is important to note that this analysis only focuses on forestry subsectors that are based on utilizing the region's forest resources in a sustainable manner. It does not encompass the forestry subsectors such as paper converters that could potentially be attracted to specific locations in the region and should be considered in site-specific economic development analysis.
