

# Environmental Performance Measures for Renewable Building Materials— CORRIM Report

The Consortium for Research on Renewable Industrial Materials (CORRIM), a nonprofit research corporation, was organized to update and expand a 1976 National Academy of Science report on the impacts of producing and using renewable materials. CORRIM has been established with a voting board of directors representing independent research institutions, including the University of Washington. The original report focused specifically on the energy impacts associated with using various renewable materials. Since the 1976 report was written, a variety of environmental issues and energy-related concerns have surfaced, yet little scientific or quantifiable information has been gathered. Without a scientifically sound database of the environmental and economic impacts associated with using renewable materials, it is difficult for policymakers to arrive at informed decisions affecting the forestry and wood manufacturing industries. Moreover, individual industries, including those that use wood as a raw material, have little information to provide a basis for strategic planning and investments to improve their environmental stewardship. An updated CORRIM report, using a comprehensive research plan and methodology, will provide a database of information for quantifying the environmental impacts and economic costs of wood building materials through the stages of planting, growing manufacturing, construction, operational use, and demolition.

## Background

Public interest in the environmental impacts of forest management has reached new heights, resulting in a demand for strategies and policies to improve environmental performance. Unfortunately, the environmental consequences of changes in forest management and product manufacturing and use are poorly understood, and, ironically, may be detrimental to global environmental quality. This situation is accentuated by an almost total lack of up-to-date, scientifically sound, product life-cycle data in the U.S., particularly with regard to wood and bio-based products. For example, concerns about the sustainability of present forest practices have led to changes in forest harvesting in the U.S. As a result, the U.S. wood products sector has lost a substantial market share to non-wood substitutes and foreign suppliers.

Ultimately, concerns about forests and wood products have a direct and significant impact on the U.S. building materials and home building industries. Harvest reductions are quickly reflected in the availability of wood, and, in turn, in the price of building materials. This triggers consumers to use

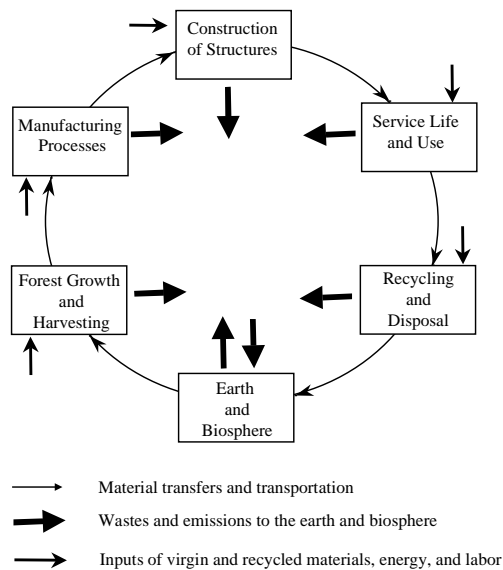


Figure 1. Life cycle from regeneration to disposal of wood materials

wood from other regions of the world or to use non-wood substitutes. While the economic impacts have been analyzed and reported, the environmental consequences of these changes in material flow and uses are poorly understood.

Decisions discouraging or encouraging the use of various building products are made each day at all levels of industry and government. While decisions may be motivated by a desire to protect the environment, the negative consequences associated with using non-wood substitutes are often not considered.

Consequences include impacts on the environment of using non-wood products and the impacts that management plans can have on forestland. The decision to avoid using wood building materials may in fact be counterproductive to the intent. It is critical to develop a better information base of quantitative data on the environmental impacts of a variety of building products. Ultimately, decisions based on quantitative or scientific information may have a more positive effect on the environment and economy than decisions based on rhetoric and opinion.

### Research Plan

The 1998 CORRIM research plan proposes to develop a scientific base of information relating to the environmental performance of wood-based building products. As in the 1976 study, a number of companies have offered support and will contribute primary data. The plan identifies several factors that can affect the efficient use of energy and materials in building materials manufacturing. These factors include forest management and methods to increase carbon sequestration, improve the efficiency of manufacturing processes, reduce waste and potentially toxic materials, and sustain healthy forest ecosystems. The intent is to create:

- A consistent database to evaluate the environmental performance of wood and alternative materials from resource regeneration or extraction to end use and disposal, *i.e.*, from “cradle to grave.” (Figure 1).
- A framework for evaluating life-cycle environmental and economic impacts.
- Source data for many users, including resource managers, manufacturers, architects, engineers, environmental protection and energy analysts, and policy specialists.

- An organizational framework to obtain the best science and peer review.

CORRIM's research is focused on two objectives: to develop a database and modeling system for environmental performance measurements associated with materials use and to respond to specific questions related to environmental performance and the cost effectiveness of alternative management and technology strategies. This database and information source will enable decision-makers to make consistent comparisons and systematically characterize the options for improving environmental performance.

By comparing across alternatives, the analyses will provide projections of future environmental performance. Examples include:

- A systematic evaluation and quantification of the environmental performance of wood products and wood-using systems, with alternatives for improving energy efficiency, carbon sequestration, recycling, reuse, and sustainability that include tradeoffs between environmental and economic performance measures.
- An assessment of how changes in forest culture and wood use affect forest health and the nation's energy requirements.
- The likely impact of mandated carbon-emission reductions or taxes on forest culture and forest product use.
- A thorough examination of ways to conserve wood.

The analyses will also will reveal marginal costs that contribute to marginal environmental changes and other economic impacts.

### Contact:

CINTRAFOR

University of Washington, College of Forest Resources, Box 352100  
Seattle, Washington 98195-2100

Phone: (206) 543-8685; Fax (206) 685-0790

<http://www.cintrafor.org>