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Finding Untapped Opportunities in Forests

by Linda Silka

One of the themes recurring throughout this issue of *Maine Policy Review* is that Maine is a place of enormous natural assets. These assets, of course, include forests, with Maine being the most heavily forested state in the nation. The need for innovation around forestry and forest products is becoming ever greater. Maine's past uses for wood, such as papermaking, which provided a seemingly endless stream of well-paying jobs, no longer hold. New uses need to be discovered. Ideally, these uses will be designed to solve multiple problems: they will create new jobs and industries; they will not destroy the environment; and they will move Maine away from its high dependence on fossil fuels.

Research and development will be crucial to the success of these efforts. Consider the example of University of Maine's Forest Bioproducts Research Institute (FBRI). FBRI emerged from a National Science Foundation-funded Experimental Program to Stimulate Competitive Research (EPSCoR) project to get more value from Maine's forest resources. Early results included the partnership with Old Town Fuel and Fiber and the Department of Energy that resulted in the transformation of a closed paper mill to biofuels production, with the co-location of the FBRI's Technology Research Center at the mill site in Old Town.

FBRI is bringing together researchers and industry leaders to analyze the challenges of finding new uses for forest bioproducts. This problem solving is built on the recognition that too little is currently being used from the wood: much is left on the forest floor that could be put to societal use, for example, by using it to create biofuels for jets, cars, and other vehicles. But all of this requires innovations in science. As Dr. Hemant Pendse, FBRI's founding director, notes,

By working together with many partners...we are saving jobs, building new businesses, and training future scientists. We can make a major impact on the nation through our work on converting forest biomass into fuels, chemicals, and advanced materials in a sustainable manner.¹

Successful innovations in forest products depend on bringing together many kinds of expertise. Chemists are studying the chemistry of extracting biofuels. Forest scientists are looking at forest ecology. Economists are organizing life-cycle analyses that involve evaluating a product's economic and environmental impacts. Social scientists are involved in looking at the how various constituencies view new uses of forest lands. And all of this involves working with partners who know the industry: "FBRI is working on the development of wood based biorefineries where many products (pulp, paper, fuels, nanocellulose, wood-plastics composites, and other industrial chemicals and products) are created at one location. Pulp and paper mills are ideal locations where energy sources, wood delivery systems, and industrial expertise are already available to support and grow a more diverse bio-economy."² In an interview on FBRI's website, Dick Arnold, CEO of Old Town Fuel and Fiber, says,

We initially started collaborating with the University of Maine based on its patented extraction process. This partnership allowed us to build upon the research and development done at UMaine and scale it up to a commercial level inside the mill. We continue to develop technology with UMaine.

Because of this partnership, in addition to our development of the wood extraction technology, we are developing jobs. We grew our process development group by 15 people over the last five years; we've expanded our analytical capabilities, developed another technology on our own, and put in a fairly sophisticated pilot plan to extend our work on developing wood derived sugars that can be converted to everything from fuels to biochemicals—and even jet fuel.

Innovations are needed at every step in the creation of new products: in forestry practices, in extracting and refining bioproducts, in industry practices, and in market development. The effort is to do all of these together, not independently, so that the impact will be

significant and will serve as a model of integrated approaches to innovation.

FBRI is by no means alone in leadership in Maine's forestry and forest products arena. Scott Landis, a resident of South Berwick, Maine, with a woodworking background, created the nonprofits Greenwood and Madera Verde, which recently won Yale University School of Forestry's first-ever Innovation Prize. These organizations provide woodworking training to Peruvians and Hondurans who live near rain forests that are in danger of being logged off and destroyed. The training enables craftspeople to create products that will bring income and sustain forests. It includes market development and linking the artisans with companies that will purchase their wood products. One example is tying the Honduran and Peruvian craftspeople to guitar manufacturers (for more information, see <http://www.greenwoodglobal.org>).

As Landis notes, this approach goes to the very heart of how to ensure that forests are sustained because it gives the people a financial incentive to do so. In an interview in the *Portland Press Herald* (March 27, 2014), Landis argues that "if the forest is managed wisely and carefully, and if that's paired with quality production and innovative marketing and sales, it can be done sustainably."

Landis notes that his approach reflects the fact that those who live closest to the forests can be the strongest advocates for their sustainability if their advocacy doesn't come at the cost of a livelihood. By thinking about the problem in innovative ways, it becomes possible to come up with a creative solution. Landis also highlights the need to continue the innovation and not to assume that the same strategy can be used everywhere: "Part of our basic message is there isn't one formula, there's no silver bullet. We've done it differently in Peru than in Honduras, and if we go into a new community we do it differently too." And he ends the interview by noting the importance of relationships:

It's really about relationships. When we won the Yale prize, we described what we do as a 'green broker network'.... But we did want people to think about how that relationship could be different and positive. We act as a broker and trainer for our clients in the communities, as well as the companies on the other end that are buying the products. We plan to expand not just geographically but into the communities

themselves, to help them use more of the tree that's harvested, for instance. So we try to find different markets and products and also to expand to use a wider variety of tree species, including species that currently don't have markets. 🐟

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ENDNOTES

1. Pendse, Hemant. 2014. "Message from the Director." Forest Bioproducts Research Institute website. <https://forestbioproducts.umaine.edu/multimedia/message-from-the-director/> [Accessed April 10]
2. Forest Bioproducts Research Institute. 2014. "About FBRI: Frequently Asked Questions." <https://forestbioproducts.umaine.edu/about-fbri/frequently-asked-questions-faq/> [Accessed April 10]



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