



THE EDGE

Alberta database to provide investment-grade data on biomass resources

BY TONY KRYZANOWSKI

Alberta has reached the final stage in its quest to provide comprehensive public data on the quality, quantity and availability of forest and other biomass resources. Among other things, this will help potential investors in the bioeconomy make informed decisions about their ability to access these raw materials.

The province is preparing to launch its online and state-of-the-art Bio-Resource Information Management System (BRIMS) in early 2017, developed with funding provided by Alberta Innovates Bio Solutions (AI Bio).

The overall vision of BRIMS is to create a world-class, publicly available, data and information management system where buyers and sellers collaborate and develop opportunities, using online tools to support investment, guide policy development, and foster further analysis to advance the bioeconomy in Alberta.

The decision was made to start with an inventory of Alberta biomass due to the demand for the information, and immediate opportunities for new bioindustrial sector and business development. BRIMS has made it possible to map the locations and different types of biomass available across the province.

“The data will be updated regularly to ensure it is valid and remains current,” says Carol Bettac, AI Bio’s executive director of emerging opportunities and strategic alliances.

AI Bio partnered with Silvacom—a company that provides geospatial software and consulting services—to research other systems, test the concepts, integrate and align data sources, and build the online platform on which BRIMS will operate. The complex project has required a multi-phase approach.

“Over the past few years, there has been a shift in the market toward green products,” said Jordan Hayes, a resource analyst at Silvacom. “The interest and demand for green products has led to increased interest in the supply of (biomass), but we need better information.”

Phase 3 of BRIMS development, currently underway, is refining the pools of data. These include: forestry harvest and processing residue; crop residue; livestock manure and processing waste; organic and other useable biomass received at landfills, and potential resources from other biomass feedstocks and sources.

To improve the quality of forest biomass data, Silvacom partnered with seven Alberta forest companies to develop a comprehensive automated land inventory program called CALI, using some of today’s best high-resolution imagery and data-processing technology. It provides a more refined analysis of wood fibre attributes in a particular area, down to the individual tree level.



In its final form, BRIMS will represent much more than a clearinghouse for information about the quantity and location of biomass resources in the province. It will be unique in that it will give the online user the ability to break down and calculate the amount of useable biomass constituents from a biomass source. For example, it will have the ability to break down the availability of lignin, cellulose and hemicellulose from a wood resource. This knowledge is critical for individuals interested in the production of biofuels such as cellulosic ethanol.

AI Bio made the development of BRIMS a priority as identified in its Ecosystem Services Roadmap in 2012. The roadmap's goal is to bring Alberta to the forefront of innovation by using an "ecosystem services market approach." with environmental excellence. It identified the need for a data and information management system like BRIMS as an important step forward, Bettac says.

The term "ecosystem services" is defined as "benefits society enjoys from a range of resources and processes supplied by nature." This concept has been a guiding principle behind BRIMS' development. Biomass is considered an ecosystem service. Other examples include clean water, food and wildlife habitat.

A market approach puts an economic value (dollar amount) on natural resources and processes. This helps industry and government understand the relative value and benefits of these "ecosystem services," and gauge how they will be affected by human activities.

The plan is to eventually add several more layers of ecosystems services to the BRIMS application beyond biomass, such as carbon, biodiversity, range and forest production, terrestrial water and human impact on the environment. This will create a one-stop-shop for a variety of ecosystem-services needs. It will also assist with land use and conservation planning, environmental monitoring, economic development, and research and development in the future.

For more information about AI Bio's Ecosystem Services and Biodiversity programs, go to <http://bio.albertainnovates.ca/stratthemes/ecosystem-services-and-biodiversity/>

For more information about BRIMS, contact Jordan Hayes at SilvaCom Ltd. (jordan.hayes@silvacom.com)

CWFC to study current managed regeneration systems and their potential impact on mid-term fibre supply

BY TONY KRYZANOWSKI

The Canadian Wood Fibre Centre (CWFC) plans to evaluate over 40 years of intensive forest management practices applied in the Canadian commercial forest to assess how those practices have impacted the forest resource and a sustainable timber supply.

This is to ensure that future forest management practices maintain healthy forests, a sustainable wood supply, and a diverse wood basket to meet the needs of Canada's future forest industry.



Canadian forest management has evolved through several stages over the past four decades. It started with little or natural reforestation taking place, to a recognition in the 1970s of the liability this represented and the adoption of government-mandated, managed forest management practices, including reforestation, aimed at sustainability.

Forest harvesting ramped up significantly in the 1980s to about 850,000 hectares harvested per year with companies developing more diverse wood product lines. This resulted in greater regulation due to concerns about replenishing and sustaining forest resources, with advances in such silviculture techniques as tree planting, site preparation, and scarification for natural regeneration or seeding.

In the early 1990s, governments launched a massive backlog reforestation program to accelerate reforestation to sustain, advance, and enhance forest stewardship and sustainability, based on the escalating harvest of Canadian forest resources, which had reached over one million hectares annually by the early 2000's.

“As forest management evolved, more intensive and advanced forest management activities started to take place,” says Derek Sidders, CWFC Regional Coordinator and Program Manager at the Northern Forestry Centre in Edmonton. “A change has been imposed on the forest in terms of species mix, densities, growth, productivity and vigor.

“Today, we have about 40 years of intensive forest management under our belts and an average of about 800,000 hectares per year harvested during that time period,” Sidders added. “Now, CWFC is evaluating the impact of our management and potential increases or risks to the future timber supply.”

As part of CWFC's core research program built around sustainable forest resource production practices and fibre characterization, it will evaluate whether the Canadian wood fibre resource is sustainable based on management practices that have evolved and been applied over the past 40 years, is the resource at risk due to a changing climate, and has enough follow up been done on these intensively managed forests to sustain, advance and enhance the future forest, while at the same time, maintaining Canada's international leadership and competitiveness on its forest management, product development, and ecosystem management practices.

CWFC will ask important questions such as: is there is a need for greater, mid-term stand intervention in some cases to maintain healthy forests, to enhance forest productivity in some instances, and to produce wood fibre with the types of attributes needed by the future forest industry?

“We're focusing heavily now on wood fibre characterization, which is quantifying and classifying the forest across Canada as it exists today, and production systems that will deliver forest fibre with known characteristics that can assist with transforming the industry while sustaining the forest resource,” says Sidders.

For more information about this CWFC initiative, contact Derek Sidders at Derek.Sidders@canada.ca.