

Ideas



CENTRE FOR RESEARCH & INNOVATION
A GPRC/PREDA Partnership

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Foresight Comes to the Peace

“The complexity and uncertainty that characterizes the 21st century demands new approaches to strategic planning. Responsible leaders need to think about several possible futures, not just one.”

These are the opening words on the Alberta Innovates Technology Futures’ foresight web page. With this idea in mind, on December 17, 2010, the CRI hosted a foresight presentation facilitated by Dr. Axel Meisen, Chair of Foresight and Dr. Lois Macklin, Manager of Foresight Research.

Tech Futures uses foresight to look beyond normal planning horizons and anticipate different ways that the future may unfold. Foresight is the systematic exploration of the long-term future (taking into account known facts, forces, trends and uncertainties) with the view to taking action. In short, it is an exercise in critical thinking concerning long-term developments because the ways in which we see our world determine how we act in the world.

15 local individuals attended the presentation that encompassed an overview of what foresight is, what it can accomplish and all of its various processes.

“It just gives us another tool in our tool belt,” says CRI

Director, Bruce Rutley. “This scenario creation could be used to develop the economic forecast for individual businesses or for the Peace Region by looking at where we’ll be in 20 or even 50 years from now.”

The Tech Futures foresight team is set up to assist both public and private sector organizations in addressing critical long-term uncertainties and challenges. Their processes are both collaborative and co-creative, integrating established foresight approaches, expert opinion and scientific evidence.

Tech Futures also provides training to develop the capacity of individuals and organizations to use foresight approaches in their planning. In this way, organizations can anticipate future opportunities and challenges.

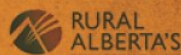
Plans are already in the works to bring the foresight team back for a “next steps” scenario creation session.

“Perhaps we could explore the possibility that in 50 years, all the farming in the Peace region may be conducted by only a few, large farms,” says Jim Letersky, CRI Adjunct Staff. “This would mean that our food supply was controlled by just a handful of people. And how would the seed chemical companies fit in?”



TECHNOLOGY FUTURES

Building globally competitive
commerce in Alberta



Projects Benefit From Funding

by Remo Zaccagna, Herald Tribune Staff

On November 9, 2010, the Centre for Research & Innovation unveiled more details regarding millions of dollars in funding its partners received for applied research projects that would turn pollutants into sustainable products.

On October 12, the federal government announced \$2.3 million in federal grant money through the Natural Sciences and Engineering Research Council (NSERC) that will be spread over three separate projects over the next five years.

Weixing Tan, a long-term instructor at Grande Prairie Regional College and the principal investigator of the Pollutants to Products (P2P) initiative, said the funding came after almost 10 years of hard work and \$1.5 million dedicated among the 16 industry partners to develop solutions to environmental issues.

"It's quite an honour. It's a highly prestigious award, basically, because across Canada they (NSERC) allocate on \$15 million," he said. "We're a very small region in northern Alberta, a very small college, and we got \$2.3 million. Proportionally that's quite a high percentage when you look at the size of Canada."

CRI director Bruce Rutley, and program developer Cheryl King round out the proposal development team. Several other members of the GPRC faculty and staff are part of the research team that will be working on the three projects.

"Our major objective for all those projects and our focus is to develop environmentally sustainable technologies to turn pollutants into products," Tan said. "We're trying to get the best out of those problematic issues."

The first project Tan described is studying how to use micro algae to capture carbon dioxide and various other air pollutants and turning these pollutants into plant products and oxygen-producing photosynthesis.

"Because micro algae are single-cell plants, when they receive sunlight, we use the natural sunlight as an energy source, then engage the micro algae into the photosynthesis process and they basically overtake all those pollutants and the CO₂ and turn it into oxygen," he described.

The second project is looking at how to improve nursery conditions for seedlings, which would improve reforestation and carbon sequestration, enhance survival, and in turn save forestry companies millions of dollars.

"With this project we have the support of the six major local and regional forestry companies," Tan said. "By providing optimal conditioning to those seedlings, they would grow better in the field and the survival rate is better. So in that sense we can save the forestry companies money and promote tree growth and when they grow they would take up more carbon dioxide per unit."



The third project is the Wood Fibre Project which will look at how irrigated effluent affects hybrid poplar trees planted over one hectare near the Clairmont landfill and whether it can be used to grow trees. The plantation will be separated into six separate lots with four varieties of the hybrid poplar.

"We are honoured to be among the colleges selected for this funding," said GPRC president and CEO Don Gnatiuk. "We know this applied research will have long-lasting positive impact for our region."

Chris Laue, the CRI manager of innovation services, believes that while part of the CRI's role was to help with the proposal and procurement of the funding, their involvement will not end there.

"This is an ongoing project where our industry partners and the research team will be working together," he said.

"As part of the technology that comes from some of these we can apply directly to some of our goals, which is reducing our carbon footprint as an industry within the Grande Prairie Region."



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Growing the North Conference

The second annual Growing the North Conference took place January 19-21, 2011 at the TEC Centre in Evergreen Park.

The overall theme was: Canada's North is the place to be for economic growth and development. The event backed up this statement with a parade of speakers all with different versions of the same message, the North and more specifically the Peace Region, will rise again.

Presidents and CEO's from Canfor, Weyerhaeuser and Ainsworth offered a forest industry perspective. All three agreed that diversification is key to saving their industry. China and Japan are now major export markets for all of Canada's products including forestry.

"The Grande Prairie region, with its lumber, pulp and OSB mills, is poised to be a major player in these new exporting opportunities," was the comment from James Shepard, president and CEO of Canfor Corp. "I think that Grande Prairie is significant. It's on the CN line. You've got Weyerhaeuser, you've got Canfor, you've got very significant fibre resources in this area and you're on that main line that goes right out to Prince Rupert."

John Gorman, vice-president, Halliburton Group Canada, reiterated this view point. He explained how our natural gas markets could be expanded to China and to Europe where there is still a high demand making us far less dependant on the US. Gorman also believes that the Port of Prince Rupert will be key in

securing these markets.

"Northern Alberta and B.C. are at the right place and the right time in history," Don Krusel, president and CEO of the Prince Rupert Port Authority said.

He added however, that an increased focus on improving transportation through the northwest corridor, particularly the rail network, is what is needed for the region to reap the economic benefits of foreign trade.

CN vice-president for the Western region, Mike Cory, laid out his company's plan for improving service through the area all the way to coastal ports like Prince Rupert and Vancouver. His focus would be on providing reliability, "getting products on the train when we said we would and delivered to the customer when and where we said we would."

Walter Paszkowski, economic development officer with the County of Grande Prairie, said local companies could benefit from a proposed \$59 million container depot near Four-Mile Corner and that could have a ripple effect all the way to Prince Rupert. The integrated rail/truck depot, is expected to enhance the region's export and import opportunities by reducing transportation costs, but Paszkowski said it is still in the study phase.

U.C.L.A. academic, Laurence C. Smith added his voice to the pro-north perspective. In his book, *The World in 2050: Four Forces Shaping Civilization's Northern Future*, Smith

surmises that, while wreaking havoc on the environment, global warming will liberate a treasure trove of oil, gas, water and other natural resources previously locked in the frozen north, enriching residents and attracting newcomers.

Smith argues that the opening of the Arctic will make regions such as Canada, Scandinavia, Russia and Alaska into economic powerhouses.

As a brave futurist, Smith didn't shy away from making predictions:

- New shipping lanes will open during the summer in the Arctic, allowing direct trade between the Atlantic and the Far East, resulting in new access to and economic development in the north.
- Oil resources in Canada will be second only to those in Saudi Arabia and the country's population will swell by more than 30 percent.
- Northern Rim Countries (NORC's) will be among the few places on Earth where crop production will likely increase due to climate change.
- NORC's collectively will constitute the fourth largest economy in the world.
- NORC's will become the envy of the world for their reserves of fresh water.

"Humanity will increasingly look north in response to the four global pressures of rising population, resource demand, globalization and climate change," concludes Smith.

Unmanned Vehicle coming to Fairview - GPRC News Release

The delivery of an unmanned vehicle system to GPRC Fairview Campus is an exciting step toward future research, development, and training programs in the region. Progress toward these goals has been rapid in recent months, and the arrival of the robotic equipment marks the change from planning to actualization.

The signing of a Memorandum of Understanding in late 2010 established a partnership between the Canadian Centre for Unmanned Vehicle Systems (CCUVS), Peace Region Economic Development Alliance (PREDA) and Grande Prairie Regional College (GPRC) and recognizes their mutual interest in the future of Unmanned Vehicle Systems within the region.

"GPRC is very pleased to be a signatory to this MOU," says Don Gnatiuk, President and CEO. "This project has enormous potential for the advancement of research in the field of robotics, and we are alert to the numerous educational directions which this initiative opens for learners in our region."

In the weeks since the MOU was signed, a northwestern office of CCUVS has been established on GPRC Fairview campus, and project coordinator Lloyd Sherk has been busy laying the groundwork for subsequent phases of

this initiative. Sherk is a mechanical engineer and former military pilot who is managing the unmanned vehicle systems project on behalf of the GPRC Centre for Research & Innovation (CRI).

"This partnership is a natural fit with the facilities of our Fairview campus," says Bruce Rutley, who is Director of the GPRC Centre for Research & Innovation. "The community of Fairview is equipped with an airport which is off commercial airspace, which means it is readily available for training and testing use, and the facilities of the GPRC campus in Fairview are well suited to any office or shop needs as the project progresses."

Test flights, test of ground vehicles, and the training of people for the growing needs of this industry, are among the goals of this project. Canada is a leader in the (non-military) unmanned vehicle industry in the world, and a high percentage of that activity is taking place in Alberta. CCUVS head office in Medicine Hat was officially opened in 2006, and has quickly established itself as a leader in the unmanned vehicle and robotics sector. The CCUVS approach is unique for its not-for-profit status and its affiliation with academia.

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Your comments and feedback are appreciated. Articles on topics relevant to innovation may be submitted for consideration.

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