

Professional Affairs

TO: Delegates and Participants
National Conference on Research
Planning for Forests and Associated Rangelands
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FROM: Dr. E. L. Schaffer, President
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In keeping with the objective to identify and prioritize forestry research needs from a research user's point of view, the officers of the Society of Wood Science and Technology prepared the enclosed statement of needs for your consideration. We believe you will find the comments useful in the endeavor to make forestry research relevant to national needs.

The Society of Wood Science and Technology is a professional society uniting individuals with the necessary technical backgrounds. It promotes the wise and judicious use of the world's wood resources in five different ways:

The Society is devoted to developing and maintaining a unique body of knowledge distinctive to wood science and technology:

Encouraging the communication and use of this knowledge;

Encouraging policies and procedures which assure the wise use of wood and wood-based products;

Encouraging high standards for professional performance of wood scientists and technologists and acting as a professional organization for individuals who meet these standards; and

Fostering educational programs at all levels of wood science and technology and furthering the quality of such programs.

Members of our Society lead our nation in the fields of education, research, development, manufacturing, and technical service. Their combined expertise guides and provides the necessary advice for the production and use of better forest products.

FORESTRY RESEARCH NEEDS STATEMENT OF THE SOCIETY OF WOOD SCIENCE AND TECHNOLOGY

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We are currently focusing on whether our present forestry research system is adequate to meet the needs of research "users." As a professional society involved in the production and use of knowledge for forest products utilization, we view the forestry research needs as:

1. The research effort projected for the harvesting, processing, and marketing of wood products is *inadequate* to meet future demand.
2. Invigorating arrangements to encourage industrial acceptance or development of improved wood conversion technology are urgently required.
3. The fragile university resource base for manpower, and womanpower, in wood science and technology must be nurtured in order to capitalize on opportunities this renewable material provides.

4. Professional societies should be encouraged to take on the obligation of developing statements in areas of significant policy debate concerning management and utilization of the timber resource.

To expand briefly on these research needs, the following is provided:

1. Research effort projected for the harvesting, processing, and marketing of wood products is *inadequate* to meet future demands.

The nation's forests, besides providing environmental and recreational benefits, provide wood as a key natural resource comparable only to ores, oil, coal, and natural gas. However, there is a lack of appreciation of the contribution of timber to the economy. About 5.6 percent of the gross national product is wood based (RNSF)! Maintaining the productivity of the forests is undeniably vital to maintaining the economy.

There is considerable information available on supply and demand for timber in the years ahead (Forest Service 1973, 1977; Hair and Ulrich 1964; NCMP 1973; Phelps 1975). A recent analysis (Stone 1977) concluded that United States timber, as a raw material, is in reasonably sound condition to satisfy increased demand for wood products for the remainder of this century. However, beyond 2000 it is anticipated that more effort to increase productivity will be necessary to satisfy American lifestyle.

Assessing and increasing productivity through silvicultural means is an area receiving considerable scientist research effort (totaling about 959 scientist years in FY 75). Much of this research is anticipated to provide more wood fiber in 40 to 50 years or beyond the years 2020–2030. In the meantime

—the quality of the timber for utilization is declining,

—a shift to more hardwood use must be made [because of excess growth (Stone 1977)],

—a continuing shift to smaller diameter timber is occurring, and

—increased costs of stumpage, processing, and marketing are reducing the economic supply even as the timber supply grows larger.

These provide urgent challenges to practice conservation in use and to continue to be able to provide products from the changing raw material (including residues). Utilization research can meet both challenges within 20 years. Current utilization research effort, however, (FY 75) is about four tenths of the silvicultural effort (RNSF 1977). Both types of research must move forward, and both are equally important. Neither should be penalized in favor of the other.

Utilization research and development have already demonstrated that the raw material base can be extended. In the last 30 years, such research has cut harvest needs one half to produce the same quantity of wood products. With national popular opinion growing for preservation of the forests for environmental and recreational value (ORC 1977), such reductions in the harvest will continue to be advocated. We are confronted with socioeconomic benefits of the use of wood as we are with the science and technology involved (Dickinson 1976).

2. Invigorate arrangements to encourage industrial acceptance or development of innovative wood conversion technology.

Though wood products contribute 5.6 percent to the gross national product, the amount of forest-related research is less than 1 percent of the total research and development budget in the United States (RNSF 1977). This is at least five times less than what it should be, since both volume and value of products produced are large when compared with other materials. In the past, the low research and development effort was partially explained because vast virgin harvests were available (Fleischer 1971). This is, of course, no longer true. The basic materials and industries in the United States (such as steel, glass, and wood) increasingly tend to resist technical

innovation. This is not because such new inventions or technologies are unavailable; but because high risk innovations are seldom adopted in an established, highly competitive, and narrow profit margin industry designed to exploit economies of scale (Huddle 1976). Approaches such as support of research and development carried through sponsorship of industrial pilot plants may be required to bring maximum benefit to the nation's consumers. Assisting in acceptance of new engineering approaches to home design by building codes is an indirect, but no less effective, means to encourage innovation.

3. The fragile university resource base for technical personnel with wood science and engineering capabilities must be nurtured in order to capitalize on opportunities the timber resource provides.

In order to meet the nation's increasing needs for wood-based products with the changing raw material base, future technological advances must occur at a substantially accelerated rate (Jahn and Preston 1976). Scientists, engineers, and technologists trained in wood-based material processing and utilization will be increasingly required. In supporting this, the burden falls upon a small number of universities that have maintained their commitments to wood science and technology in the presence of small enrollments and heavy demand upon the institutional resources (Bethel 1978). There appears to be a no-growth posture in higher education so that new academic programs in wood science and technology are unlikely. Few engineering schools give courses in wood design (Saeman 1976). Making engineering educators aware of the importance of this renewable resource and its technology so that students receive training in handling the technology is a special need. Many strategies for providing engineers with this training are given by Saeman (1976).

Without encouragement of university curriculums, emphasizing or including the technology of wood-base materials, grave shortages in personnel capable of dealing

with conversion and use of wood products are envisaged.

4. Professional societies should be encouraged to take on the obligation of developing statements in areas of significant policy debate concerning management and utilization of the timber resource.

"The key importance of natural resource management to our nation dictates a more intensive and effective effort by scientists in the field to insure that national resource programs are adequate and in balance with other considerations (RNSF 1977)." Professional societies and organizations provide the logical means for such views to be collated and analyzed for proper presentation. A mechanism for soliciting advice from such groups as well as their responding requires attention.

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