

## **Mexico's *Telesecundaria* Program and Equitable Access to Resources**

### **Le programme *Telesecundaria* au Mexique et l'accès équitable aux ressources**

Dana Craig, Jose Etcheverry and Stefan Ferris

Volume 51, Number 1, Winter 2016

URI: <https://id.erudit.org/iderudit/1037364ar>

DOI: <https://doi.org/10.7202/1037364ar>

[See table of contents](#)

Publisher(s)

Faculty of Education, McGill University

ISSN

1916-0666 (digital)

[Explore this journal](#)

Cite this note

Craig, D., Etcheverry, J. & Ferris, S. (2016). Mexico's *Telesecundaria* Program and Equitable Access to Resources. *McGill Journal of Education / Revue des sciences de l'éducation de McGill*, 51(1), 657–666.  
<https://doi.org/10.7202/1037364ar>

Article abstract

This Note provides an analysis of Mexico's *Telesecundaria* program within the context of Mexico's new education reform framework offering a succinct background of the project, as well as key policy lessons that can be useful for other jurisdictions interested in the development of distance education programs. This Note uses a literature and data analysis review approach, as well as qualitative analysis of interview data collected recently in Mexico by the authors. The Note positions pedagogical approaches to distance education within the context of developments in communication, internet access and renewable energy technologies, as well as within the challenges of the digital divide as means of powering digital access to information and education to remote, rural and marginalized communities.

## MEXICO'S *TELESECUNDARIA* PROGRAM AND EQUITABLE ACCESS TO RESOURCES

DANA CRAIG, JOSE ETCHEVERRY & STEFAN FERRIS *York University*

**ABSTRACT.** This Note provides an analysis of Mexico's *Telesecundaria* program within the context of Mexico's new education reform framework offering a succinct background of the project, as well as key policy lessons that can be useful for other jurisdictions interested in the development of distance education programs. This Note uses a literature and data analysis review approach, as well as qualitative analysis of interview data collected recently in Mexico by the authors. The Note positions pedagogical approaches to distance education within the context of developments in communication, internet access and renewable energy technologies, as well as within the challenges of the digital divide as means of powering digital access to information and education to remote, rural and marginalized communities.

### LE PROGRAMME *TELESECUNDARIA* AU MEXIQUE ET L'ACCÈS ÉQUITABLE AUX RESSOURCES

**RÉSUMÉ.** Dans cette note du terrain, les auteurs effectuent une analyse du programme mexicain *Telesecundaria* dans le contexte du nouveau cadre de la réforme en éducation au Mexique. Ils présentent un bref aperçu du projet, ainsi que les leçons-clés qui pourraient s'avérer utiles en termes de politiques dans d'autres juridictions intéressées par le développement de programmes de formation à distance. Cette note est basée sur une approche de revue de la littérature et d'analyse des données. Elle s'appuie également sur l'analyse qualitative de données recueillies lors d'entrevues réalisées par les auteurs au Mexique. Cette note situe les approches pédagogiques en éducation à distance dans le contexte de développement des communications, d'accès à Internet et de technologies des énergies renouvelables. Elle les positionne aussi en fonction des défis engendrés par la fracture numérique comme moyen d'améliorer l'accès numérique à l'information et l'éducation des communautés éloignées, rurales et marginalisées.

## EDUCATIONAL REFORM IN MEXICO

In December 2012, after months of deliberations, intense discussions, and diverse public manifestations on the streets, social media, and other platforms for civic participation, the Mexican Congress overwhelmingly passed the education reform proposed by President Enrique Peña Nieto. This reform is part of an ambitious plan, the *Pact for Mexico* (Pacto por México, 2012), through which the current administration is hoping to transform the country into a more peaceful, just, equitable, inclusive, educated, prosperous, productive, sustainable, and globally responsible society (Government of Mexico, 2013b). Within that context, the Mexican educational reform represents a legislative attempt to make education the transforming force of Mexico, to reassert government control over the country's education system, to break the power of the Mexican Teachers Union bureaucracy, and to improve the quality and accessibility of the education system (Herrera-Peña, personal communication, September 1, 2014). The *Telesecundaria* program started more than 45 years ago as an innovative program that originally delivered secondary school education through closed-circuit television to marginalized and isolated communities. This program is one example of a distance education project that is experiencing revitalization through Mexico's new educational reform.

In September 2014, we had the privilege of interviewing, in Mexico City, Professor Alfonso Herrera-Peña, who is the government officer responsible for the National Coordination of the *Telesecundaria* Program.<sup>1</sup> In addition to this interview, this Note relies on a review of all relevant literature and professional interactions over the last decade between one of the authors (Etcheverry, 2013) and Mexican researchers involved in official renewable energy programs that support the *Telesecundaria* Program.

To achieve its education reform, the federal government modified Article 3 of the Mexican Constitution (a key section that arose from the demands of the Mexican Revolution of 1910-1920, which required that public and private education institutions be secular, as well as made education mandatory. That constitutional modification imposed an obligation on the state, through the Secretariat of Public Education, to provide universal free education, training and evaluating teachers. It also introduced the constitutional and human right of all learners to receive a quality, inclusive, and equitable education (Government of Mexico, 2013a; Secretariat of the Interior, 2014).

### *Goals and truths*

During the last decades, as shown in Table 1, the coverage of basic education, which includes early childhood, elementary, and secondary school, has been progressively increasing in Mexico. It must be recognized, however, that the country is still far from achieving all its educational goals. The current reality is that, despite government efforts to increase the coverage of education, millions

of children and youth, particularly in marginalized and isolated communities, remain without access to education due to factors such as lack of schools in their community (and thus having to travel long distances to reach the nearest one), unsafe social environments, and unfavourable economic conditions that force them to abandon school and enter the labour force in order to supplement their family income (Santibañez, Vernez, & Razquin, 2005). That reality has detrimental economic and social costs and also perpetuates the conditions of exclusion, vulnerability, and poverty faced by a large number of Mexico's rural and Indigenous communities (Tilak, 2002).

TABLE 1. Coverage (gross enrolment ratio) in basic education

School Year	Early Childhood (4-5 years)						Elementary (6-11 years)			Secondary (12-14 years)		
	Second Grade			Third Grade			TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN
	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN						
1990-1991	37.9	37.7	38.1	69.8	70.6	69.0	110.8	113.4	108.1	65.7	66.4	65.0
2000-2001	51.3	50.8	51.7	77.1	77.2	77.0	108.8	110.8	106.7	82.8	84.5	81.1
2010-2011	81.2	80.2	82.2	100.7	100.1	101.4	109.5	109.7	109.2	90.0	89.6	90.4
2012-2013	83.4	82.3	84.6	102.8	102.0	103.6	109.3	109.3	109.3	93.3	92.7	93.9

NOTE. The coverage or gross enrolment rate corresponds to the total number of students enrolled in a given educational level at the beginning of the school year, for every hundred of the population who are in the appropriate age for that grade. Source: Secretariat of Public Education (2013, p. 59).

In terms of student skills and knowledge, Mexico's students lag behind other countries as reported by the Organization for Economic Co-operation and Development (OECD, n.d.) in their 2012 Programme for International Student Assessment (PISA) report. As shown in Figure 1, which was derived from the PISA dataset (OECD, 2016), Mexico scores below OECD averages in terms of mean scores of student performance in math, reading, and science.

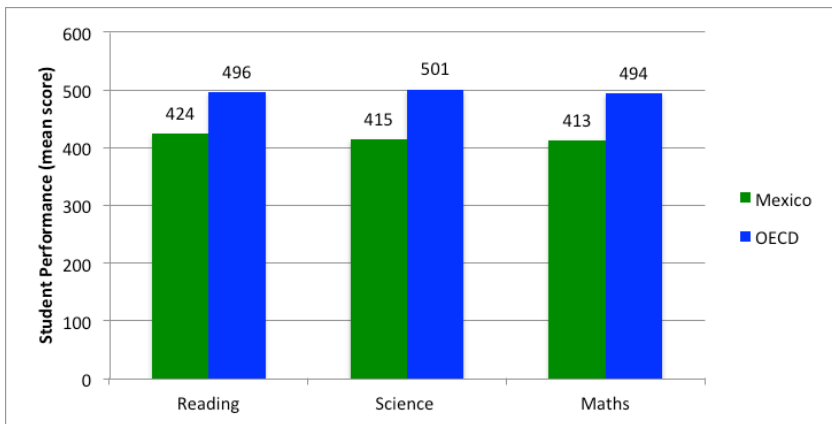


FIGURE 1. Mexico's student performance compared to 2012 OECD averages

### *Hindrances*

One commonly cited reason for Mexico's underperforming education is inadequate teacher preparation at both the primary and secondary level (Schmelkes, 1994; Santibañez, 2006; Tatto, 1999). It is also widely recognized that recurring issues such as teacher absenteeism, especially in rural areas, short school hours, lack of extracurricular activities for students, and poor overall educational infrastructure also play detrimental roles (Santibañez et al., 2005). Therefore, it is not hard to imagine how difficult and frustrating it may be to study and teach in an environment in which there is no access to electricity, clean water, bathrooms, or even basic school supplies. While these deficiencies are prevalent in small, isolated and/or marginalized communities, it must also be recognized that many of the actions and initiatives undertaken to improve the quality of education have been unequal and inequitable (Secretariat of Public Education, 2013). In most cases, it is the smallest and most remote schools in areas of poverty and marginalization, as in the case of Indigenous communities, that systematically maintain the lowest scores in national and international examinations (Hernández-Zavala, Patrinos, Sakellariou, & Shapiro, 2006). It is therefore evident that meeting the obligations imposed by the reform will be an enormous challenge for Mexico.

Without a doubt, the greatest obstacle to overcome is the massive and widespread corruption that plagues the country's educational system. This particular problem, according to Prawda (1993), came about in Mexico, as well as in other Latin American countries, after the government decided to implement educational decentralization in 1978. He analyzed data dealing with funding and spending in the education system before and after the decentralization and concluded that what was supposed to happen and what actually happened due to decentralization looks very different. There were no incentives built in the process to reward good performances and to discourage corruption (Prawda, 1993). In the intervening decades, the mismanagement and the illegal appropriation of public resources from the Mexican education budget have become an all too common occurrence. To illustrate, an article published by Cave (2014) in *The New York Times* reports that "about \$2.8 billion annually goes into the pockets of 298,174 no-show teachers and administrators who collect pay without working."

This deplorable situation occurs while thousands of students all over Mexico long for schools with running water, electricity, new textbooks, computers, and well-trained teachers. The seriousness of the problems faced by the Mexican educational sector provides impetus to the government's call to reassert control over education as an attempt to tackle corruption and ensure that public expenditure reaches its intended targets.

### ***Bridging the digital divide***

Although, in previous decades, television was considered an advanced medium by which to deliver education to remote and isolated communities lacking infrastructure for fully developed schools (the method that *Telesecundaria* used exclusively in the past to deliver their lessons), today this method seems woefully out-dated. The digital divide in education is, in fact, an information and resource divide. That notion implies a deficit in the ability of information-starved communities to access the global socio-economic stage that is available only through Internet access. Providing reliable and affordable technical access to information is only half of the solution. Achieving the promises of online learning requires the existence of an educational system that fosters users who can become well-versed in locating and interacting effectively with high quality and reliable information. In addition, our experience as university educators indicates that the transition from information scarcity to information overload can lead to overwhelming feelings, information misuse, or underuse. Offering Internet-based distance education through the *Telesecundaria* structure can provide an avenue for more effective interaction with reliable information and has the potential to open doors so students can improve their immediate environment, enhance their quality of life and develop their own strategies to improve their socio-economic conditions. However, achieving such positive results requires the implementation of effective educational protocols and infrastructure development strategies.

### ***The Telesecundaria Program***

*Telesecundaria* was started to serve the growing number of students in need of secondary education in the late 1960s in Mexico. According to Klees (1979), enrolments in overall secondary education between 1960 and 1970 increased to 2.7 times that of the actual system capacity available at the time. In addition, enrolment at the primary level was also increasing at a high rate due to the government's public commitment to extend universal education. Mexico was under pressure as students were unable to find placements at the secondary education level (Klees, 1979). The *Telesecundaria* program was thus designed to address the educational challenges of marginalized, isolated, and low-income communities, and the Mexican government invested in the most advanced communications technologies then available to accommodate its growing educational needs.

In 1966, *Telesecundaria* began as a pilot program offering secondary education through closed-circuit broadcasting in a school in Mexico City. By 1970, the program was expanded to serve approximately 3% of the national student population at the secondary school level, a percentage that, at the time, translated to almost 26,000 students (Mayo & Klees, 1974). The program was developed to deliver one 20-minute educational program for every one-hour classroom period for all selected levels of secondary education (grades 7, 8

and 9) in all subjects. Although the classroom time offered was less than that of traditional schools, the program was developed to parallel the established secondary curriculum. The *Telesecundaria* “classes” took place in buildings or infrastructures already available in remote communities. The Mexican government provided funding for educational coordinators that facilitated the televised lessons and monitored academic progress. They were not qualified to teach in a traditional secondary school; however, they had access to comprehensive teacher guides that allowed them to impact student learning in a meaningful way (Klees, 1979).

By 1998, there were approximately 817,000 students in about 13,000 *Telesecundaria* locations, which was equivalent to 17.6% of the total number of junior secondary school students in Mexico (Perraton, 2007). Some critics predicted that *Telesecundaria* would not be financially sustainable; however, such forecasts did not prevail as the price tag of the program has been deemed cost-effective by the Mexican government (Perraton, 2007).

Recently, a high number of *Telesecundaria* lessons have been made available on the Internet, rendering the program even more accessible. *Telesecundaria* coordinators continue to manage technological and pedagogical support so students can easily interact with the available lessons (from a DVD, TV broadcast, or online). The *Telesecundaria* model has been adopted by a diversity of countries (e.g. Panama, Costa Rica, and China) illustrating the potential of providing specialized distance education to distinctive groups of people (Geo-Mexico, 2011).

### ***Powering digital access to education***

For almost two decades the Mexican *Telesecundaria* program has relied on a rural electrification program that installs renewable energy (RE) technologies, such as solar photovoltaic (PV) systems, in isolated areas and rural communities. This experience and the rapidly falling costs of PV systems provide a strong foundation to help increase access to the Internet in remote areas. A key lesson, emanating from the implementation of renewable energy projects in Mexico, emphasizes the importance of teaching members of local communities how RE systems work and how to conduct routine system maintenance (Etcheverry, 2013). Such practical training is essential to ensure the long-term sustainability of RE systems and requires the development of culturally appropriate educational materials that consider local conditions (such as levels of literacy, linguistic variations, and socio-economic and gender issues). Distance education programs are also very well suited to provide training on RE systems, which in turn can help to empower local people so they can ensure that RE hardware remain in operation for decades. Reliable RE systems are essential to ensure that electricity and Internet access can be provided throughout Mexico (Etcheverry, 2013).

### *Effectiveness and challenges*

In terms of academic achievement, several sources report that *Telesecundaria* students score substantially and consistently lower than students in traditional secondary education in all subjects – language, mathematics, writing, and science (Lara, 2008). Other researchers interpret scores differently and provide more encouraging perspectives. For example, Duràn (2001) argues that there is value added in the *Telesecundaria* school system as these students catch up completely in math with students in traditional secondary schools by the end of their school education and that they can eventually improve their language skills by 50% thanks to the program. Duràn also argues that the educational benefits received by *Telesecundaria* students goes beyond traditional academic education. The *Telesecundaria* system also offers extracurricular education by providing access to educational programs on health, food, agriculture, hygiene, and other relevant information required in isolated communities. That extracurricular distance education approach offers an option for closing the educational gap that exists between low-income, rural, isolated locations and urban communities (Duràn, 2001).

### *Lessons learned and next steps*

With over 30% of the country's population living in small, isolated, and often marginalized communities, the *Telesecundaria* Program has enormous growth potential, particularly since the program is officially recognised by the Mexican federal government as the most feasible and cost-effective manner to bring quality, inclusive, and equitable education to those communities (Herrera-Peña, personal communication, September 1, 2014). Therefore, in the context of the reform, it is expected that the *Telesecundaria* Program will be strengthened and expanded (Herrera-Peña, personal communication, September 1, 2014). In view of the fact that currently only one in 10 distance learning schools are connected to the web and that Internet provider companies are reluctant to extend service in communities with low business demand, the main focus today is still to use the National Electric System that the *Comisión Federal de Electricidad* (CFE or Federal Electricity Commission) operates as a means to first bring electricity, and then hope that the internet providers will develop internet connectivity. In some cases, however, this option is neither economically nor technically feasible and it is likely that, at least in the near future, television will continue to be the main vehicle for bringing education to the country's most isolated and marginalized regions. In other cases, which are more worrisome, communities in need do not even have access to electricity. In fact, according to official figures, by the end of 2012, 2.3 million Mexicans (about 1.9% of the population), most of whom reside in isolated rural or Indigenous communities with the lowest Human Development Index, still do not have access to this essential service (Secretariat of Energy, 2013).



Effective distance education needs to be inclusive, accessible, context-specific, and of high quality. The Mexican *Telesecundaria* program has achieved high levels of student participation through innovative delivery technologies combined with a well-designed mentoring system. The program has achieved positive tangible results due to the government's sustained commitment and investment in this program. It is a positive response to the prevalent problems of access to information and education in remote and underprivileged communities. The Mexican government today has a renewed interest in the success of this program through their new education reform and is trying to reduce corruption and increase budget transparency. In addition to political commitment, distance education is also reliant on proper physical infrastructure. Students need access to adequate buildings / classroom space, relevant information sources as well as access to key services such as clean water, electricity, and basic school supplies.

Bringing the *Telesecundaria* program to an increased number of people will require a new approach that combines reliable electricity access with affordable Internet supply. Investing in renewable energy sources can be an appropriate and sustainable solution to providing the building blocks that enable distance education programs to reach more remote areas. The combination of reliable, easy to use digital distance education tools with pedagogical approaches that empower and motivate teachers, coordinators, and students to achieve effective learning strategies are all cornerstones for providing high-quality education. Access to education is not only a human right, but also a social justice issue that needs to continue to be emphasized as a major priority for governments, politicians, and voters. Education can be a vehicle for economic and social progress. Well designed and properly administered, educational systems (online and in person) can help empower disadvantaged populations and build stronger and more sustainable societies. Advances in renewable energy technology and Internet technologies can be harnessed to achieve such results, presenting a variety of new opportunities to enhance the quality of life in remote and rural areas.

#### NOTES

1. Consequently, we would like to recognize and thank Professor Herrera-Peña for his time and insights.

#### REFERENCES

- Cave, D. (2014, September 13-14). Putting waste in Mexico's schools on display. *The New York Times International Weekly*.
- Durán, J. (2001). The Mexican Telesecundaria: Diversification, internationalization, change, and update. *Open Learning: The Journal of Open, Distance and E-Learning*, 16(2), 169-177. doi:10.1080/02680510123318

## Mexico's Telesecundaria Program

Etcheverry, J. (2013). New approaches to climate change mitigation: Collaborative strategies for developing renewable energy in North America. In N. Craik, I. Studer, & D. VanNijnatten (Eds.), *Climate change policy in North America: Designing integration in a regional system*. Toronto, ON: University of Toronto Press.

Government of Mexico. (2013a). *Secretaría de educación pública* [General law of education]. Mexico City, Mexico: Official Journal of the Federation. Available from <http://dof.gob.mx/>

Government of Mexico. (2013b). *Plan Nacional de desarrollo: 2013-2018* [National development plan: 2013-2018]. Mexico City, Mexico: Official Journal of the Federation. Available from <http://pnd.gob.mx/>

Hernández-Zavala, M., Patrinos, H. A., Sakellariou, C., & Shapiro, J. (2006). *Quality of schooling and quality of schools for Indigenous students in Guatemala, Mexico and Peru*. Washington, DC: The World Bank Group. Retrieved from <http://elibrary.worldbank.org/doi/book/10.1596/1813-9450-3982>

Klees, S. J. (1979). Television as an educational medium: The case of Mexican secondary education. *Comparative Education Review*, 23(1), 82-100.

Lara, C. (2008). Addressing the "Telesecundaria" in Zacatecas, Mexico: Merits of the learning community. *The International Journal of Interdisciplinary Social Sciences*, 3(4), 93-100.

Mayo, J. K., & Klees, S. J. (1974). *Extending the school with television: The case of Mexico's Telesecundaria*. Retrieved from <http://eric.ed.gov/?id=ED090988>

Organisation for Economic Co-operation and Development (OECD). (n.d.). *PISA 2012 key findings*. Retrieved from <http://www.oecd.org/pisa/keyfindings/pisa-2012-results-overview.pdf>

Organisation for Economic Co-operation and Development (OECD). (2016). *PISA: Programme for International Student Assessment, 2012*. OECD Education Statistics [Database]. doi: <http://dx.doi.org/10.1787/data-00365-en>

Pactopor México. (2012). Retrieved from <http://pactopormexico.org/PACTO-POR-MEXICO-25.pdf>

Perraton, H. D. (2007). *Open and distance learning in the developing world* (2<sup>nd</sup> ed.). London, United Kingdom: Routledge.

Prawda, J. (1993). Education decentralization in Latin America: Lessons learned. *International Journal of Education Development*, 13(3), 253-264.

Santibañez, L. (2006). Why should we care if teachers get A's: Teacher test scores and students achievement in Mexico. *Economics of Education Review*, 25, 510-520. doi: 10.1016/j.econedurev.2005.08.001

Santibañez L., Vernez G., & Razquin P. (2005). *Education in Mexico: Challenges and opportunities*. Santa Monica, CA: RAND. Retrieved from [http://www.rand.org/pubs/documented\\_briefings/DB480.html?src=mobile](http://www.rand.org/pubs/documented_briefings/DB480.html?src=mobile)

Schmelkes, S. (1994). La desigualdad en la calidad de la educación primaria [Inequality in the quality of primary education]. *Revista Latinoamericana de Estudios Educativos*, 24(1-2), 13-38.

Secretariat of Energy. (2013). *Programa Sectorial de Energía: 2013-2018* [Energy sector program: 2013-2018]. Mexico City, Mexico: Official Journal of the Federation. Retrieved from [http://www.dof.gob.mx/nota\\_detalle.php?codigo=5326587&fecha=13/12/2013](http://www.dof.gob.mx/nota_detalle.php?codigo=5326587&fecha=13/12/2013)

Secretariat of the Interior. (2014). *Constitución Política de los Estados Unidos Mexicanos* [Political constitution of the United Mexican States]. Mexico City, Mexico: Official Journal of the Federation. Retrieved from [http://www.dof.gob.mx/constitucion/marzo\\_2014\\_constitucion.pdf](http://www.dof.gob.mx/constitucion/marzo_2014_constitucion.pdf)

Tatto, M. T. (1999). Improving teacher education in rural Mexico: The challenges and tension of constructivist reform. *Teaching and Teacher Education*, 15(1), 15-35. doi: 10.1016/S0742-051X(98)00030-4

Geo-Mexico, the geography of Mexico. (2011). Retrieved October 30, 2014, from <http://geo-mexico.com/?s=telesecundaria&searchsubmit>

Tilak, J. B. G. (2002). Education and poverty. *Journal of Human Development*, 3(2), 191-207. doi: 10.1080/14649880220147301

DANA CRAIG is the Environmental Studies liaison librarian at York University. She is interested in access to information as a human rights issue. She teaches Information Literacy classes and promotes responsible publishing in the academia. She is also interested in embedding critical research skills into the curriculum. [dcraig@yorku.ca](mailto:dcraig@yorku.ca)

JOSE ETCHEVERRY is an associate professor at York University and the Co-Chair of Sustainable Energy Initiative (SEI) and Business and Environment Coordinator. His work is focused on developing practical policy solutions to climate change through collaborative efforts. He is particularly interested in strategies to develop all renewable energy sources to their full potential and in finding new ways to communicate effectively about solutions to climate change and energy problems. [rejose@123mail.org](mailto:rejose@123mail.org)

STEFAN FERRIS is a recent graduate in the Master's degree program in Environmental Studies at York University. He is interested in advancing climate change solutions, sustainable development, and social justice in the global south. His research focuses on analyzing and improving public policies, strategies, and international collaboration initiatives that aim to promote the adoption of renewable energy technologies, discourage the use of fossil fuels, and/or foster energy efficiency and conservation. [stefan.ferris@gmail.com](mailto:stefan.ferris@gmail.com)

DANA CRAIG est bibliothécaire de liaison en études de l'environnement à l'Université York. Elle s'intéresse à l'accès à l'information comme question de droit humain. Elle enseigne des cours en Information Literacy et encourage la publication responsable dans le milieu universitaire. De plus, elle s'intéresse à l'intégration de compétences critiques en recherche au sein du programme. [dcraig@yorku.ca](mailto:dcraig@yorku.ca)

JOSE ETCHEVERRY est professeur agrégé à l'Université York où il co-préside la Sustainable Energy Initiative (SEI) et est Business and Environment Coordinator. Ses travaux portent sur le développement par des efforts collaboratifs de politiques et solutions pratiques en changement climatique. Il s'intéresse particulièrement aux stratégies de développement de sources d'énergies renouvelables à leur plein potentiel et à la recherche de nouvelles manières de communiquer efficacement les solutions relatives au changement climatique et aux problèmes énergétiques. [rejose@123mail.org](mailto:rejose@123mail.org)

STEFAN FERRIS a récemment reçu son diplôme de maîtrise en études environnementales à l'Université York. Il s'intéresse à la promotion de solutions en changement climatique, en développement durable et en justice sociale dans les pays de l'hémisphère sud. Ses recherches portent sur l'analyse et l'amélioration des politiques et stratégies publiques. Il s'intéresse également aux initiatives de collaboration internationale visant à promouvoir l'adoption de technologies énergétiques renouvelables, à décourager l'utilisation d'énergies fossiles et/ou favoriser l'efficacité et la conservation énergétique. [stefan.ferris@gmail.com](mailto:stefan.ferris@gmail.com)