
Collaborative Research Partnerships : Tackling Challenges Together



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Introduction

From assessing current community involvement, cultural products, and market demand in Belize, to using the Elqui Valley basin as an example to assess the water resources vulnerability of the Andes Western Slope under climate change in Chile to building capacity for effective simulation augmented training of health care workers in Haiti or fabrication of 3-dimensional cell scaffolds for skin regeneration in Mexico, the most recent phase of the Canada-Latin America and the Caribbean Research Exchange Grants (LACREG) program supported 28 international research projects in a wide range of disciplines and countries.

Since it was established in 1995, the LACREG program has worked to promote international partnerships among academic researchers from Canada and their counterparts in Latin America and the Caribbean as they attempt to solve some of the most pressing challenges facing the region.

The program was managed by Universities Canada with funding from the International Development Research Centre (IDRC). LACREG supported small collaborative research initiatives that created and disseminated knowledge in IDRC's four priority research areas: agriculture and the environment; science, technology and innovation; social and economic policy; and global health policy. Through a competitive funding process, the program provided up to \$15,000 per project largely to cover travel expenses. Since its founding, LACREG has funded well over 300 research partnerships.

“the LACREG program has worked to promote international partnerships among academic researchers from Canada and their counterparts in Latin America and the Caribbean as they attempt to solve some of the most pressing challenges facing the region.”

In Phase 7 of the program, which ran from March 2013 – February 2016 LACREG awarded almost \$400,000 to 28 projects in 15 countries. It helped forge new international collaborations that have facilitated knowledge-sharing and capacity-building including the exchange of new laboratory techniques and the training of graduate students. The partnerships also resulted in important findings that informed public health and other policy reforms. Findings have been published in peer-reviewed journals and presented at national and international conferences and workshops.

LACREG Phase 7: By the numbers

Competitions: 2

Project applications received: 118

Grants awarded: 28

15 Latin American and Caribbean countries

18 Canadian institutions involved in the projects

32 Latin American and Caribbean institutions involved in the projects

Distribution of the 28 projects by LAC country (some projects involve multiple countries):



Distribution of the 28 projects by province (some projects involve multiple universities):



Collaborative Research Partnerships : Tackling Challenges Together

By Nathalie Kinnard

More than ever, science knows no boundaries. Although they often work several thousand kilometres apart, Canadian and South American researchers are pooling their expertise to improve quality of life and protect the environment.

Why would a Canadian researcher be interested in the costs and benefits involved in making use of a freshwater fish to control mosquito populations in Trinidad and Tobago? Why are scientists from Brazil and Uruguay joining forces with Canadian researchers to study artisanal fishing management practices? Seeing these academic researchers, firmly anchored in the vision, culture and ways of their respective countries, you may well wonder what they might have in common and why they are working together. The answer is unanimous among researchers involved in these North-South

collaborations: the benefits of sharing knowledge, expertise and different scientific cultures are beyond measure. These exchanges sometimes result in remarkable innovations. For example, researchers from Memorial University in Newfoundland and Justinien University Hospital in Haiti fabricated a laparoscopy simulator for only \$5, and it is actually used to teach medical examinations performed inside the abdomen.

Between 2013 and 2015, more than thirty scientists from Canada and South America embraced the challenges of North-South international collaboration, thanks to the Canada-Latin America and the Caribbean Research Exchange Grants (LACREG) program, which is administered by Universities Canada and financed by the International Development Research Centre (IDRC). They were able to rise above the linguistic and cultural barriers, geographical divides and reversal of seasons. Inspired by this fulfilling and rewarding experience, some of them continue to pursue their collaborative activities and are taking their projects to the next level. It may have happened at different latitudes, but they all caught the research bug.



Local communities at the forefront

The 15 research projects funded by the last LACREG program in the area of science, technology and innovation all have a common goal: put science to work for communities in South America and the Caribbean. Robert Hausler, from Montreal's *École de technologie supérieure*, and Aura Teresa Barba Lopez, from the Gabriel René Moreno Autonomous University in Bolivia, designed an innovative "two-in-one system" that not only handles water purification, but also issues flood risk advisories. Their prototype includes a portable, bicycle-powered water treatment mini-station, complete with filters, ozonator and marine turbines. "Human energy and the current activate the turbines, which pump the water and generate electricity to power the disinfection system," explains the Montreal researcher. "In addition, the small turbines enable us to remotely monitor increases in water flow and, consequently, to anticipate flood threats." This project is very important for Amazonian communities, particularly in Los Bodos, where flooding and access to potable water are major obstacles to eco-development. The presence of pathogenic microorganisms in the drinking water causes diarrhea, which is one of the leading causes of mortality in young children. "We are working with stakeholders in the community, showing them how to implement, utilize and maintain the technology, so they do not have to depend on outside help," notes Aura Teresa Barba Lopez.

In El Salvador, the poor quality of some agricultural lands threatens the food security of small-scale farmers. The soil suffers from the effects of poor nutrient management, which limits crop yields. Farmers do not have access to soil analyses, which are too costly or non-existent in their regions. So they apply a trial-

"We are working with stakeholders in the community, showing them how to implement, utilize and maintain the technology, so they do not have to depend on outside help"

and-error approach to fertilization. Sensitive to the issue, Sean Smukler, from the University of British Columbia, and Reynaldo Adalberto López Landaverde, from the University of El Salvador, decided to study the current agricultural practices of farmers in the La Montaña region. Their goal: help farmers better manage the application of fertilizers with a view to improving the productivity of their croplands without polluting nearby water bodies. "This community relies heavily on agriculture for its survival," notes Landaverde, "hence the importance of working together with them." During the first phase of the project, it became apparent that the farmers were using four times too much nitrogen and phosphorus, while neglecting other nutrients.

Sharing the science

While Latin America and the Caribbean are learning from Canada, the reverse is also true. “The reality in developing countries is often similar to that in remote regions of Canada,” affirms Adam Dubrowski, a professor at Memorial University in Newfoundland. “Just as in Haiti, some isolated communities in northern Newfoundland lack physical or financial access to high-tech medical simulators. So we want to adapt our low-cost, laparoscopy simulator to their needs.” The secret is to use local resources. In Haiti, for example, researchers developed a mock stomach using a sponge, cotton batting, sutures and a condom. The makeshift organ is placed in an opaque, plastic-lined cardboard box and hooked up to a camera, light source and laptop computer.



For his part, Evangelos Milios, from Dalhousie University in Halifax, Nova Scotia, wants to enable Canadians to benefit from the results of his research carried out in collaboration with Maria Cristina Ferreira de Oliveira, from the University of São Paulo in Brazil. The two researchers are currently developing new techniques for analyzing public data for the purpose of extracting microblogs dealing with Brazilian senate debates. “For journalists who need to follow public debates and keep a finger on the pulse of the nation regarding various social issues, Twitter is an important and interesting source of information, since it functions as both a news medium and a social network,” explains Professor Milios. “But it’s worse than looking for a needle in a haystack, because tweets reflect only a fraction of other microblogs collected by the data analysis tools.” The challenge becomes all the more complex when filtering tweets to search for a specific topic in the senate minutes. In Canada, the minutes of proceedings are classified by subject, but not in Brazil. There, the speeches and conversations are transcribed as is, without much in the way of identification. “Until now, this type of data had to be extracted manually. So we developed prototype tools that should enable members of the media as well as researchers and citizens to extract all the tweets on a specific topic in a reliable and user-friendly manner,” reports Ferreira de Oliveira. The researchers plan to adapt their algorithms and search applications to analyze reviews by moviegoers when new films are released. An app that will benefit both Canadian and Brazilian journalists.

A unique experience

According to all of the researchers interviewed, the LACREG program enabled them to establish new North-South research partnerships which otherwise would not have been possible. For Dawn Philip, from the St. Augustine campus of Trinidad and Tobago's University of the West Indies, it was her very first international collaboration. Together with Rana El-Sabaawi, from the University of Victoria in British Columbia, she studied the potential use of guppies, a species of tropical fish native to South America, for controlling mosquitoes, which carry diseases such as dengue fever and malaria. During the project, the Trinidadian researcher studied the chemistry of nutrients and spent time in her Canadian counterpart's laboratory. Conversely, ElSabaawi spent some ten days in the field in Trinidad and Tobago, and two of her graduate students stayed on for several months to collect data from waterways. "This research project marked the beginning of my career as a researcher," affirms the Canadian scientist.

The same goes for Georgette Briggs, from the University of the West Indies at St. Augustine in Trinidad and Tobago. She was officially hired as a researcher by her university following her project on internode elongation in cassava. Her Canadian partner, Myron Smith, from Carleton University in Ottawa, also connected with scientists from University of the West Indies campuses in Trinidad and Tobago, Jamaica and Barbados, while also establishing a research network in the Caribbean.

The students involved in the various projects also enjoyed a truly unique experience. Karla Karina Gomez Lizarraga, a graduate student under Cristina Piña Barba



at the Autonomous University of Mexico, developed expertise in tissue engineering while working with Carlos Escobedo, from Queen's University in Kingston, Ontario. She will be able to pass on this knowledge to her Mexican colleagues. The partnership between researchers Escobedo and Barba led to the development of a 3D printing system to produce low-cost, temporary support structures for the regeneration of skin or bone fragments, using biological ink made from bovine cells.

Overcoming challenges

Obviously, there are many challenges to practising science across two hemispheres, especially when one of the two team members is from a developing country. Oftentimes, the researchers are called upon to deal with situations beyond their control and have to improvise to find solutions. For instance, when Adam Dubrowski went to Haiti to train researchers and doctors at Justinien University Hospital on the development and use of medical simulators, he noted the dire lack of workspace. “We had to perform the simulation experiments in administrative offices,” recounts Professor Dubrowski. Difficulties in obtaining travel visas also complicated things for many team members. “If you need a visa to visit a country down south, you’d better plan ahead in order to avoid delaying your project,” warns Evangelos Milios of Dalhousie University. The researcher learned this the hard way, when he had to postpone a trip to Brazil with his Canadian team, because they had not received their visas. He ended up having to travel to Greece to meet with his Brazilian partner. Robert Hausler, from the *École de technologie supérieure* in Montreal, encountered similar problems which delayed the training of Bolivian partners on water disinfection technologies.

“we had to perform the simulation experiments in administrative offices”



Language can also be a major barrier. Adam Dubrowski and health care researcher Chesnel Norcéide agree that a lot of valuable time was lost during their exchanges due to communication problems. The Newfoundland team speaks English but not French, while the Haitians speak French and very limited English. At times they had to bring in a translator. Raynaldo Landaverde from the University of El Salvador also experienced the frustration of communication difficulties. “It was a problem because my team spoke very little to no English,” he admits. “Fortunately, the Canadians were able to manage in Spanish.”

Other researchers had to deal with unforeseen cultural differences. For example, the summer curriculum in Trinidad and Tobago does not allow for participation in fieldwork. As a result, Dawn Philip’s students were not

Overcoming challenges

able to take part in the river surveys. “It is the opposite in Canada. Our students have more time over the summer term to get out in the field, notes Rana El-Sabaawi, who now knows what to expect. Mother Nature can also complicate matters! A case in point: Sean Smukler’s and Reynaldo Landaverde’s soil analyses were compromised by a drought during the 2014 growing season.

But the biggest issue for the majority of the researchers funded through LACREG remains the limited amount of time allotted to complete their project. University of Manitoba researcher Derek Johnson had to cancel his trip to Brazil due to time constraints. “The Canadian team was not able to experience the realities of life in Brazil,” laments the researcher. This was a key component of the project he was carrying out with Micaela Trimble, from the Federal University of Paraná, in Brazil. The two researchers designed a framework for evaluating the co-management strategies of small artisanal fishing outfits in Uruguay and Brazil, which support many of the coastal communities. “Overexploitation by the industrial fishing sector and the creation of protected areas impacts small artisanal fisheries, among other businesses,” reports Professor Rodrigo Medeiros, who works with Trimble in Brazil. To make sure their concerns are taken into account, the local fishermen try to involve themselves in the management of their resource. They no longer want to be controlled by the government, which has very limited knowledge of the artisanal fishing sector.” That is how co-management projects got started. Professors Trimble and Johnson undertook to evaluate and compare the current approaches. The Brazilian researcher and her team also met with the fishermen to

better understand their concerns. The scientists hope to propose tools that will improve their relations with the government, reduce tensions during exchanges, and thereby prevent the social and political marginalization of artisanal fisheries.

“To make sure their concerns are taken into account, the local fishermen try to involve themselves in the management of their resource. They no longer want to be controlled by the government, which has very limited knowledge of the artisanal fishing sector.”

And the adventure continues

Obviously, all good things must come to an end, or must they? “The LACREG grant can be leveraged to develop a research group and obtain additional funding,” says Myron Smith, of Carleton University. Motivated by their projects, many researchers have entrusted the continuation of their work to the hands of graduate students who have received research grants. Carlos Escobedo and Cristina Piña Barba did just that with their work. Their tissue engineering project will continue as part of the doctoral work of Karla Karina Gomez Lizarraga, Barba’s student. Some of their research findings were featured at the TERMIS conference in Boston in 2015 and will be presented again during the 2016 World Biomaterials Congress, which is to be held in Montreal in May 2016.

Some projects also live on through research networks and scientific publications. For example, Chesnel Norcéide set up a Haitian network on simulation to foster excellence in the training of health specialists. His partner Adam Dubrowski took steps to create a section in the *Cureus* medical journal to publish technical reports on medical simulation cases. Together with his colleagues at Justinien University Hospital, he is preparing two articles detailing the approach used in Haiti. This will be a first for Haitian researchers, who rarely publish their research findings. “The entire scientific community can learn about our partnership, thanks to the publication of our work in an open-access journal,” notes Professor Dubrowski.

Without question, the North-South research projects are breaking down borders and bringing countries closer together. Sometimes the benefits span the globe! This is sure to be the case for the software application that Anne

“The entire scientific community can learn about our partnership, thanks to the publication of our work in an open-access journal”

Basset, from the University of Toronto, and Gabriela Repetto, from the Faculty of Medicine at the University for Development in Chile, are developing for patients who suffer from a genetic disorder called 22q11.2 deletion syndrome. The app will enable such patients to record their clinical data and share it with their physicians. “The syndrome is a congenital anomaly caused by the deletion of a small section of chromosome 22. It manifests as heart defects, developmental delays and immune system deficits, among other problems,” explains Gabriela Repetto. It affects 1 in 4,000 births worldwide, but doctors think that it may actually affect 1 in 357 births, so the syndrome is crying out for better diagnosis. To this end, Drs. Basset and Repetto clinically characterized and monitored large cohorts of patients suffering from the syndrome in Canada and Chile in order to better identify risk factors and clinical signs from an early stage. It is their dream that this research will help sufferers all around the world. Without a doubt, this is a story to follow, as are those of all the other participants in this borderless scientific adventure.

Elements of Collaborative research partnerships

- Participating universities engage in assisting, motivating and supporting their researchers.
- All researchers travel to their partner's country to develop a better grasp of the realities they live with.
- Their expertise dovetails with that of their partner.
- Projects reflect local concerns.
- Projects are adapted to the local lifestyle and resources of the users. For example, it would be impractical to institute highly sophisticated technology in a small Amazonian community that does not have the means to maintain it.
- The partners have already met or at least spoken to each other before initiating a project.
- A new scientific relationship can easily be tested through a grant such as LACREG, before embarking on a major project.
- Researchers remain flexible and responsive to unforeseen events, such as Mother Nature's whims.
- Visa applications are submitted as soon as the project is approved.
- Participants exchange ideas as opposed to imposing them.



Managing water in a changing climate

“It will allow decision makers, in particular, to implement programs to encourage agricultural operators, households and industry to modify or reduce their water consumption.”

Competition for water is strong in the Elqui River Basin, in the eastern foothills of the Andes, in north-central Chile. The growing population, mining and agricultural activities, and even tourism compete for water resources already limited by the region’s semi-arid climate. There is much concern in the country over what will happen to hydrological resources given climate change projections of higher temperatures and lower precipitation.

Researchers from Saskatchewan and Chile combined their expertise to develop a “four-in-one” climate/hydrology/land use/water management model to demonstrate the effects of various climate scenarios on water resources. This will better equip the region to manage water in a changing climate. It will allow decision-makers, in particular, to implement programs to encourage agricultural operators, households and industry to modify or reduce their water consumption.

Researchers: Yanping Li, University of Saskatchewan; Roberto Rondanelli, University of Chile; José A. Rutllant, University of Chile



Detecting scoliosis without radiation

“The ultimate goal is to develop a low-cost, pocket-size, 3D ultrasound imaging device connected to a webcam and which could be easily sent to clinics in Latin America and the Caribbean.”

Not all backs are straight. Scoliosis, an abnormal curvature of the spine, affects approximately one in 1,000 individuals. It is most often diagnosed in adolescence. Deformation continues until the child stops growing. It is very important to monitor the progression of scoliosis, as 10% of cases will progress to severe deformity requiring brace treatment or surgery. In these cases, the young patients undergo regular X-rays, which increase their risk of developing breast cancer, leukemia or prostate cancer, since radiation doses accumulate in the body over time. Hence, the medical community is seeking effective radiation-free methods to replace X-rays.

Researchers from Ontario and Uruguay developed a prototype system using 3D ultrasound imaging to assess pediatric scoliosis. Ultrasound does not emit radiation, and previous studies have demonstrated its potential for measuring spine curvature. The ultimate goal is to develop a low-cost, pocket-size, 3D ultrasound imaging device connected to a webcam and which could be easily sent to clinics in Latin America and the Caribbean.

Researchers: Gabor Fichtinger, Queen’s University; Alvaro Gomez, University of the Republic of Uruguay

Palm oil: for better or for worse

“The area of land occupied by oil palm plantations has more than doubled, particularly in poor rural regions where food insecurity is already a concern.”

In Guatemala, palm oil production has increased by 600% since the year 2000. The area of land occupied by oil palm plantations has more than doubled, particularly in poor rural regions where food insecurity is already a concern. Governments view palm oil production as a strategy to combat poverty by creating jobs, increasing revenues and achieving food security for farmers. Accordingly, communities that convert their agricultural lands into oil palm plantations receive financial assistance. However, they are required to sell their production to designated companies. Furthermore, the impact of these plantations on the environment and human health is not yet known. Researchers from Canada and Guatemala decided to help the Lachuá community better understand the socio-economic and environmental transformations associated with oil palm plantations.

Researchers: Ryan Isakson, University of Toronto; Carlos Avendano, University of San Carlos, Guatemala; Julio Morales, University of San Carlos; Anastasia Hervas, University of Toronto; Annie Legate-Wolf, University of Toronto

From insect to insecticide

“The scientists drew their inspiration from the hormesis effect. In which the biological defence mechanisms of a living organism are activated in response to stress.”

That which does not kill us makes us stronger? This is what researchers from Nova Scotia and Brazil were betting on to improve the biological fight against insect pests. The scientists drew their inspiration from the hormesis effect, in which the biological defence mechanisms of a living organism are activated in response to stress. They exposed arthropods such as spiders and ladybugs to various stressors: toxins, lack of food and extreme temperatures. According to the preliminary findings, stress appears to stimulate arthropod reproduction and turn them into superior biological predators. The research findings will be very useful to producers seeking to increase crop yields through biological control, a preferred approach in Canada and Brazil.

Researchers: Christopher Cutler, Dalhousie University; Raul N.C. Guedes, Federal University of Viçosa, Brazil

Think food safety

“Canadian and Chilean researchers are working to develop rapid, low-cost molecular methods to detect harmful bacteria.”

In 2008, more than 1,400 Canadians and Americans were infected with salmonella after eating fresh produce grown and packaged in Mexico. In 2011, beans contaminated with E. coli made some 4,000 people ill and caused 50 deaths in 16 countries across Europe and the United States. The World Health Organization declared food-borne illnesses a major public health concern and noted the vital importance of strengthening the capacity of countries to implement comprehensive, sustainable and integrated food safety systems.

This challenge is all the more daunting in that methods for detecting and identifying pathogens differ from one country to another, especially in developing nations. Chile is hampered by a lack of data on agricultural practices and on its ability to monitor food-borne diseases, owing to the nation’s high proportion of small artisanal farms. Canadian and Chilean researchers, whose countries share a free trade agreement for agricultural products, are working to develop rapid, low-cost molecular methods to detect harmful bacteria. They are also studying various strategies to reduce the contamination of food, while attempting to identify biomarkers for monitoring pathogens. In the long term, the scientists hope to export their methods around the world.

Researchers: Siyun Wang, University of British Columbia; Andrea I Moreno Switt, University of Andrés Bello, Chile



LACREG phase 7 projects

Project titles are presented in the language of the grant proposal.

Belize

Sustainable community tourism in Belize: Assessing current community involvement, cultural products, and market demand

J. Michael Campbell, University of Manitoba, Canada

Pio Saqui, University of Belize, Belize

Bolivia

Approche systémique pour le développement de technologies appropriées pour traiter des eaux de la communauté amazonienne de « los Bordos »

Robert Hausler, École de technologie supérieure (ÉTS), Canada

Aura Teresa Barba López, Universidad Autónoma « Gabriel René Moreno », Bolivia

Brazil

Integrating ecological and social sciences to investigate migrations of large Amazonian catfishes: generating information to ensure sustainability of a key fishery impacted by recent hydropower development

Steven Cooke, Carleton University, Canada

Priscila Fabiana Macedo Lopes, Federal University of Rio Grande do Norte, Brazil

Michael Power, University of Waterloo, Canada

Good stress for good insects: assessing the potential of hormones to enhance production of biological control agents

Chris Cutler, Dalhousie University, Canada

Raul Narciso C. Guedes, Universidade Federal de Viçosa, Brazil

Visual text analytics for open government data

Evangelos Milios, Dalhousie University, Canada

Maria Cristina F. de Oliveira, Universidade de São Paulo, Brazil

Cultures of the urban night: problems of security and inclusion

Will Straw, McGill University, Canada

Jeder Janotti, Professor, Universidade Federal de Pernambuco, Brazil

Simone Pereira de Sa, Universidade Federal Fluminense, Brazil

Chile

Chromosome 22q11.2 microdeletion syndrome: a window into understanding developmental diseases of the heart and brain

Anne Bassett, University of Toronto, Canada

Gabriella Repetto, Universidad del Desarrollo, Chile

Using the Elqui Valley basin as an example to assess the water resources vulnerability of the Andes Western Slope under climate change

Yanping Li, University of Saskatchewan, Canada

Roberto Rondanelli, University of Chile, Chile

José A. Rutllant, University of Chile, Chile

Improving global food safety by molecular detection and bid data analysis

Siyun Wang, University of British Columbia, Canada

Andrea I Moreno Switt, Universidad Andrés Bello, Chile

Cuba

Understanding rural & social transformation in Cuba's Cienfuegos province and beyond: A collaborative & comparative research design on the Cuban reform process

Gregory Cameron, Dalhousie University, Canada

Francisco Rogelio Pérez Rosado, Universidad de Cienfuegos, Cuba

Dayni Deysi Diaz Mederos, Universidad de Cienfuegos, Cuba

Ecuador

La participación à la gouvernance territoriale comme mécanisme de renforcement de la sécurité alimentaire, de la conservation de la biodiversité et de l'empowerment des communautés indigènes de la province du Chimborazo, Équateur.

Thibault Martin, Université du Québec en Outaouais, Canada

Pablo Andrade, Universidad Andina Simon Bolivar, Ecuador

Stalin Gonzalo Herrera Revelo, Universidad Andina Simon Bolivar, Ecuador

Annélie Delescluse, Université du Québec en Outaouais, Canada

Otilia Puiggros, Université du Québec en Outaouais, Canada

Suzy Basile, Université du Québec en Outaouais, Canada

El Salvador

Linking soil fertility management and novel high resolution digital soil mapping to protect water resources and improve small-holder farmer livelihoods in rural El Salvador

Sean Smukler, University of British Columbia, Canada

Sean Patrick Kearney, University of British Columbia, Canada

Reynaldo Adalberto López Landaverde, Universidad de El Salvador

Brenda Roxana García, Universidad de El Salvador

Roberto Carlos Martínez, Universidad de El Salvador

Mariví Díaz de Figueroa, Universidad de El Salvador

LACREG phase 7 projects

Guatemala

The socio-ecological ramifications of boom crops: Examining the impacts of oil palm expansion upon food entitlements, water quality, and household reproduction in Northern Guatemala

Ryan Isakson, University of Toronto, Canada

Anastasia Hervas, University of Toronto, Canada

Annie Legate-Wolfe, University of Toronto, Canada

Julio Morales, Universidad de San Carlos de Guatemala

Carlos Avendano, Universidad de San Carlos de Guatemala

Haiti

Building capacity for effective simulation augmented training of health care workers: Development, implementation and evaluation of a sustainable program

Adam Dubrowski, Memorial University of Newfoundland, Canada

Chesnel P. Norcéide, Justinian University Hospital, Haiti

Jamaica

Towards a socio-ecological construction of child wellbeing and resilience in Kingston, Jamaica

Duncan Pedersen, McGill University/Douglas Mental Health University Institute, Canada

Nicole D'souza, McGill University/ Douglas Mental Health University Institute, Canada

Geoffrey Walcott, University of the West Indies, Jamaica

Sarah Bailey, University of the West Indies, Jamaica

Mexico

Comprendre les conflits concernant les drogues à Mexico: depuis les arrangements informels de l'État aux arrangements de la rue

Julie-Anne Boudreau, Institut national de la recherche scientifique (INRS), Canada

Luis Astorga, Instituto de Investigaciones Sociales - UNAM, Mexico

Carlos Zamudio Angles, Colectivo por una política integral hacia las drogas, A.C. (CUPIHD), Mexico

Frédéric Lesemann, Institut national de la recherche scientifique (INRS) Canada

Felipe de Alba, UAM-Cuajimalpa, Mexico

Ángela Margoth Bacca Mejía, UNAM, Mexico

Qualité des eaux et vulnérabilité des populations en contexte de changements climatiques: études du bassin versant central du Golfe du Mexique

Mathias Glaus, École de Technologie Supérieure, Canada

Rabindranarth Romero López, Universidad Veracruzana, México

Annie Poulin, École de Technologie Supérieure, Canada

Examining local responses to global problems: the resurgence of local food production among the Nahuas indigenous community in Mexico in the face of agro-industry

Kathi Wilson, University of Toronto, Canada

Christian Abizaid, University of Toronto, Canada

Amrita Danieri, University of Toronto, Canada

Claudia Rocío Magaña González, Universidad de Guadalajara, Mexico

Alejandro Macías Macías, Universidad de Guadalajara, Mexico

Perceptions, needs, access and use of ICT among Mexican temporary male migrant workers in Canada and their overseas female partners

Simon Collin, Université de Québec à Montréal, Canada

Thierry Karsenti, Université de Montréal, Canada

Cándido Hernández Limón, Universidad Autónoma de Tamaulipas, Mexico

Miriam Rodríguez Vargas, Universidad Autónoma de Tamaulipas, Mexico

Fabrication of 3-dimensional cell scaffolds for skin regeneration

Carlos Escobedo, Queen's University, Canada

Maria Cristina Pina Barba, Universidad Nacional Autónoma de México

Smoking in Mexico: Hazards and the Impact of Tobacco Taxation

Cindy Gauvreau, St. Michael's Hospital, Toronto, Canada

Prabhat Jha, St. Michael's Hospital, Toronto, Canada

Luz Myriam Reynales Shigematsu, Instituto Nacional de Salud Pública, Mexico

Carlos Manuel Guerrero López, Instituto Nacional de Salud Pública, Mexico

Trinidad and Tobago

Balancing the costs and benefits of using larvicidal fish as agents of mosquito control in Trinidad and Tobago

Rana El-Sabaawi, University of Victoria, Canada

Dawn Phillip, The University of West Indies, Trinidad and Tobago

Therese Frauendorf, graduate student, University of Victoria, Canada

Piata Marquess, graduate student, University of Victoria, Canada

LACREG phase 7 projects

Uruguay

Shared platform for radiation-free paediatric scoliosis monitoring

Gabor Fichtinger, Queen's University, Canada

Alvaro Gómez, Universidad de la República, Uruguay

Multi-country

Argentina, Brazil and Colombia

Emerging-market economies and poverty reduction strategies in Latin

America: lessons from Argentina, Brazil, and Colombia

Chalmers Larose, Université du Québec à Montréal, Canada

José Maria, Universidad Siglo 21, Argentina

Saete Da Dalt, Universidade Federal Fluminense, Brazil

Cuba and Colombia

Indicadores de efectividad en la planificación territorial, gobernabilidad y gestión integrada de la zona costera del oriente de Cuba y el Caribe colombiano.

Lucia Fanning, Dalhousie University, Canada

José Abelardo Planas Fajardo, Ministerio de Ciencia, Tecnología y Medio ambiente (CITMA), Cuba

Camilo Mateo Botero Saltarén, Universidad Sergio Arboleda, Colombia

Celene Milanés Batista, Universidad de Oriente, Cuba

Trinidad and Tobago and Barbados

Optimizing antifungal treatments to combat the spread of Super-Elongations Disease of cassava to improve food security

Myron Smith, Carleton University, Canada

Judy Rouse-Miller, University of the West Indies, Trinidad & Tobago

Georgette Briggs, University of the West Indies, Trinidad & Tobago

Angela T. Alleyne, University of the West Indies, Barbados

Uruguay and Brazil

Evaluating adaptive co-management for the sustainability of Uruguayan and Brazilian small-scale fisheries

Micaela Trimble, Universidade Federal do Paraná, Brazil

Rodrigo Medeiros, Universidade Federal do Paraná, Brazil

Marila Lázaro, Universidad de la República, Uruguay

Fikret Berkes, University of Manitoba, Canada

Derek Johnson, University of Manitoba, Canada

Ryan Plummer, Brock University, Canada

For more information, consult Universities Canada's online database of research exchange projects:

<http://www.univcan.ca/research-exchange-projects/>

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