

Transforming Canada

Infrastructure investments are building the country's capacity to innovate



Research to innovation to enterprise

BRITISH COLUMBIA

SUSTAINABLE CANADIAN CAVIAR FEEDS A GLOBAL MARKET

Sechelt-based Target Marine Hatcheries is producing Canada's first farmed white sturgeon roe called Northern Divine Caviar. As the only centre in Canada with captive white sturgeon old enough to spawn, **Vancouver Island University's** International Centre for Sturgeon Studies supplied the hatchery with eggs from captive wild Fraser River sturgeon stock in 2000. By 2011, some of the fish had matured enough to be harvested for caviar, which has been rated among the best in the world.

✓ **\$100 million**
Global annual caviar market

ALBERTA

MADE-IN-CANADA TECHNOLOGY LEADS TO SAFER BRAIN SURGERY

In 1996, **University of Calgary** researchers, working with the National Research Council, developed an intraoperative magnetic resonance imaging (MRI) system that could take images of the brain during surgery to give doctors a more accurate view. They created a company in Winnipeg, IMRIS, to commercialize it. Funding from the CFI in 1999 allowed them to move their technology into the hospital, where they could further develop it and boost its marketability. More than 6,000 patients have been treated with the system.

SASKATCHEWAN

KEEPING A NORTHERN MINE IN BUSINESS

Researchers at the Canadian Light Source (CLS) — Canada's national synchrotron facility at the **University of Saskatchewan** — played an important role in keeping the world's most technologically advanced uranium processing and tailings management facilities at McClean Lake in operation. They worked with AREVA Resources Canada Inc. on a process to stabilize arsenic in mine tailings and control the long-term effects of groundwater contamination.

✓ **\$33 million**
GDP generated for Saskatchewan in 2010 from the CLS

MANITOBA

INNOVATION IMPROVES SATELLITE COMMUNICATIONS

Researchers at the **University of Manitoba's** Applied Electromagnetics Lab have been instrumental in advancing the connectivity and miniaturization of antennas, which, among other things, has helped modernize cell phones and greatly decreased the size of satellite dishes. They have worked with industry partners, including Norsat, a Vancouver communications company that markets miniature satellite antennas for video conferencing, and the Canadian Space Agency to build polar satellites that improve communications and help maintain Arctic sovereignty.

ONTARIO

FIXING INFRASTRUCTURE AND SAVING TAXPAYERS MONEY

Fixing aging sewer systems and other infrastructure in Canadian cities is the largest public expenditure after health care and education, and it is a major burden on taxpayers. Using testing results from the GeoEngineering Centre at **Queen's University**, the City of Hamilton is saving \$20 million annually by using a trenchless technology to repair aging sewer pipes. The city has more than doubled the number of sewers it can repair.

✓ **\$20 million**
Hamilton's annual savings on its sewer system repairs

QUEBEC

GREEN SOLUTIONS CREATE HORTICULTURAL JOBS

Premier Tech, Canada's leading supplier of horticultural products, works with **Université de Montréal** to improve its product range and expand its market. The collaboration is leading to the development of a diagnostic tool to help farmers analyze their soil and the efficacy of certain fungal products, which help plants absorb nutrients and develop disease resistance. Ongoing research on new fungal strains promises to diversify the company's product line, helping Premier Tech remain competitive and keep more than 800 jobs in Rivière-du-Loup, Que., a city of 19,000.

NOVA SCOTIA

SMART BATTERIES FOR SMART PHONES

There is an ever increasing need for efficient rechargeable batteries, which are in everything from laptops and smart phones to hybrid electric vehicles. Researchers at **Dalhousie University** are helping company 3M Canada maintain its competitive advantage through a long history of collaboration that has resulted in the commercialization of new lithium-ion battery technologies. With 3M and other partners, including GM Canada and Magna E-car Systems, the researchers are now looking to develop long-lasting lithium-ion batteries that will help boost the electric vehicle sector.

✓ **\$11 billion**
Global lithium-ion market value in 2010

NEW BRUNSWICK

BUILDING A MORE PROSPEROUS PORT OF CALL

In 2011, about 70 ships carrying more than 205,000 passengers and 77,000 crew docked at Saint John, N.B., pumping \$30 million into the local economy. But it can be tricky for increasingly large container vessels and cruise ships to manoeuvre in and out of the Saint John Harbour, where the Saint John River and Bay of Fundy tides deposit excess sediment, creating a shallower port. A research team from the **University of New Brunswick** and the **Institut national de la recherche scientifique** in Quebec is working with the port authority to develop more cost-efficient and environmentally sustainable ways of disposing of the extra sediment to help pilots safely berth their vessels.

PRINCE EDWARD ISLAND

HEALTHY HERDS FOR A HEALTHIER BOTTOM LINE

A program that tests for an insidious disease affecting dairy cattle is improving the health of cows in Atlantic Canada, and will save the region's 700 dairy farms millions of dollars each year. The initiative, based at the **University of Prince Edward Island's** Atlantic Veterinary College, is designed to better understand and eliminate Johne's disease, which affects the amount of milk cows produce and the bottom line of farm operations. With an estimated 25 percent of Canadian dairy herds currently infected, reducing the impact of Johne's disease is one of the top two animal health priorities of the industry.

✓ **160,000**
Jobs associated with the Canadian dairy industry

NEWFOUNDLAND & LABRADOR

BUILDING TOUGHER SHIPS FOR ARCTIC WATERS

It is estimated that Canada's Arctic Ocean floor holds \$10 trillion worth of oil and gas reserves. Accessing offshore drilling areas requires sturdy ships designed to withstand ice flows and extreme weather conditions. Naval engineers at **Memorial University** have created practical ship design tools to help companies such as Husky Oil, BMT Fleet Technology and Hyundai Heavy Industries build reliable ships that can safely and economically explore the region.

How Canada Foundation for Innovation investments are building communities and creating jobs