Natural Resources Canada | Ressources naturelles Canada

CANADIAN FOREST SERVICE

SPOTLIGHT

JANUARY 2014

# Developing New Game-Changing Technologies and Products for Canada's Forest Sector

The Forest Innovation Program (FIP) is at the forefront of the federal government's efforts to foster innovation in Canada's forest sector.

It is helping the sector make critical advances in the production of game-changing products and technologies that could have huge market potential and provide highly profitable new revenue streams for the sector, thus putting it on a more solid financial and competitive footing.

## Brighter Future

After enduring several very challenging years, Canada's forest sector is back on firmer footing. The world economy is on the mend. The US housing market has started to recover from its deep slump. And forest products like lumber and pulp have improving markets.

Against this positive backdrop, the federal government remains focused on its strategy of encouraging innovation in Canada's forest sector and expanding market opportunities for Canadian forest products in traditional and offshore markets. This combination is expected to improve the sector's overall competitiveness and position it for a more prosperous future. The FIP is a key element of this strategy.

## Game-Changing Technologies and Products

The FIP is a federal program which supports research on the development, adaptation, and deployment of innovative technologies and processes for the forest sector, including new uses for Canadian wood fibre. This research is largely led by FPInnovations, Canada's national forest research institute, in collaboration with the forest industry, universities, and the provinces.

Launched in 2007 under the name Transformative Technologies Program, it is helping to diversify the products Canada's forest sector sells into the marketplace. This is repositioning the sector for growth, enabling it to participate in new niche product areas with significant market potential like new wood-based building systems and next generation pulps and papers.

Given the significant market potential of these niche areas, the Government of Canada has invested $314 million to support their development and eventual commercialization.

## New Wood-Based Building Systems

A new generation of building systems and engineered wood products are today available for use in residential and commercial construction. They combine new technologies with innovative engineering and design, providing safe, cost-effective, carbon-neutral and sustainable building alternatives. The FIP is playing an important role in bringing these new wood-based building systems to market.

Take cross-laminated timber (CLT), for example. This engineered panel product is made of layers of timber stacked and glued together using hydraulic or vacuum presses. It offers many advantages including faster construction at a lower cost and better strength properties, making it ideal for the North American non-residential and multi-residential construction market.

To help foster its use and adoption in these market segments, FPInnovations has conducted extensive CLT research under the FIP. This research culminated in the recent publication of detailed CLT reference handbooks for architects, designers, and the construction industry in Canada and the US. The handbooks were developed in partnership with various Canadian and US stakeholders.


CLT Handbook. Photo Courtesy of FPInnovations

Canada

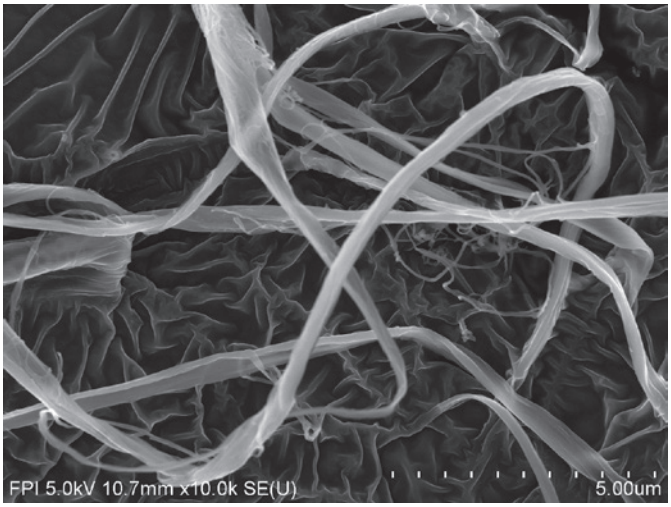
This research also resulted in the adoption of a North American standard for this engineered wood product.

## New Products and Processes

FIP research has also supported the introduction of new products and processes that allow Canada's forest sector to participate in the emerging bio-economy.

The research, for instance, has resulted in the development of a unique way to isolate cellulose filaments (CF) during the pulping process. This environmentally-friendly method, created by FPInnovations, does not produce harmful effluents, nor does it use any chemicals. FPInnovations is now looking to showcase its commercial potential in a demonstration project at a Canadian mill.

Extracted from wood pulp fibre, CF are thin and exceptionally long fibrils that can be used as reinforcing agents in a variety of next-generation products. These include moisture resistant films used in food packaging, greaseproof paper with stringent performance requirements, and stronger paper grades that can be used in tissues, paper towels, and printing papers. These products are expected to yield increased profit margins in future, representing an important source of new revenue for mills producing products derived from this revolutionary green material.




Cellulose Filaments. Photo courtesy of FPInnovations

## New Bio Products

Sugars are basic building blocks in the development of numerous industrial bio-chemicals. FPInnovations has developed a new process that separates sugars and lignin during the pulping process. These two ingredients can then be used in various new products, including non-woven fabrics, reinforcing rubber, even more absorbent hygiene products. This is expected to diversify the forest sector's revenue streams and help maximize the use of available forest resources.

## Moving Forward

The federal government is committed to supporting the development of game-changing products, processes, and technologies for Canada's forest sector like those developed under the FIP.

Not only are such breakthrough products, processes, and technologies putting the sector on a more competitive footing, they are resulting in an important source of new jobs for the sector.


ISSN 1929-9923