Canada's Bioproducts Industry – Building a Sustainable Bioeconomy

Canada's bioproducts sector provides an ideal opportunity to invest, partner and grow for the long term.

New value chains and world-class research in life sciences and other fields are linking Canada's bio-resource, agriculture, energy, chemical and manufacturing sectors, creating competitive advantage for development and manufacture of novel bioproducts in Canada.

Over 230 companies, representing all regions of the country now manufacture bioproducts that range from fuels, lubricants and adhesives to chemicals, plastics and composite materials used throughout the economy. Together they have $12 billion in annual sales, $3 billion of which is directly related to bioproducts and almost half of this is exported (data from Statistics Canada).

The following are examples of innovative Canadian companies developing new markets and value chains by converting renewable raw materials into novel value-added products.

Forest Sector

- **Tembec** www.tembec.com creates new value from its pulp and paper residues by converting them into adhesive resins, high purity ethanol as well as heat and power. The company aims to phase out fossil fuels in the near future and to become a net producer of renewable energy.

Agriculture Sector

- **BioEnvelop Agro Inc.** www.bioenvelop.com uses vegetable and dairy proteins to produce edible coatings and films that act as a moisture barrier to extend the shelf life of fresh and frozen food.
- **Cevena Bioproducts Inc.** www.cevena.com produces a non-pharmaceutical cholesterol-lowering agent from a highly purified grain fibre fraction.
- **Ceapro** www.ceapro.com uses highly purified oat fractions to produce cosmetic ingredients for personal care as well as pet care products.
- **Lysac Group Inc.** www.lysac.com/lysac/index.html produces superabsorbents for baby diapers and similar products from renewable and readily biodegradable plant-derived raw materials such as modified starches and gums.

Marine Sector

- **Acadian Seaplants** www.acadianseaplants.com converts seaweed into animal feed additives, organic fertilizers and purified vegetable gums that are used as thickening agents in food and cosmetics as well as clarifying agents for beer.

Energy Sector

- **Iogen Corporation** www.iogen.ca, is a recognized global leader in technology to produce ethanol from cellulose, a more abundant resource than grain. The technologyis a stepping-stone to producing a wide range of bio-based chemicals and plastics from cellulose feedstock. Major oil companies such as Petro-Canada and Shell have formed strategic alliances with Iogen and Goldman Sachs, a major US investment firm, has recently invested $30 million in the company.

- **BIOX Corporation** www.bioxcorp.com and **Rothsay** www.rothsaybiodiesel.ca, a division of Maple Leaf Foods, are leading the development of the bio-diesel industry in Canada. Soon, BIOX will produce 60 million litres of bio-diesel from new and used vegetable oil while Rothsay will produce 35 million litres from rendered animal fat. Together, the net effect of the BIOX and Rothsay facilities will be equivalent to removing 43,000 light trucks or 60,000 cars annually from Canada's roads.

- **DynaMotive Energy Systems** www.dynamotive.com and **Ensyn Technologies Inc.** www.ensyn.com are leaders in the development of pyrolysis technology which converts sawdust and wood residues into bio-oil (a product like heating oil) as well as heat and electrical power. The bio-oil can be further refined to yield phenol resin for the panel-board industry as well as a range of valuable intermediate chemicals

Lubricants Sector

- Vegetable oils such as canola are now used to manufacture a range of environment-friendly lubricants. Examples include penetrating oil (**Milligan Bio-tech** www.milliganbiotech.com), lubricants for rock drilling (**Control Chemical** www.matex-ccc.com), hydraulic fluids, greases and chain/gear lubricants (**Greenland Corporation** www.greenpluslubes.com) as well as high-quality industrial and automotive lubricants (**Thermal-Lube Inc.** www.thermal-lube.com).

Chemicals, Industrial Materials and Automotive Sectors

- Canadian chemical companies are forming strategic alliances with forest and agricultural producers for supply of feedstock to produce chemical intermediates, plastics and natural-fibre composites for automotive and other manufacturing applications. **The Ontario Chemical Value Chain Initiative** www.ocvci.org links chemical companies, bio-based industries, research institutions and economic development organizations around this theme in Ontario.

- The BioAuto concept is being used by networks such as **Auto 21** www.auto21.ca to advance the development of a suite of bio-based fuels, lubricants, and composite materials that can make the automobile of the future more environment-friendly over its entire life cycle. Major Canadian corporations such as **Magna**, the most diversified automotive supplier in the world, www.magna.com and the **Woodbridge Group**, the largest manufacturer of automotive foams in the world, www.woodbridgegroup.com are actively engaged in this initiative.

For further information on Canadian bioproducts companies please refer to the ***BioProducts Industry Guide*** produced by **Contact Canada** (www.contactcanada.com)

Iu44-28/2006
0-662-49343-5