



# *Charting the Societal, Cultural and Ethical Issues of Forest Biotechnology Worldwide*

## *A Cornerstone of the Institute Forest Biotechnology*

*MISSION. Identify the social, cultural and ethical issues at stake in the application of biotechnology to trees and forests.*

**T**rees are powerful symbols of nature; their life cycles are hundreds of times longer than most other plants. Individuals, communities and cultures celebrate and revere trees. Trees provide life-sustaining nutrients to the air, shelter to animals and are a vital link in the web of biodiversity we are just beginning to understand. They are life-givers and yet their harvest is essential to our way of life.

The demand for pulp and paper products is expected to increase by 50 percent in the next 20 years, exceeding currently available supplies by 2010. Over half of the wood harvested globally is used to provide fuel and shelter in developing countries. Increasing use and need for wood go hand-in-hand with an increase in the standard of living for developing nations. Consequently, as developing countries achieve a higher standard of living, an increased need for wood and wood-related products is to be expected. Forest biotechnology offers a potential solution to a world that is forever increasing its need for wood and wood products, without further environmental degradation and without the wholesale attenuation of native forests.

The increasing alteration and domestication of plantation-grown trees can increase availability of wood-derived products, bioremediation and diminishment of chemical applications, while preserving natural forests for recreational, aesthetic and ecological purposes. Although such benefits are presumably welcome, they are initially accompanied by uncertainties and possible risks, including any possible long-term impact of genetically modified trees. As such,

benefits and risks of the new technology must be accurately identified and weighed with the fullest input from scientists, industry representatives, policy advocates and non-industrial private individuals and organizations.

Public responses to the complicated, interrelated issues of forest biotechnology will substantially shape its development, application and goals, quite possibly to a degree unmatched in any other biotechnology sector. The extent to which issues are effectively and appropriately addressed will shape forest biotechnology's development in coming decades.

There are profound parallels between concerns associated with the risk/benefit ratios of forest biotechnology and agricultural biotechnology. A major limitation encountered by the agricultural biotechnology sector has been the continued predominant reliance by scientists, regulators and industry on *scientific* assessments of risks and benefits. This approach neglects the risk/benefit assessment sought by public and non-scientific groups where cultural, societal and ethical concerns are paramount. An additional concern of the public is the 'unnatural-

---

*The opportunity to place ethical and societal imperatives at the forefront is rare and important in the development and use of life-based technologies.*

---

ness' of trees that are produced by incorporation of genes from non-tree entities, such as fungi and mice.

A major misstep made in agricultural biotechnology was that attempts at public engagement happened too late. Forest biotechnology is in its infancy and, as such, offers the opportunity to be shaped from the onset. The opportunity to place ethical and societal imperatives at the forefront is rare and important in the development and use of life-based technologies. Identification and analysis of ethical and societal issues should begin now, with confidence, imagination and responses from many quarters and stakeholders. Doing so will require engaged interaction with governmental, institutional and industrial parties, as well as public forums.

The Institute of Forest Biotechnology has as one of its cornerstones the need to promote and provide active engagement across sectors about the issues of forest biotechnology worldwide. Working toward that goal, it is developing a collabora-

tive project with The Hastings Center and the North Carolina Biotechnology Center to:

- Identify and better understand the ethical, societal and cultural issues that will emerge from the development and application of forest biotechnology worldwide *and*
- Suggest, in light of those issues, a constructive framework for public engagement and for policy formation.

The Institute is a co-sponsor of a forum, *Forest Biotechnology in Europe: Impending Barriers, Policy and Implications*, directed to the future of forest biotechnology in Europe.

“Charting the Societal, Cultural and Ethical Issues of Forest Biotechnology Worldwide” will be integrated with the other cornerstones of the Institute of Forest Biotechnology to provide a path forward for the safe, appropriate and productive development of forest biotechnology. These cornerstones concern heritage trees, ecological risk assessment and management and education and information networking.

## *Institute of Forest Biotechnology*

15 T.W. ALEXANDER DRIVE • P.O. BOX 13399  
RESEARCH TRIANGLE PARK, NC 27709-33990  
PHONE 919-549-8896 OR 919-549-8889 • FAX 919-990-9544

E-MAIL: [bob\\_kellison@ncbiotech.org](mailto:bob_kellison@ncbiotech.org)  
[susan\\_mccord@ncbiotech.org](mailto:susan_mccord@ncbiotech.org)