

SWST Position On

Use of Life Cycle Inventory data and Assessment (LCI/LCA) to reduce environmental burdens

A Position Paper Submitted by the Policy and Critical Issues Committee – February 2007

Problem Statement

SWST has an informational position statement on the importance of environmental implications of the use of wood-based products (April 1999). The Society now needs to take an advocacy position in asserting that scientific environmental performance information be included in evaluating the environmental effects of using wood versus other materials.

The Society should take a leadership role in the development of relevant and accurate life cycle inventory data (LCI) to be used by others and ourselves in life cycle assessment (LCA) of wood processes and products, and compare the results to other materials.

Summary

Life Cycle Inventory and Assessment (LCI/LCA) is a relatively new tool which can be used to analyze the sources and magnitude of environmental burdens and provide a scientific basis for identifying opportunities to reduce burdens. LCI measures all the inputs and outputs of manufacturing and construction processes including raw material extraction, product and building use, maintenance and ultimate disposal. The Assessment process identifies the more serious burdens and is used to guide improvement.

The issue is of major importance: Life Cycle Inventory and Assessment represents one of the more widely used scientific methods available today to measure environmental burdens and identify environmentally preferred products, designs and manufacturing processes. Many wood scientists and research institutions have developed LCI/LCA data in order to establish a better understanding of environmental burdens and opportunities to lower those burdens. LCI/LCA is beginning to have a major impact on the public and our profession and is prominent in international standards (for example, in ISO 14040) and is being considered as a means of improving US building standards.

The issue is within the knowledge and skills of the profession and SWST: Wood scientists have an important role in developing quality LCI data because of their intimate knowledge about the technical processes and products used to produce construction materials, as well as their familiarity with environmental certification and building or product standards. Several environmental criteria developed by advocacy organizations in which wood scientists did not play a role are arbitrary or lacking in a solid scientific foundation. Thus, they have the potential to lead away from rather than toward sustainability.

The issue has broad enough interest to the membership to invest time and money: Many in our profession have already made major investments in developing LCI data and assessment methods. These issues are critical to global and local environmental concerns like climate change, pollution abatement, and resource sustainability. Funds are being raised for LCI/LCA studies both for wood products and competing materials. Wood scientists should lead in bringing peer reviewed scientific information to the forefront and promote discussion of environmental improvement.

Background

This is the time for SWST to respond: In 1996 fifteen wood related research institutions formed a research consortium to study environmental performance of renewable materials. This not-for-profit government research corporation known as the Consortium for Research on Renewable Industrial Materials or CORRIM Inc. has pioneered the development and use of LCI/LCA methods. CORRIM published a research plan in 1998, an interim report on Phase 1 of their research in 2002, and a final 1000 page report on the Phase 1 research in 2004 (www.corrim.org/reports). All materials were reviewed at several stages by international LCI/LCA experts. The 2004 report has been condensed in a special issue of Wood and Fiber Science Volume 37, December 2005; this report represents a first major step in documenting through LCI, needs and opportunities for environmental improvement throughout the wood products, building

materials, and residential construction industries. Environmental standards in all of these industries are just now being developed and those that were introduced earlier are under pressure to use better science. Through CORRIM, a solid research foundation on which to base action now exists.

The Society has the human and financial resources to act responsibly: Many of the institutions contributing to the Society are already immersed in LCI/LCA research and data collection. Other projects for collecting LCI data are being modeled after the CORRIM methods and others are now broadening their research programs to include attention to LCI/LCA. SWST should be on record stressing the importance of LCI/LCA methods and the collection of LCI data, and the benefits of using such data to identify and reduce environmental burdens and to thereby moderate both human and ecological risk. By so doing, SWST will encourage those in the profession to understand both the benefits and weakness of the techniques being used and to improve review processes for future work, and will contribute toward societal change and environmental improvement.

LCI/LCA is not a perfect system from every perspective as noted in ISO14042 and the CORRIM Phase 1 report. Nevertheless this system has been shown to provide information and directions for improvement. An important aspect is to insure that those involved understand its strengths and weaknesses so LCI/LCA can be used most effectively.

POSITION STATEMENT: SWST supports the development and use of Life Cycle Inventory data and Assessment (LCI/LCA) as important tools in identifying environmental impacts and actions that can be taken to improve them. LCI/LCA provides an information base that can be used for selecting designs, products, manufacturing processes and recycling methods that can substantially lower negative environmental impacts contributing to human health and ecological risks. SWST believes that renewable wood resources can contribute in many ways to improve environmental sustainability and supports research and education focused on LCI/LCA to increase the understanding of these methods on the part of the profession as well as the public at large.

Specific actions that need to be supported: While the Society has limited financial resources, there are many ways that it can promote LCI/LCA development and use.

- Extend the research findings by supporting and enabling technology transfer, making it easier for builders, architects, processors, product developers and educators to identify changes that will improve environmental performance.
- Support the development of course materials that can be used for distance learning in support of educating K-12, college, and lay publics on how to improve environmental performance and the opportunities for individual decisions to make a difference.
- Join international consortia efforts to promulgate LCI/LCA findings and highlight regional differences as they are known to be significant.
- Take leadership in promoting development of science-based environmentally friendly purchasing standards.
- Identify opportunities for product and process performance improvements and lead in focusing research and development on these opportunities.
- Support policies that increase the financial resources available for LCI/LCA development.
- Encourage science-based efforts that will be required to compete in an environmentally literate world.

Conclusion: This challenge is large and is critical to the long-term sustainability of our society. It is vitally important that our profession be a leader in understanding the cause and effect relationships governing environmental performance including both the role of science in modeling performance and the role of institutions in promoting improvements. Because wood is a unique and renewable resource for both construction and biofuel applications, it is critical that we use this opportunity to advance sustainability and environmental performance improvement across our global societies.

This position statement should be reviewed in 2 years given the rapid pace of technology.