National Mining Innovation Forum –
The Forest Sector Experience

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Vision

A world where products from sustainable forests contribute to every aspect of daily life.
A Unique Private-Public Partnership

Canadian Wood Fibre Centre

Industry, Colleges and Universities, Provincial and Federal Governments

Main Offices
600 Staff
Annual Budget: $100M
FPInnovations has...

- 492 patents and applications in 104 patent families
- 100+ patented technologies and processes
- 100+ R&D projects in 11 R&D programs
- 1 pilot paper and tissue machine
Demonstration Plants

- World’s first cellulose nanocrystals Plant
  - 1 ton/d production - Joint Venture (CelluForce) with Domtar ($45M)

- World’s first cellulose filament plant
  - Strategic alliance with Kruger ($43M)

- Canada’s first lignin separation plant
  - 30 ton/d - Licensing to West Fraser (>=$10M)
Canada’s Forest: Key facts

- 348 million hectares
- 9% of the world’s forest
- Contribution to GDP: CAD 20.8 billion in 2014
- Employed over 195,000 people in 2016

Source: State of Canada’s Forests 2016 – Natural Resources Canada
Who is Buying Canada’s Forest Products

• 2014 Exports: CAD 31 billion to 180+ countries
  • United States: CAD 20.3 billion
  • China: CAD 4.8 billion
  • Japan: CAD 1.5 billion
  • South Korea: CAD 498 million
  • India: CAD 455 million

Source: State of Canada’s Forests 2016 – Natural Resources Canada
NORTH AMERICAN NEWSPRINT CONSUMPTION

Northern America + (Total) Production & Consumption of Newsprint (in m3 or tonnes, see Data Table)
NORTH AMERICAN PRINTING AND WRITING CONSUMPTION

Northern America + (Total) Production & Consumption of Printing+Writing Paper (in m3 or tonnes, see Data Table)
WORLD CONSUMPTION PRODUCTION OF SOFTWOOD LUMBER (M$^3$)

World + (Total) Production & Consumption of Sawnwood (C) (in m$^3$ or tonnes, see Data Table)
Elements of Improvement

- The Canadian Forest Innovation Council identified areas for improvement:
  - Overall Strategic Direction
  - Reduce Fragmentation
  - Better Integration Along the Full Value Chain
  - Market Focus/Customer Needs
  - Clusters / Technology Hubs
  - Incrementality vs. Focus on Transformative Technologies
  - Comprehensive Approach to Funding
Areas of Focus Identified

- White Papers on Transformative Technologies
  - Wood Products
  - Bioenergy
  - Biochemicals
  - Pulp & Paper

- Workshops gathered input from Industry, Government & Academics

- Identified technologies and products that could transform the Canadian Forest Sector
Game-Changing Recommendation

- Merge existing research institutes into a single institute

- FPInnovations created in 2007
  - Devised the transformative technologies research program with Industry / Government partners
  - Funding from NRCan for this initiative
  - University research was an essential component
    - New partnerships forged
    - New University partnerships proposed
The Canadian Forest Industry Innovation System

Governments

Universities, NSERC Networks and FIBRE

QFIC, QWEB, FPAC, COFI, AFPA etc.

200 Industry Members

Collaborative R&D

Needs and Opportunities

FPIInnovations – The Hub
Upstream Innovation

From forests to competitive supply

- Genomics and Fibre Attributes
- Enhanced Inventory
- Management Systems and Forecasting
- Forest Harvesting
- Resource Delivery
Creation of new materials and processes

Downstream Innovation

End Product

$16

Manufacturing
Wood Products
Pulp and Paper
Base Chemicals
CNC (NCC)
CF
Lignin
Sugar Stream
The Forest Sector Value Chain

Partnerships

From forests to competitive supply

Creation of new materials and processes

Upstream Innovation

Downstream Innovation

Increasing Value

End Product
Focusing on New & Innovative Markets
Thank you