



ACCESS

ALBERTA

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Infrastructure Program uses emerging technologies to create a *greener* future in Alberta and around the world

by Christopher Spencer

“Green” is the main focus of the **Infrastructure Canada/Alberta Program (ICAP)**, a partnership involving federal, provincial and municipal governments and, in some cases, private sector organizations.

The program responds to infrastructure needs as identified by communities throughout the province, with first consideration given to projects reflecting environmental concerns, such as: municipal water and wastewater systems, solid waste disposal and recycling, and improvements to the energy efficiency of municipal facilities. Other areas of emphasis include: municipal roads and bridges, affordable housing, tourism, and platform technologies, such as high-speed Internet access and rural telecommunications.

The Government of Canada’s commitment of more than \$171 million to ICAP over six years will also help lay the foundation for sustained economic growth in the 21st Century.

Edmonton’s two proposed Centres of Excellence in waste management exemplify the use of emerging technologies to create a greener future. ICAP is financing the construction of

new Centres of Excellence at Edmonton’s Waste Management Centre (Clover Bar site) and another at the Gold Bar Wastewater Treatment Plant.

At the Clover Bar site, ICAP will help construct a new \$4.4 million facility to expand research, testing and development of new methods for treating and processing solid waste. The facility will enhance Edmonton’s reputation as an international leader in waste management and continue to attract officials from around the world that are looking to revamp their own garbage systems.

The second Centre of Excellence planned for the Gold Bar Wastewater Treatment Plant will help expand research, testing and development of new water and wastewater treatment and processing technologies to reduce bio-gas and solid waste effluents. The \$3.4 million facility will also strengthen the city’s enviable position as a world leader in water and wastewater management.

For more information about ICAP, contact Western Economic Diversification Canada at 1-888-338-WEST (9378). ♦

Veterinary Medicine

When the family pet needs medical attention, we call on the local veterinarian for help. These professionals not only provide vaccinations and help cure many ailments, but provide comfort to those whose pets are like one of the family.

When you make your living with livestock, the vet is an important link to the success of your business.

Not only does the **Smoky Lake Veterinary Clinic** provide standard services in the area, but Dr. Ernest Doktor also offers free seminars and quarterly newsletters that keep his clients abreast of new technology, nutritional requirements and other advances in veterinary medicine.

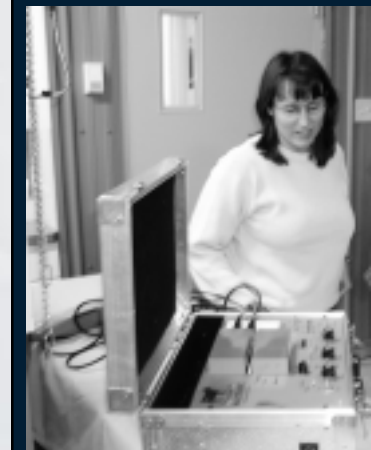
The doctor had an idea to create a full-service bovine centre for the region and augment the clinic's current technical capabilities by enhancing its laboratory facilities and developing a semen collection system and embryo transplant service. Technology was added to include blood chemistry and hematology testing with an Index Vet Test Chemistry Analyzer. And, a new semen tester and field microscope allows portable technology to be brought to the farmer.

Dr. Doktor and his wife and office manager, Kathleen, first approached Western Economic Diversification Canada (WD) in 1999 for help to develop a budget for the

clinic. Client Service Officer David Prud'homme provided assistance and support in the early stages of developing their business idea and introduced them to WD's **First Jobs in Science and Technology Program**.

The First Jobs program allowed the clinic to hire a veterinarian to develop the first phase of the project which has been completed and the MasterJac Ejaculator System successfully developed. The system allows for the extraction of semen from bulls, although Dr. Doktor indicated that some refinements are on the table and field testing is proceeding.

The cattle industry has gone high-tech and is big business, indicated Dr. Doktor. The technology being developed will help ranchers modernize their herds and have easier access to state-of-the-art technology by working hand-in-hand with their veterinarian,



Dr. Barr, Kathleen Doktor and Dr. Doktor demonstrating the MasterJac Ejaculator System that is used in the field.

... Goes High-Tech



improving the quality of Canadian beef.

“David’s help, encouragement and knowledge of the business end of our project, and his willingness to aid us in our planning, is worth more than we can say,” indicated Kathleen. “Without David and WD, we would not have been able to advance our research and ideas for veterinary medicine, and move ahead aggressively with these plans. It is difficult to fully express our appreciation for his help and we’d like to say that his help was ‘exactly what the doctor ordered.’ We are very pleased to have been able to access his expertise.”

The Doktors are now looking for a second veterinarian to move the project into phase two. The next stage is to move forward with embryo transplants that provide a good expansion opportunity. The technology has potential

worldwide, but the extra veterinarian is essential. Kathleen advised that the clinic will look to the First Jobs program again if they can find another large animal veterinarian to help complete the project.

“I would encourage others to approach WD with their ideas for fine-tuning their project and getting the best advice available,” added Kathleen.

For more information about the technology being developed by the Smoky Lake Veterinary Clinic, call (780) 656-3063. ♣



Ernest Doktor discuss the portable technology that allows veterinarians to work in

Microsystems Research Promises Breakthrough in Medical Care



Student demonstrating laboratory techniques with microscopic samples in the MSTRI facility at the University of Alberta.

by Christopher Spencer

At the new **MicroSystems Technology Research Institute (MSTRI)** on the University of Alberta campus, thinking big means thinking small.

Scientists work on the level of the micron, or one-millionth of a metre — a scale that makes human hair seem gigantic by comparison. Microsystems are important in the development of various high-tech products and processes ranging from analytical devices used in drug research, to sensor equipment with applications in forensics, environmental sciences and agriculture.

Dr. Linda Pilarski, a cancer researcher at the U of A, foresees breakthroughs in her field that will improve the quality of medical care, while greatly reducing the costs of treatment. She predicts women who suspect breast cancer will soon benefit from an immediate diagnosis, instead of waiting three

weeks for the results of a lymph node screening.

“Whole laboratories will fit on this,” said Pilarski, waving a thin slate containing a silicon chip. “In the future, medical tests in the \$500 to \$1,000 range may only cost \$2 to \$5.”

The Governments of Canada and Alberta have each contributed \$500,000 to MSTRI through the **Canada/Alberta Western Economic Partnership Agreement (WEPA)**, a five-year, \$40 million program to generate employment and entrepreneurial opportunities in Alberta by coordinating investments in development.

Western Economic Diversification Canada (WD) provided MSTRI with an additional \$170,000 to offset initial costs of establishing the institute.

WD also contributed \$1 million to MicroFab, an open-access laboratory located in the new Electrical and Computer Engineering Research Facility at the U of A, toward the purchase of equipment used in microsystems production.

The centrepiece of MicroFab, more formally called the Micro and Nano Fabrication Facility, is a clean room virtually free of dust and other contaminants. The air in the lab contains no more than 100 particles smaller than a micron per cubic foot, a standard 100,000 times cleaner than outside air. As a machine shop for the new century, MicroFab will provide the infrastructure to convert research into new products, technologies or processes for future commercialization.

More information about MSTRI and MicroFab, visit: www.mstri.ualberta.ca or call (780) 492-6102. To learn more about the WEPA program, contact WD at 1-888-338-WEST (9378).*

Oilpatch Success was in the Stars for Cody Slater

by Christopher Spencer

As a University of Alberta astrophysics student, Cody Slater thought his future was in the stars, not on, or under, the ground. The young entrepreneur's unexpected journey began when a friend working in the oilpatch showed him a bulky device used in drilling operations for detecting poisonous gases. The instrument seemed impractical and required almost constant maintenance. Slater knew he could come up with something better.

Slater founded **BW Technologies** and the oil industry quickly embraced his invention, the *Rig Rat*, the first wireless, solar-powered gas detection system for use in remote drilling locations.

BW became one of Western Economic Diversification Canada's (WD) first clients in 1987. "Assistance from WD provided BW with an opportunity to expand at an earlier stage than would have otherwise been feasible," said Slater. While the company has fully repaid the start-up loan, WD continues to play a role in BW's success.

WD's **First Jobs in Science and Technology Program** enabled Slater to hire two recent graduates as part of the company's product development team that strives to adapt existing technology for new uses. This strategy has helped the company expand its customer base beyond the oilpatch to include the pulp and paper, and mining industries, and fire rescue groups. They have also begun diversifying into heating, ventilation and air conditioning markets.

Sensitivity to the diverse needs of the global market and a knack for quickly turning technological innovations into new



(L to R) Opus Building designer Hannes Kovac, Calgary-Lougheed MLA Marlene Graham, WD Client Services Advisor Fraser Spears, Calgary Mayor David Bronconnier and Dr. John Finbo, BW's Chairman of the Board, hold artist's rendering of new 33,000 foot facility.

products and processes are among the competitive advantages that BW brings to the \$1 billion industry.

"At this juncture, the company is providing all the excitement and all the interest in growth and change that I was looking for before from astrophysics," said Slater. "Every year, BW is reinventing itself because of our growth, the new markets and the new territories." The company reported earnings of \$2.8 million in 2001, exceeding their expectations. It opened a new 30,000 sq. ft. manufacturing facility in September 2001 that will help the company fill orders from clients in over 50 countries.

For more information about BW Technologies, visit their Web site at www.gasmonitors.com or call 1-800-663-4164. ♣

Technology Helps Provide a Broad Picture of Science

by Christopher Spencer

The science of proteomics is so new most dictionaries don't contain the word. Dr. Susan Lees-Miller, director of the **Mass Spectrometry Proteomics Facility** at the University of Calgary, predicts this obscurity will not last.

"The beauty of proteomics is you can apply it to almost any situation in biology," says Lees-Miller, who is studying mutant protein structures in cancerous cells. "We can look at a much broader picture when comparing diseases to the normal state."



Scientists in Alberta seek to map the human genome.

Proteomics, the cataloguing and analysis of all proteins contained in an organism, arises out of the successful effort to map the human genome. Genes control the production of proteins, determining how cells and organs function. Disease results when something goes wrong with one of the proteins.

Scientists speculate that humans produce anywhere between 50,000 and 2 million different protein strands, each strand varying only slightly from one another. The requirement for sensitive scientific equipment to detect subtle differences makes proteomics research expensive. Lees-Miller's lab includes two mass spectrometers larger than king-size beds. Each carries a price tag of about \$1 million.

To bring together the province's talent in this emerging field, the Universities of Alberta, Calgary and Lethbridge formed the **Alberta Network for Proteomics Innovation (ANPI)**. The agency will coordinate research activity among post-secondary institutions in the province. Western Economic Diversification Canada (WD) provided \$6.21 million to offset the cost of laboratory equipment needed to establish ANPI, as well as operating funds.

Project CyberCell, an initiative underway at the University of Alberta's **Institute for Biomolecular Design**, seeks to marry genomics and

proteomics with information technology. Biochemistry professor Mike Ellison is working with a team of researchers to create a computational representation of an E-coli cell. Ellison hopes the effects of pesticides, pharmaceuticals and genetically-modified organisms on living tissues will eventually be tested in a "virtual" environment, eliminating the need for risky human trials.

Although Ellison predicts that completion of the CyberCell will take at least a decade, intermediate discoveries with commercial potential are expected to offset some of the costs.

To learn more about the commercialization of proteomics and other biotechnologies, contact WD at 1-888-338-WEST (9378). ♦

Advanced Technology CD Profiles Companies in the Edmonton Area

If you're looking for an excellent resource tool that identifies advanced technology companies and opportunities in the Edmonton area, then the *Directory of Advanced Technology Companies* is just what you're looking for.

The directory is an excellent tool for finding, qualifying and researching Edmonton-area companies that create advanced technologies. Strong industry sectors include: software, biotechnology, electronics, multimedia, pharmaceuticals, telecommunications and more.

The 2002 directory is available on a searchable CD-ROM from the Edmonton Capital Region Innovation Centre. It contains over 900 advanced technology companies, including industry classifications, exports, numbers of employees, key contacts, detailed descriptions of the companies, etc.

To purchase a copy of the *Directory of Advanced Technology Companies* CD or for more information about the Edmonton Capital Region Innovation Centre, call (780) 917-7666 or visit their Web site at: www.innovation.ede.org/services/.



Alberta Business Directory also available

AlbertaFirst.Com houses a growing directory of businesses located throughout the province. To date, their database includes over 120,000 businesses from various industry sectors.

General contact information is available free-of-charge at www.albertafirst.com/busdir/. If you're interested in more detailed listings, you may find the Business Attraction Information Systems (BAIS) database useful. Economic development officers from over 119 municipalities, representing 155 communities throughout Alberta, developed the database. For more information about BAIS, contact AlbertaFirst.Com.✦

WD's Alberta Schedule of Seminars & Events

January 2002

e-business Basics Seminar

January 22, Fort McMurray

An introduction to e-business – what it is, what it isn't and what you need to know to take advantage of opportunities in the world of e-business. For more information or to register, contact the Fort McMurray Regional Business Development Centre at (780) 791-0330.

February 2002

Getting Ready to Export Seminar

February 15, Fort McMurray

Exporting can be a very rewarding and profitable venture, if you do the necessary homework. This seminar shows you all of the necessary steps that must be taken before entering the world of exporting. For more information or to register, contact the Fort McMurray Regional Business Development Centre at (780) 791-0330.

March 2002

Selling to the Government Seminar

March 13, McDougall Centre, Calgary

Entrepreneurs can learn about marketing their business products and services to the three levels of government. Presentations will be made by representatives from Western Economic Diversification Canada (WD), Public Works and Government Services Canada, Alberta Infrastructure and the City of Calgary. Cost is \$20. To register, contact (403) 221-7800.

For additional information about these events,
please contact WD at
1-888-338-WEST (9378).