



Building biofuels in Paraguay

By K.J. Shore

Paraguay, one of South America's least-developed countries, is still emerging from former dictator Alfredo Stroessner's decades-long rule, which ended in 1989. The government continues to address corruption and other issues that remain embedded in the political culture.

Still trying to enhance its infrastructure, Paraguay aspires to build a transmission grid to tap the massive Itaipu hydroelectric dam it shares with neighbouring Brazil and to improve the rough highways that are best suited to four-wheel-drive vehicles.

But undeveloped can also mean rich in potential. For a landlocked nation lacking petroleum, such potential may be found in a sugar cane-based ethanol biofuel industry like Brazil's, suggests Anil Hira, a political economist at Simon Fraser University.

"We're facing the possibility of a post-petroleum economy. It's going to reach a point in the long run where our way of life is going to be fundamentally transformed," he says. "This is going to affect developing countries as much as, or more, than it will us in the north."

Dr. Hira, who has studied Brazil's biofuel

sector extensively, partnered with Plinio Torres Garcete, head of Universidad Americana's engineering faculty, shortly after UA's president expressed an interest in cooperative projects when visiting SFU two years ago. Dr. Garcete supervises graduate students researching small-scale ethanol production.

Drs. Hira and Garcete felt they could reproduce Brazil's biofuel success. They received support from the Canada-Latin American and the Caribbean Research Exchange Grant (LACREG), a program funded by the International Development Research Centre and managed by the Association of Universities and Colleges of Canada.

LACREG funding bolsters international partnerships and emerging networks among Canadian, Latin American and Caribbean academic researchers by supporting small North-South collaborations that help create, spread and apply knowledge related to IDRC priorities.

The grant, with university matching funds, was enough to fly Dr. Hira to Paraguay for three weeks of fieldwork, lectures, and meetings with academic, industry and political contacts. A corresponding working trip

to Canada connected Dr. Garcete with Canadian political, business and civil service leaders.

Travelling through eastern Paraguay showed them vast, rich, red-orange fields reminiscent of North American prairies, with potential to harvest a lot of sugar cane. But interviewing farmers, businessmen and politicians, they realized building a successful biofuel sector would first require bolstering Paraguay's public capacity to plan and manage the needed infrastructure. Drs. Hira and Garcete knew they had to refocus beyond Brazil's template of large-scale efficiencies.

And many Paraguayans, already concerned about an influx of multinational corporations, weren't sold on Brazil's large-scale efficiencies. They sought benefits for an agricultural sector structured mainly around families of small landholders.

Smallholders in recent years are being bought out by large interests, then gravitating to cities for work that isn't always there. Such migration has fed the poverty, crime and corruption cycles with which the country struggles.

Simon Fraser University graduate student Alicia Bradsen holds a roadside interview with independent sugarcane smallholders. Most Paraguayan sugarcane, grown mainly by similar smallholders, now goes to the ethanol market.

Their sources also felt that moving Paraguay from a net petroleum importer to a net exporter of biofuels, sustainably produced by smallholder cooperatives, could position its product to meet Kyoto Accord provisions and European Union desires for certified sustainable biofuel sources.

Even as the project evolved, its collaborative structure aided them. Dr. Garcete connected them with people key to swaying national policies, including Paraguayan Vice President Frederico Franco. Dr. Garcete's roots in the country gave the research team credibility, and scope to influence national policy.

"The project wouldn't have been feasible without AUCC and LACREG support," says Dr. Hira. "[Dr. Garcete] was able to get us in touch with a lot of key stakeholders. The cooperative research model allowed me to save several months in the field [that would have been spent] building up these contacts and getting a sense of context."

Adds Dr. Garcete: "We made a proposal to the Paraguayan government to constitute a real industrial policy, and insert it into state policy. It will be like a compass to follow, to reach significant Paraguayan development."

Dr. Hira says the next logical step, supported by their contacts, is to secure funding for a program to help Paraguayan officials take Canadian courses in areas such as public accounting and energy program administration.

Dr. Garcete says Universidad Americana values the results of the project: "We have developed friendships, and learned from each other about the cultural and historical realities of both Paraguay and Canada. And in consulting and projecting the ethanol industry as a global biofuel alternative to replace petroleum, we stand to gain benefits under the Kyoto protocol." 

Learning the lay of the land

Three engineering students from the University of New Brunswick lend their skills to Mzuzu University in Malawi

By Carolyn Wong

When Landon Urquhart heard about his friend's internship experience in Malawi, he knew that he too wanted to travel to Africa to work with students in the department of land management at Mzuzu University.

"When my friend came back [from Malawi] he only had good things to say about the country and all the people he worked with so there really wasn't any question about going when the opportunity arose," says Mr. Urquhart.

The geomatics engineering student was one of six interns from the University of New Brunswick who participated in the 2009 Students for Development program, managed by the Association of Universities and Colleges of Canada and funded by the Canadian International Development Agency. He was joined by fellow geomatics engineering student Harsil Jani and chemical engineering in environmental studies student Jaime MacLellan for the three-month internship that began in mid-June of last year.

The three engineering interns focused on issues related to land management, rural development, food security and economic growth. Malawi lacks trained land surveyors and equipment as well as capacity in research and development around sustainable growth and environmental studies. Without the proper equipment and

a larger workforce of trained surveyors to demarcate boundaries and assign property rights, much of the land in Malawi remains unregistered, making it difficult for growth and development but easy for land and resource disputes to arise.

Each internship was designed to address the challenges facing the department of land management at Mzuzu University while giving the UNB students hands-on experience in international development.

Due to the efforts of past UNB interns, this year's SFD program included a donation of equipment from the City of Saint John and the New Brunswick Department of Transportation to the faculty and students at Mzuzu University. The donation, worth \$50,000, included GPS receivers, a laser, tripods and other equipment necessary for land surveying.

"It will allow the students to get their hands on some equipment so they can really learn; before they were using pictures to explain how everything worked," says Mr. Urquhart, who participated in the donation ceremony. "The university recognized that it was a big step for them and they were very grateful for it. Since they have this equipment now, they have started collaborating with regional surveyors to give their students some practical experience."