

# **A Bio-Energy Mill Location and Decision Support System Based on a County-Level Forest Inventory and Geo-spatial Information**

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## **Abstract**

The forest products industry is a major component of Mississippi's economic base. The need for a county-level forest inventory and decision support tools for locating bio-energy/forest product mills are prerequisites to attracting and sustaining the industry. The Mississippi Institute for Forest Inventory (MIFI) is currently inventorying the state's forest resources with the precision necessary to make county-level decisions. The primary objective of this project is to develop a Web-based computer decision support tool for determining the feasibility and optimal location of bio-energy/forest products mills based on forest inventory and geo-spatial information. GIS layers have been developed for forest type, age, ownership, and volume/biomass. Inventory statistics, a transportation network, and spatially allocated growth and drain estimates are the inputs to a linear programming model that minimizes the costs of procuring feedstocks for user selected potential mill sites. The computer interface for selecting optimal mill locations within working circles or polygons is linked to the existing MIFI inventory reporting interface. The interface allows users to specify appropriate mill requirements for comparing sites for optimal mill location.