Forestry Innovation Investment®

MARKET DEVELOPMENT SUMMARY

CHINA

Yi Jing Yuan Multi-functional Hall, Xijiao State Guest Hotel, Shanghai.

Why China

- **Large, growing economy**
- **Increasing reliance on imported lumber and wood products**
- **Strong demand for housing**
- **Broad interest driven by government mandates in green building**
- **Willingness to embrace advanced wood technology**

IMPORTANCE OF FORESTRY AND TRADE DIVERSIFICATION

British Columbia is one of the world's largest producers and exporters of wood products. Without exports, the B.C. forest industry would be approximately one seventh of its current size and employ tens of thousands fewer British Columbians than at current levels. Maintaining and developing export markets is therefore crucial to protect B.C. jobs and ensure the sector remains a leading contributor to the B.C. economy.

CONTRIBUTING TO CLIMATE CHANGE SOLUTIONS

Exports support Canada's international action on climate change, as B.C. and Canadian forest products are harvested sustainably and building with wood has a lighter carbon footprint than other construction materials.

MEASURING PROGRESS

China is an important market for Canadian wood products. Market development efforts having been underway for 15 years. The program is supported by funding from industry, the Government of Canada through Natural Resources Canada's Expanding Market Opportunities Program, and the Government of British Columbia through Forestry Innovation Investment's Market Initiatives program.

Sales stabilize at more than $1 billion

Since marketing efforts began in the early 2000s, B.C. softwood lumber exports to China have grown from a very low level to over $1 billion per year, making it the second largest export market for Canadian wood after the United States. Most of these shipments are from B.C.

Strong market presence

Since 2015, market development efforts have been consolidated under the Canada Wood Group through Canada Wood China (CW China). FII China continues to provide government relations services, both for CW China and the B.C. government.

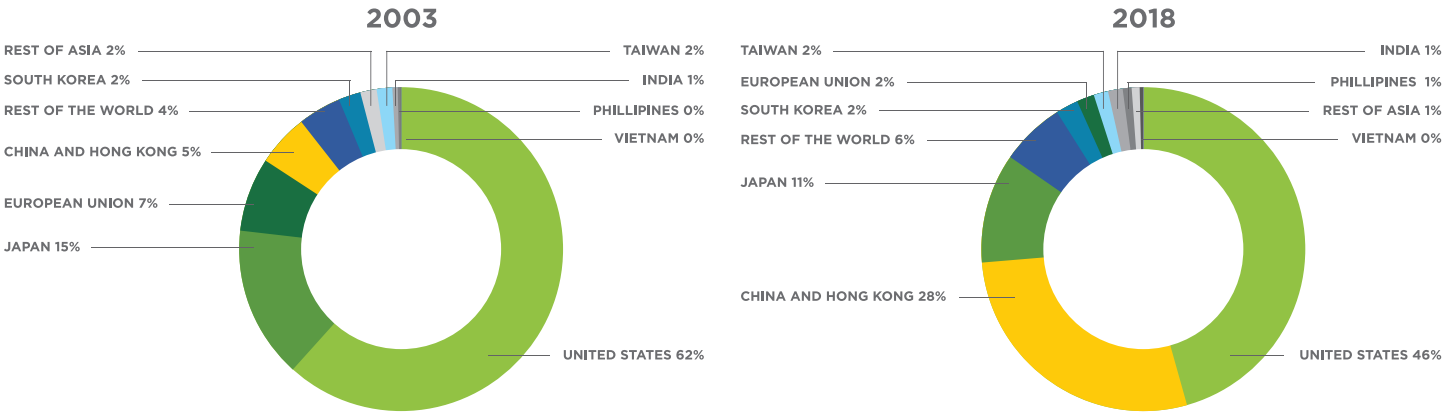
Branding results have been impressive. More than 70 percent of Canada Wood clients in China rank Canada as a leader in wood construction technology, well ahead of other nations, including China.

Increasing importance to B.C. forest sector

In 2018, 27 percent of all B.C. forest product exports were shipped to China, as compared to only 5 percent in 2003, when the market development program was launched.

China is now one of the "big three" export markets for B.C. forest products (alongside the United States and Japan), with the three countries accounting for 82 percent of all exports in 2018.

B.C. FOREST PRODUCT EXPORTS BY MARKET



Source: BC Stats

CONTEXT: DIVERSIFYING MARKETS, REDUCING RISK

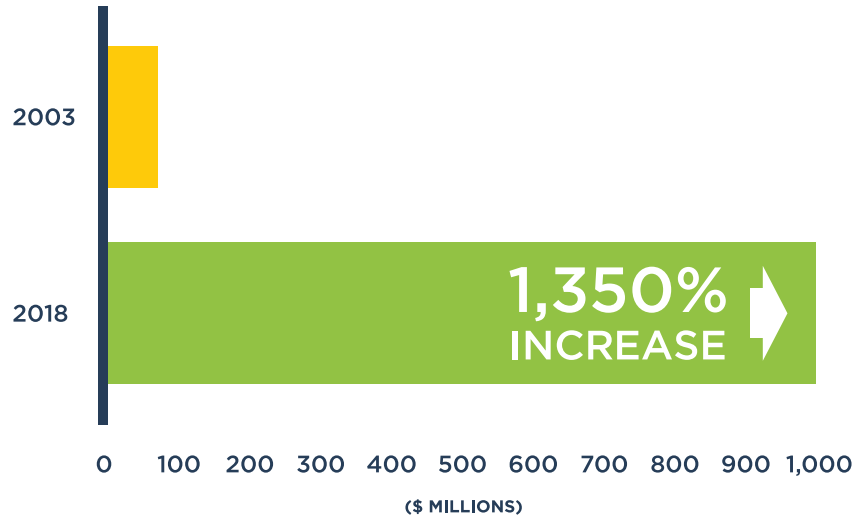
Historically, the United States has been B.C.'s largest export market. Repeated imposition of softwood lumber duties and ups and downs in overall demand in the U.S. motivated industry and government to diversify export markets to Asia. This was a major factor in the decision to start market development efforts in China in the early 2000s.

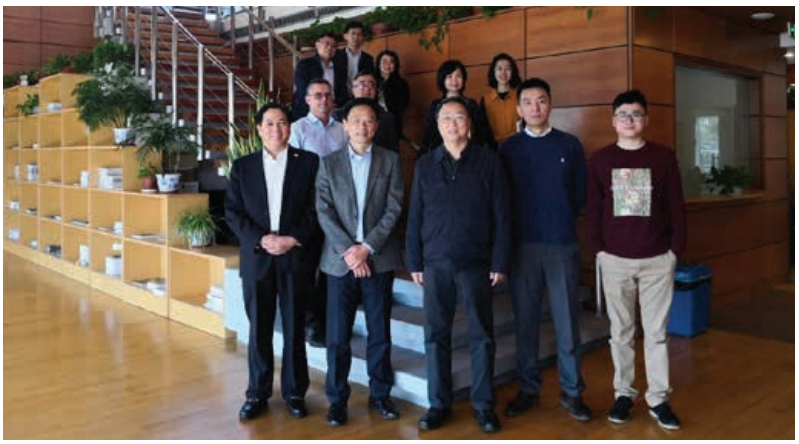
Targeted market development in China and other overseas markets helps expand exports, as diversification reduces the risks associated with trade disputes or economic downturns in any given country or region.

In 2018, the share of B.C. forest product exports shipped to China and other overseas markets was 56 percent of all exports by value, with 44 percent going to the United States. This compares to 2003, when 62 percent of B.C. forest product exports were going to the U.S. Softwood lumber exports to China have grown roughly 1,350 percent in value, from $69 million in 2003 to more than $1 billion in 2018.

These results show the positive impact that international market development programs have on diversifying market risk for the B.C. forest sector.

GROWTH OF SOFTWOOD LUMBER EXPORTS TO CHINA





Guo Liqiao, deputy director-general of the Department of Standards and Norms, Ministry of Housing and Urban-Rural Development led a delegation to visit Canada Wood China's office.

An annual Sino-Canada joint working committee meeting on modern wood construction was held in Beijing on March 5, 2019.

CHINA STRATEGY IN THREE PARTS

Market development in China has followed a logical progression starting with an initial market entry program that focused on research, identifying opportunities, building relationships, and creating the conditions for a sustainable export market for B.C. wood products.

2003-2015 PHASE 1

LAY FOUNDATION

- Lay down solid code framework
- Use demonstrations to showcase possibilities
- Nurture light wood frame construction segment
- Develop industry capabilities

2015/2016 PHASE 2

VOLUME TO VALUE SHIFT

- Focus on higher value/m^3
- Focus on fewer high potential segments
- Work with larger players
- Integrate teams, adjust skillsets and bodies

PRESENT PHASE 3

FEWER, MORE AMBITIOUS OBJECTIVES

- Resort sectors
- Hybrid/wood infill wall, industrialized construction
- Wood in manufacturing
- Removed barriers

The first phase of the Sino-Canadian eco-district townhouse project, 100 units, was completed in March 2019. These townhouses are part of the Natural Resources Canada led Sino-Canadian Low-Carbon Eco-District in Tianjin. Innovative methods, like infill wood walls and Super-E energy efficiency technologies are used in various parts of the overall project.

PHASE 1: LAYING THE FOUNDATION

In the early 2000s, wood construction was not widely used in China, and B.C. and Canada had a low profile in market as wood product suppliers. Developing demand for wood construction—and supplying this market with quality Canadian lumber—was seen as a great opportunity, given the rapid growth of the Chinese economy. Responding to these opportunities was the basis of the market development strategy in the Phase 1 period.

Between 2003 and 2015, the goal was to establish a presence in China, develop a brand for Canadian wood products, transfer Canadian wood technology and expertise, develop wood friendly building codes, and increase the volume of lumber exports to China. Industry and all levels of government in Canada were supportive of growing trade with China, which ensured support for the ongoing capacity and infrastructure required for program delivery.

When Canada Wood China was first established, local policies and building codes did not recognize wood; in fact, in many cases its use was restricted. Therefore, during Phase 1, the China team was tasked with laying the groundwork for a wood construction sector where none previously existed. Government-to-government relationships were established by B.C. and Canada at the national, provincial and municipal levels to tackle China's heavily regulated construction sector, which is strongly influenced by state-owned enterprises and government policy.

To create commercial opportunities for Canadian lumber, Canada Wood began to promote the benefits and applications of Canadian forest products through an integrated marketing campaign. They also provided technical support on building codes and product standards, and delivered educational programs targeting practitioners and next generation design and construction professionals, to help build China's capacity for wood construction.

Another component of Phase 1 was completing a series of demonstration projects using Canadian wood products and Canadian construction technology. This allowed architects, engineers, developers, government officials and consumers to see and experience Canadian wood products and their potential applications in China. Some of the projects Canada Wood has been involved with include the Canada-B.C. Wenchuan Earthquake Reconstruction Project, Dream Home Canada in Shanghai, the 2010 Vancouver Pavilion at the Shanghai World EXPO, and the Sanlin Affordable Housing Project.

For all demonstration projects, the China team provided design and engineering support as well as construction supervision to ensure quality control. Finished projects were heavily promoted, creating a better appreciation in China for how wood technology could address the country's growing construction needs.

FII China and Canada Wood also carried out technical and market research, which helped the team understand the opportunities, market segments, business channels, distribution networks and challenges of doing business in China. At the same time, regular government-led trade missions introduced Canadian government officials and forest companies to China and its potential. Over time, companies developed their own in-market strategies and infrastructure.

Throughout Phase 1, Canada successfully established itself as a preferred supplier of softwood lumber and Canada Wood established itself as the leading brand in the industry. Today, Canada Wood is the go-to source in China for information and technology on wood construction.

The 2010 Vancouver Pavilion at the Shanghai World EXPO.

PHASE I: DEMONSTRATION PROJECTS

Demonstration projects are a highly effective way at promoting the benefits of wood construction. Doing so allows the construction to be adapted to local conditions and requirements, showing how wood construction can meet Chinese needs. It also demonstrates respect for Chinese culture and helps build strong relationships with Chinese officials, developers, building professionals, and other stakeholders.

The Mianyang Special School for the Disabled is a 5,700 m^2 recovery and rehabilitation centre that attends to the needs of children with disabilities and provides vocational training for adults with disabilities. The six-building school includes multi-storey dormitories for students and staff, classrooms, and a cafeteria. The use of light and flexible wood-frame construction makes the structure far less susceptible to damage in the event of seismic events.

Codes and standards

In 2003, there were no building or fire codes in China specifically applicable to wood. In fact, many codes had standards that made it very difficult, if not impossible, to use wood-based construction. The market development team realized that updating codes and creating a new regulatory framework were key to creating a sustainable wood construction sector.

A substantial investment was made over several years to work with regulators to update codes and regulations, including technology transfer, research and testing, and demonstration projects. While it takes time to change government regulations, steady progress has been achieved in making China a more wood-friendly market.

Given the increased profile of climate change and the development of policies by Chinese government to combat it, the market development program has become increasingly focused on promoting the environmental benefits of wood construction to Chinese officials. These efforts have included addressing barriers to wood use through supporting the development of codes and standards and other technical guidelines. From 2003 to 2018, the following achievements were accomplished:

- 11 national policies implemented
- 26 provincial prefabrication policies introduced
- 25 codes and standards influenced
- 71 memoranda of understanding signed

Building capacity in wood construction

Initial market research in China identified a major barrier in the lack of engineers, architects and trades who were trained to build and design with wood. In the early years of the program, Canadians were often used to provide design and engineering services, supervise work sites and provide ongoing quality assurance. While these services continue to be offered on an as-needed basis, domestic capacity in China is key to the long-term growth of wood construction.

In support of a sustainable wood construction sector, the market development program has funded training programs and assisted with curriculum development. The results have been impressive:

- 6,800 construction employees trained
- 8,600 students completed vocational school training in 22 schools
- 2,400 eLearning students
- 18 university partners trained 2,000 students

TIMELINE OF REGULATORY CHANGES IMPACTING WOOD USE

2003

NO POLICIES OR CODES FOR WOOD-FRAME BUILDINGS

2005

CODE FOR DESIGN OF TIMBER STRUCTURES UPDATED

2010

OFFICIAL ENDORSEMENT OF WOOD-FRAME CONSTRUCTION AS ENVIRONMENTALLY FRIENDLY

2012

AGREEMENT FOR CANADA TO ASSIST CHINA IN DESIGNING "GREEN" URBAN AREAS, INCLUDING THROUGH THE USE OF WOOD-FRAME CONSTRUCTION

2014

FIRE PROTECTION CODE UPDATED TO ACCOMMODATE WOOD CONSTRUCTION

2015

ACTION PLAN ON PROMOTING GREEN BUILDING (WOOD USE) ISSUED BY CHINESE GOVERNMENT, WITH INPUT FROM CANADA

2016

ACTION PLAN ON ADAPTING URBAN AREAS TO CLIMATE CHANGE ENCOURAGES USE OF WOOD CONSTRUCTION

2017

CHINA-CANADA PLEDGE TO PROMOTE WOOD-FRAME CONSTRUCTION UNDER JOINT STATEMENT ON CLIMATE CHANGE AND CLEAN GROWTH

2018

UPDATED CODE AND TECHNICAL STANDARDS SUPPORTING WFC FOR TALLER WOOD AND SUSTAINABLE BUILDINGS

Major regulatory changes

Achievements

- Wood-frame construction (WFC) system fully codified
- Canadian lumber and panels fully accepted for structural use
- Regional WFC codes in place with provisions for local conditions
- Engineered wood code
- Metal plated truss code
- Critical fire engineering advice provided for Chinese tall wood building code project which lead to the National fire code update allowing five-storey WFC

Technical literature

- National standard design
- Design manual for timber structures (3rd Edition)
- Technical guides: prefabricated timber buildings, seismic design for WFC and hybrid buildings, wood infill walls in concrete structures, energy efficiency solutions

Collaborative research

- Fire safety with Ministry of Public Security
- Seismic shake table tests with Tongji University, Shanghai
- Lumber grading and WFC durability with China Academy of Forestry
- Thermal performance and life cycle analysis with Tsinghua, Beijing and Harbin universities
- Energy efficiency and acoustic performance tests of four-storey WFC vs. concrete

CW China is currently working to influence the following priority code work:

- National tall wood code
- Revision of fire code
- National prefabrication code
- New national consolidated timber frame code, which is part of an effort to revise the entire building code system

PHASE 2: SHIFTING VALUES

In 2015, the strategy for market development of Canadian wood exports to China was updated. The strategy began a shift away from the initial market entry strategy to one focused on achieving more value for Canadian exports. At that time, more than three quarters of Canadian lumber exports were of lower grades, directed to lower end products, such as concrete forms and furring strips. Increasing competition from Russia in the low value segment, and B.C.'s shift away from mountain pine beetle fibre motivated a shift into higher value market segments.

It was also recognized that many of the competitive advantages of the Canadian wood sector, including chain of custody/certification, reliable quality, expertise in prefabrication, green building/energy efficient building solutions, and mass timber technology and design could better be leveraged in higher value applications.

A narrower focus to take advantage of market opportunities and Canadian strengths in the marketplace, while mitigating competitive threats was needed. The updated approach continued the successful tactics of Phase 1—brand awareness, capacity building, and regulatory reform—but narrowed the focus to markets with greater potential return: resorts, industrialized construction and wood in manufacturing. It also combined operations under Canada Wood China, with a smaller FII China operation focused on government relations.

At the same time, projects started in Phase 1 were continued, such as those related to government policies on green building and urban planning, prefabrication and energy efficiency, leveraging China's evolving policy frameworks.

Shimenyu Station, Zhe Jiang.

PHASE 3: SHARPER FOCUS

The review conducted in Phase 2 identified three sectors as the key focus for marketing efforts over the next phase of development. The China strategy is now focused in these areas:

- Resort projects
- Industrialized construction
- Wood in manufacturing

These activities are supported by an initiative to continue removing barriers that may inhibit sales of Canadian wood products in the market.

The leaf-shaped roof is supported by glulam beams and the 2x4 purlins create a stunning triangulated structure that weaves sustainable design into the sky. Yi JingYuan Multi-functional Hall, Xijiao State Guest Hotel, Shanghai.

Resort projects

The growing affluence of Chinese society is creating a larger domestic tourism and resort sector, leading to an increased demand for new facilities.

Canadian wood products have several market advantages in the resort sector, including:

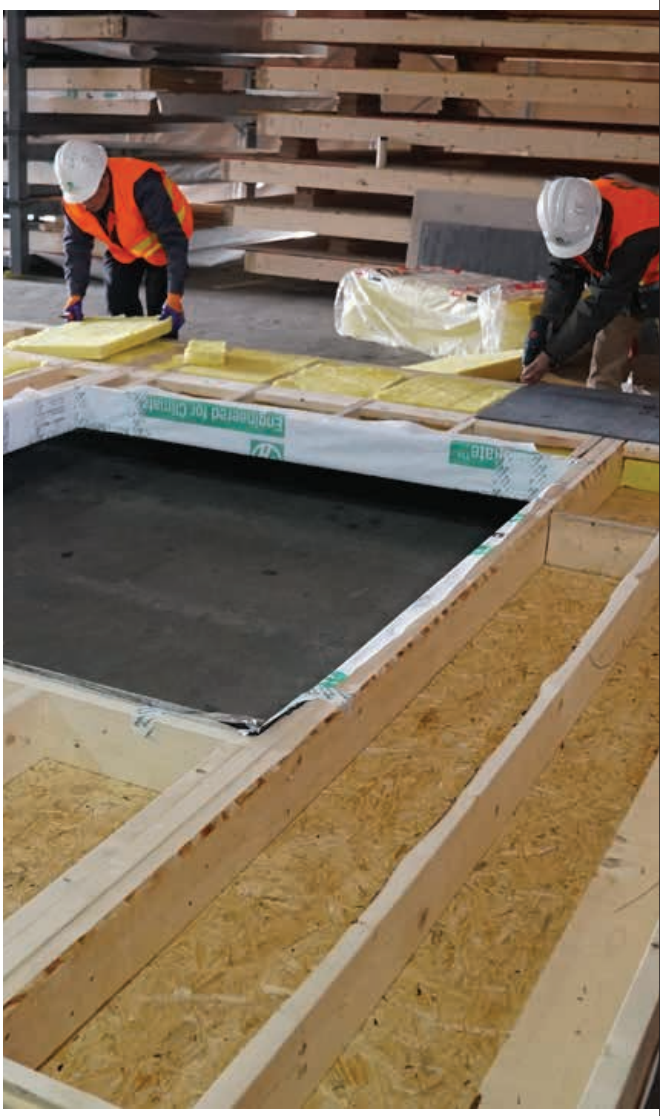
- Wood-based design is natural and more conducive with the outdoor look of resort properties
- Many resorts are constructed in mountainous settings, where WFC, being lighter, requires less complicated foundations and is less expensive than concrete construction
- Canadian and west coast architectural styles (adapted to Chinese tastes) are popular due to the increasing number of Chinese tourists being exposed to western architecture visiting North America
- Many developers in the sector have previously worked in residential wood-based projects where they were supported with Canadian expertise and wood products, so they are comfortable with Canadian lumber and suppliers
- The sector offers opportunities for Canadian structural lumber and mass timber (solid and laminated) products
- A niche market for log and timber frame homes

Bird's eye view of the Jiangsu Yadong Liyang Villa project.

Construction of infill walls of the Jiangsu Yadong Liyang Villa project.

The demonstration Matechstone Taixing project in Jiangsu province, launched in June 2019, is the first commercial project using precast concrete and wood infill wall system in China.

Installation of wood infill walls at the Matechstone Taixing project.



Manufacturing of infill wall system for Matechstone Taixing project.

Industrialized construction

The development of an industrialized construction sector (prefabrication) is a priority of the Chinese government as it is considered a way to reduce the carbon footprint and increase the efficiency of building construction. Prefabrication is targeted for use in 15 percent of projects by 2020 and 30 percent by 2025.

Canada Wood China has identified prefabricated wood walls as a significant marketing opportunity. The walls are energy efficient, easy to manufacture in a factory setting, and can be used for external (non-load bearing) or internal infill walls.

A significant benefit of the promotion of wood wall systems is that it allows cross-promotion of other products that can be manufactured in an industrial setting, such as cross-laminated timber, nail-laminated timber, glulam products, or roof trusses. All of these products expand the potential market for Canadian wood.

Hemlock furniture trials.

Wood in manufacturing

China has a large, mature, value-added wood manufacturing sector. Softwood consumption in the sector is estimated at 15 million cubic metres per year. The sector is a logical market for higher grades of Canadian lumber, including SPF and coastal hemlock. Target applications include furniture, windows, doors, cabinetry/joinery, bed frames, upholstered furniture, and other appearance grade needs. The sector is also a market for Canadian hardwood, with imports going into flooring, furniture, and other decorative uses.

Removing barriers

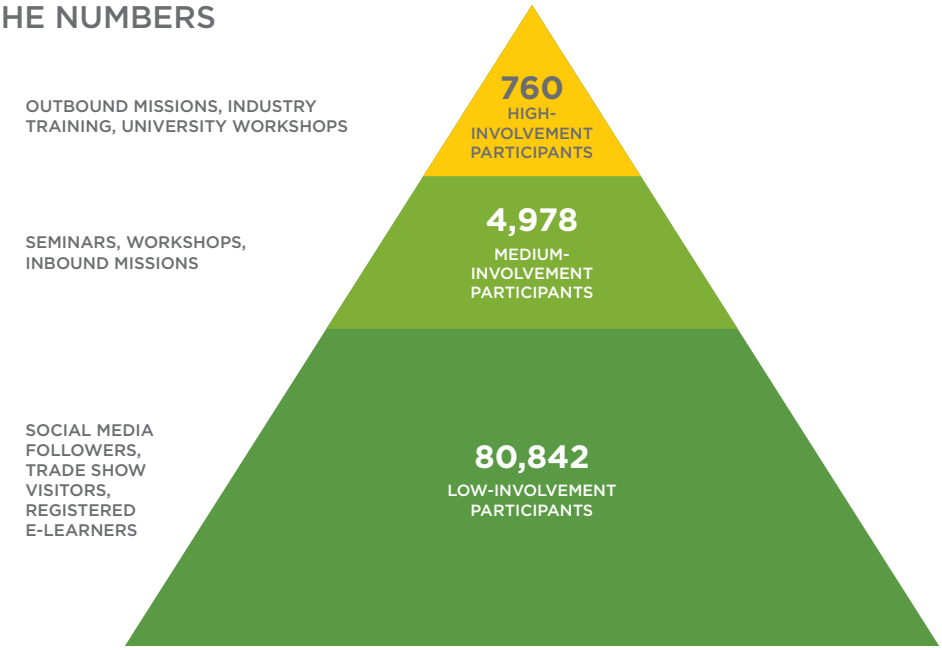
Regulatory/technical barriers, capacity issues, and buyer awareness all limit growth of a market. As a result, efforts in all three areas reach across market sectors and are required to achieve growth goals.

Work on removing barriers involves collaboration with various levels of governments and regulators to understand current attitudes towards wood use and the reasons for any regulatory restrictions, such as building or fire codes. Technical transfer, education, testing, and demonstration projects are all used to overcome these barriers.

PROMOTING THE BRAND: 2018-19 RESULTS

18,100	Trade shows visitors
29,841	WeChat followers
394,050	Promotions readership
32,860	CW China website visitors
850	Local government officials met
14	Trade missions supported

CHINA BY THE NUMBERS



KEY FUNDERS

Moving forward, program efficiency will be enhanced by leveraging partnerships between industry as well as federal and provincial funders, and by expanding collaboration with Global Affairs Canada and provincial trade representatives. The program's aim is to extract the greatest value out of every dollar spent, and to ensure that investments remain focused on the highest-potential opportunities for the Canadian forest sector.

Canada

Canada Wood

Forestry Innovation Investment