GLOBAL HEALTH INEQUITY

Researchers, teachers and students at the Centre for International Health push back the curtain to address the lopsided nature of global health

by Paul Fraumeni

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Climate control

Jing Chen

Canada’s role as a signatory to the Kyoto Protocol raises a lot of questions for Jing Chen. How much carbon can we store and how effective will it be in helping Canada meet its Kyoto target? How can we measure and report on Canada’s carbon emissions? The geography professor and Canada Research Chair in Ecosystem-Atmospheric Interactions is finding answers by quantifying Canada’s carbon sink — the plants and soil that absorb carbon from the atmosphere.

“Limiting greenhouse gas emissions is key to estimating how much carbon can be absorbed by the land,” says Chen. With more than five million square kilometres of forest in Canada, measuring our carbon sink is an enormous task. For many years, this measurement has been done by reading data from 29 micrometeorological towers installed across the country. Chen and his students have developed an upscaling method: “We use the data from the towers and calibrate our model with satellite remote sensing imagery,” he says. “The result is the most accurate and comprehensive estimation of Canada’s carbon sink available — a detailed picture of where carbon is being absorbed and released.”

Chen’s research is used by the federal government as a reference for its environmental reporting requirements and in environmental policy development. As Chen says, “the research has a direct effect on how Canada is dealing with climate change and is helping us find answers to address some of the questions climate change raises.”
Goodbye, middle-income neighbourhoods
DAVID HULCHANTSI

Social work professor and housing expert David Hulchanski and his research team at U of T’s Cities Centre (formerly the Centre for Urban & Community Studies) are looking at the world up a different way of viewing Toronto in 2007 when the centre released a report called The Three Cities within Toronto Income polarization among Toronto’s neighbourhoods, 1970-2000.

The Toronto Star and the Globe & Mail created special sections based on the elabo-rate maps Hulchanski’s team had drawn to indicate how the number of middle-income neighbourhoods had decreased over 30 years, only to be replaced by a growing number of low-income areas mainly — and surprisingly — in the city’s inner suburbs.

“People now have a much better idea of what is happening in this city in terms of the widening income gap and neighbourhood polarization by income and ethnicity,” says Hulchanski, who adds that similar changes are happening in large Canadian cities like Vancouver and Montreal.

“Our goal was to illustrate how change over several decades in social and economic policies, and the economy in general, had played out on the ground. We ourselves were shocked at what we saw. I can still remember our data analyst bringing out a map and saying, ‘Look at this!’ The number of the city’s middle-income neighbourhoods had declined from 66 per cent in the early 1970s to 29 per cent in 2001. You always expect some ups and downs, but to have that kind of consistent decrease was amazing.”

Hulchanski credits a five-year grant from the Social Sciences and Humanities Research Council with enabling the researchers to delve deeply into the analysis. The multidisciplinary nature of the team from the Cities Centre and partnering with St. Christopher House, a Toronto social service agency, were also instrumental in providing a rich research perspective.

What’s the next step? “Do something about this. Research by itself doesn’t make for social change, but this is the kind of information policy makers can use to make urban living more affordable for more citizens.”

In fact, Hulchanski can already see positive social innovation happening to counter the trend that we identified. It’s a very positive way to ease the problem. “Yes, parents must monitor use of the Internet. But we have to do more than that — the key is to learn how to identify the signs of cyber bullying and the kids being victimized by it. This is where research comes into play.”

And a network approach is vital. “Parents, the police, teachers, lawmakers, and child protection and health agencies must get together to devise systematic, formalized approaches to helping kids with this problem.”

FAye Mishna

Kids who bully find a way. They pound you in the school yard, or a group of girls whisper and giggle while looking at you. And now, there’s the new method: they’ll get to you over the Internet.

“Don’t wave it away — this is real. U of T’s Faye Mishna conducted a survey in 2008 among 2,186 Toronto students and found that 50% had been bullied over the Internet.

The abuser has become so social that the Canadian Teachers Federation wants cyber bullying added to the list of offences in the criminal code.

Mishna is the Margaret and Wallace McCain Family Chair in Child and Family at the Factor-Inwentash Faculty of Social Work. A specialist in children’s mental health and both a clinician and academic for 30 years, she is one of the go-to experts on how bullies ply their trade using the Internet. Resources like Kids HelpLine regularly seek out her expertise.

She defines bullying as “intentionally and repetitively hurting someone and causing distress through the use of power.” With cyber bullying it’s even worse — the Internet enables the threat to be sent everywhere, so the repetition is greater.”

How to ease the problem? “Yes, parents must monitor use of the Internet. But we have to do more than that — the key is to learn how to identify the signs of cyber bullying and the kids being victimized by it. This is where research comes into play.”

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What is social innovation? PROFESSOR R. PAUL YOUNG

What do you think of when you hear the words “social innovation?”

Most of us think of improving technology — new information technolo-gy devices, for example, or taking medicine to the next levels by developing drugs and vaccines or inventing stunning rehabilitation techniques.

If we can develop improved engineering methods to create bio-friendly fuel, why can’t we shorten wait times for medical procedures? If we can speed up the Internet, why can’t we figure out a way to prevent online bullying? If we can develop joints that help buildings withstand earthquakes, why can’t we help policy makers and urban planners design mixed housing projects that blur income distinctions?

In fact, we can. And we are.

“Social innovation” is an emerging term that, broadly defined, involves solving a social problem or improving the way we live.

As we move into the 21st century, we cannot continue to live in the same old way. We need to think outside the box — to invent, to create — to make the world a better place.

And, as this special issue of Edge showcases, there’s no shortage of scholars contributing to social innovation at the University of Toronto. We have devoted this entire issue to stories about faculty who are harnessing research to change the way we think and act, maybe even the way we innovate society itself.

We are proud to be home to so many innovators of all sorts at U of T. Our researchers are literally working to make the world a better place.

I hope you enjoy this issue.

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VC President, Research

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CONSIDER THESE FACTS ABOUT HEALTH IN THE DEVELOPING WORLD:

- Diarrheal diseases such as cholera, dysentery and typhoid fever claim the lives of about two million children annually, virtually all of them from developing nations.
- One mother dies every minute from a child birth-related incident.
- Malaria kills 3,000 people a day, more than 1 million a year, most of them children and most of them in sub-Saharan Africa.
- 33.2 million people are living with HIV/AIDS around the world; 22.5 million are in sub-Saharan Africa.
- Almost 50 percent of the developing world’s population — 2.5 billion people — lack improved sanitation facilities, and over 884 million people still use unsafe drinking water sources.

Sources: Pharmaceutical Research and Manufacturers of America, UNAIDS, Unicef

David Zakus founded the Centre for International Health (CIH) in 2000 for a number of reasons. He reasoned that he could give students from a variety of disciplines a frontlines education light years removed from how they would learn in Toronto. He could foster research, again from all corners of the university, from anthropologists and sociologists to health specialists on the front lines treating people and feel the determinants of health.

Today, the CIH has grown to host a multifaceted program that combines the student experience with research facilitated and funded by the CIH. The third party researchers and researchers providing countries like Namibia and Cambodia with service; “so they can use the research and what we already know,” says Zakus.

“Our work provides education and research for our purposes as a university, but it also is used to serve the people of the countries we are working in.”

On the research side, that can mean studying the development of baseline data at the CIH’s Field Station Program in Cambodia, which the country’s Ministry of Health can then use in allocating resources to health issues like tuberculosis, diabetes, and malnutrition.

The service side can involve activities like students and alumni delivering water filters to Cambodia or fixing a local hospital’s water system, promoting safe sex practices in African countries and scaling up anti-retroviral treatment for AIDS, or U of T’s psychiatry leaders assisting Addis Ababa University in further developing its own department of psychiatry and neuroscience program.

The student component also includes a valuable research experience.

• “There is huge value in conducting your undergraduate and graduate research in the most vulnerable nations on the planet. We send about 25 medical students every year to do research and practice electives (with generous funding from the Medical Alumni Association). We give many students their first opportunities to research and it’s population-based, so it means they are getting into the communities and interacting with people. They are walking through the mud and into homes in Africa and Cambodia to talk about maternal health, HIV and diarrhea treatment for kids. They see and feel the determinants of health.”

• And it is not only medical students. “I am contacted almost once a day by students wanting to get into global health. They are from across the university — medicine, social work, anthropology, political science, law, engineering, public health, dentistry, pharmacy, even architecture.”

The Centre’s sophisticated research program is just as multidisciplinary, including scholars from throughout U of T, who are partially funded, supported and promoted through the CIH.

These scholars include renowned researchers like Stanley Zlotkin, the inventor of Supplefer Sprinkles, a tasteless, inexpensive powder that can be added to any food to help eliminate childhood iron deficiency anemia, and anthropologist Richard Lee, whose work in Namibia studying HIV mushroomed into the Centre’s expensive HIV Africa program. But the program has also included a student research group from the Joseph L. Rotman School of Management that studied the development of corporate and foundation partners to support the HIV/AIDs initiative.

Zakus’ own roots in the field stem from his youth, when he was horrified by seeing malnourished children on television, suffering from a bitter civil war in Nigeria. “It’s strange to think that I had my beginning with that war and here I am today, 40-plus years later, working in Nigeria. And it is still an area having huge difficulty.”

But he brightens when he expresses the impact he hopes the CIH can make.

“Our contribution is to those who are vulnerable, who have very little attention on the world stage and who are very much suffering. We want to be a U of T response to that, a Canadian response and an individual response from our own hearts and souls to these issues and problems.”

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Helping women faced with a tough decision

KELLY METCALFE

It's a decision no woman wants to face: should I have my breasts removed to prevent breast cancer? Thankfully, Kelly Metcalfe has a way to help women navigate their way to an answer.

As a nurse and researcher focused on breast cancer prevention, Metcalfe counsels women after they have been identified as having a BRCA1 or BRCA2 mutation. A woman identified as having a mutation in one of these genes is at about an 87 per cent risk of developing breast cancer. The challenge then becomes how to help these women decrease or eliminate that chance of getting breast cancer.

"Suddenly, these women are told they have a very high risk of developing breast cancer, however, there are options to prevent it, such as removing their breasts," she says. But not every woman around the world has that option to talk to someone like Metcalfe about making these tough and emotional decisions — they are often left to make them alone.

That got Metcalfe thinking about developing a tool to help women — wherever they might be in the world.

Together with her team, Metcalfe created a decision aid to help at-risk women make cancer prevention decisions. A written guide, it helps women not only navigate their prevention options, but face some of the psychological effects of a particular option. "It's more than telling women about how much an option is going to reduce their risk. There's also those other things that go along with it, like 'what am I going to feel in terms of body image and how is this going to affect my sexual functioning?'

Ultimately, Metcalfe is hoping women using the decision aid will feel more knowledgeable and less distressed when making decisions about breast cancer prevention. "We want to know if we are influencing what a woman does, and if so, hopefully we are able to prevent them from getting breast cancer."
How does water move? This is the question that motivates geography professor Brian Branfireun at the University of Toronto Mississauga — but not just for its own sake. He’s interested in the transport and transformation of mercury in the environment.

Mercury is a natural element that exists in forms that aren’t particularly toxic. It’s only when it goes through a series of chemical transformations that it becomes what’s called methyl mercury, which is the kind that bioaccumulates in fish and acts as a central nervous system toxin in humans.

The question is how — and where — this transformation happens.

“We have to figure out how and where water is moving first,” he says. “But we also know that mercury doesn’t move as water moves. It is conveyed by water but it can also be delayed through a whole range of biological and chemical interactions.”

Branfireun is deeply committed to the public health outcomes of his scientific work, and hopes to influence public policy. The lives of humans and animals depend on it, he says.

“We can choose to fish. If people go to the cottage and fish for pickerel, they can choose to eat that fish. But an otter has to eat a fish. A loon has to eat a fish. Similarly, people who live in the Canadian north don’t really have a choice. They have traditional access to food that is aquatic.

“T try to place my work in the context of vulnerable communities, both animal and human. I’m motivated by both ecosystem integrity and human exposure.” — Brian Branfireun
Pop quiz: which sector in the Canadian economy has a million full-time employees and contributes seven per cent of the gross domestic product?

If you guessed the auto sector, you weren’t far off — though the cars contribute slightly more at about 12 per cent of the nation’s wealth.

Try the non-profit sector, which is but one part of what Jack Quarter and Laurie Mook call the nation’s “social economy.” Quarter, who with Mook, co-directs the Social Economy Centre at the Ontario Institute for Studies in Education of the University of Toronto, says the social economy is a “bridging concept for organizations that have a social mission but at the same time create some economic value through the services they provide.” Think non-profits, cooperatives, community organizations and some socially-minded businesses. From the theatre company that puts on the play you saw last night to your kid’s Scout troop, the social economy is everywhere.

There’s been a lot of public hand-wringing lately about the potentially-disastrous consequences of letting the auto sector die. But what about this sometimes-invisible sector? “Imagine if the social economy suddenly wasn’t there,” says Mook. “What if all the recreation, health, leisure and arts organizations disappeared? They’re an integral part of our lives but they’re often marginalized or seen as separate.”

Mook and Quarter aim to change the way society values the social economy. To this end, they’re overseeing 35 research projects, funded through a five-year Social Sciences and Humanities Research Council strategic grant of $1.75 million. In addition, they have developed an open source software called Volunteers Count to assist community organizations in developing social accounting statements that include volunteer contributions.

“In 2003 Canadians contributed two billion hours of volunteering through non-profit organizations,” says Quarter. Their research showed that most organizations were keeping track of volunteer contributions manually, so they set out to develop an application that estimates comparable market value for volunteer labour and generates social accounting reports.

A lot of what the Centre does is to prod us to rethink how we assign value in our society. Mook is an expert in the field of social accounting. In conventional accounting, she says, certain rules and norms are followed, but we never ask about the values that underlie those rules. “There are decisions made about what’s in and what’s out in a conventional accounting statement and that has implications. Conventional accounting statements are constructed around the notion of success as the maximization of profit and as such the accounting statement drives behaviour toward the maximization of profit.”

She gives the example of exploitation of the environment. In conventional accounting this is called an “externality” — it’s a side effect of doing business and it’s not generally reported on. But what if your definition of accountability required you to report on your company’s impact on the environment? Would that change whether you were “successful” in a given accounting period?

“Social economy organizations have a social mission, so it’s easy to see that conventional accounting doesn’t capture a lot about what an organization accomplishes,” she says. Software like Volunteers Count and other tools developed by the Centre are helping organizations rethink how they report on the value they add to society.

The Centre works with a host of community partners and is committed to providing concrete assistance to community groups and non-profits. Each research project is required to have a plan for dissemination to non-academic audiences and a series of workshops keeps researchers in contact with those who work in the field.

Mook and Quarter also hope the Centre’s research will change the way we think about the social economy. “This is a vast social infrastructure that we could not function without,” says Quarter. “This is the glue that keeps society together.”
Ayelet Shachar wants you to work a little harder. But it’s not just you — the legal scholar also has courts, governments and minority communities in her sights as she rethinks the way we organize some of the fundamental categories of society.

To wit: her new book about citizenship, called The Birthright Lottery.

“A child born this minute in Canada has all the protections, opportunities, rights and security that Canada provides,” she says. “At the same moment, a child born in Malawi has a very different set of opportunities because she happens to be born into a less prosperous country. Each child has no control over which country provides her rights and status. It really is a lottery.”

The idea of birthright was entrenched in feudal times, when birth on a certain territory would create a lifelong relationship between serf and lord. Shachar doesn’t suggest abolishing citizenship based on birth, but points out that in all other aspects of life, we have abolished birthright as a meaningful criteria for membership in a group. “You wouldn’t assume that someone who was born to a lawyer would automatically become a lawyer.”

Yet birthright not only survives but thrives in the realm of citizenship. “The harsh reality on the ground,” Shachar explains, “is that most people alive today — indeed 97 per cent of the global population — are assigned citizenship by the lottery of birth and either choose or are forced to keep it that way.”

Her solution? Those who win the birthright lottery pay a “global levy” for their good fortune in a way that brings some of their advantages to those who don’t fare so well in the lottery. “If I could design this, I would say that every kid who’s born in a well-off country would do a year or two of service in a poorer place. We should have a sense of how lucky we are, and the best way to do this is to see how other people are living.”

Getting us all to work a little harder is an enduring theme for Shachar, who’s also an expert on multiculturalism. Her previous book, Multicultural Jurisdictions, grappled with how much recognition states should grant religious communities while simultaneously protecting the rights of women within those communities.

For example, she studied a case of a Jewish couple who were granted a civil divorce. As part of the settlement, the husband promised to go through the religious process of releasing his wife, something that was required for her and her children to remain in good standing within their religious community. When he failed to do that, the Supreme Court granted her the right to sue for damages.

“How do you divide the responsibility between the state and the religious community over an individual who belongs to both?” she asks. Many people suggest that all the power be granted to the state. But this isn’t satisfactory, she says, because the result is often a dilemma for women who might find themselves still married according to the norms of their religious communities.

In response, she tried to find legal mechanisms for cooperation between states and religious communities. “The idea,” she says, “is that both need to work harder to protect women.” She developed what she calls a joint governance regime: the state is left in control of things like property and custody but the religious community is granted the ability to define whether a person is released from barriers to remarriage according to their faith. But the last word in this legal arrangement is reserved for the women themselves. If they are treated unfairly by either the state or the religious group, they retain the right to turn to the competing jurisdiction. “In this way,” she says, “both entities are forced to work harder to earn a woman’s trust.”

Canadian courts and tribunals have taken note of her innovative solutions and she has consulted with foreign governments. Shachar is delighted by the interest in her work. “I want to impact the world. I care about theory but I care about the world as well. I believe that fresh ideas are the core offerings that scholars can proffer. We need to do our fair share.”

Birthright lottery
Ayelet Shachar rethinks citizenship. by Jenny Hall
most of us take software for granted. It comes preinstalled on our computers, or we download it with a few clicks. But what goes on behind the scenes to create the software we rely on for work and play?

When new software is being developed, it’s a team effort — at any given time an individual developer is working on only a small piece of the overall project. Development teams rely on web-based portals to keep them organized and on track: who’s working on which bits of code, when things are due, what’s being said to clients, and so on.

But what if you could call the emergency ward and be told how long you would have to wait to be treated? And what if your name could then be put on a waiting list, guaranteeing you a spot?

Greg Wilson, founder of the Centre for Research in Healthcare Engineering, has an impressive 18-year record of success. He has predicted Ontario demand for hip and knee replacement surgeries, modeled the impact of colorectal cancer screening and reduced EMS ambulance delays in Toronto.

Does he have a secret formula? “We scrounge around to find useful statistics, such as historical data on people who use the emergency, staffing levels throughout the hospital and how many major trauma cases come in. From all that, we create predictability models. Health care policy is typically made without quantitative support because they don’t have the models. But we’ve proven that combining mathematical models based on real statistics and clinical experience can improve health care service.”

Your E.R. reservation is ready

Mike Carter is engineering better access to health care.

Mike Carter prepares students for work life

You twisted your ankle at four in the afternoon. Now it’s midnight and the ankle is twice its normal size. You know you should go to the hospital emergency, but you also have a good idea that you’ll have to wait… and wait… and…

But what if you could call the emergency ward and be told how long you would have to wait to be treated? And what if your name could then be put on a waiting list, guaranteeing you a spot?

Industrial engineering professor Mike Carter thinks this is entirely possible.

He and master’s student Pamela Chan (above, left) are working with Dr. Tom Chan (above, right), Medical Director and Chief, Emergency and Urgent Care at The Scarborough Hospital in Toronto on this very possibility. “It’s never been done before anywhere. But it’s not tricky. You just need to have the right statistical information. Right now, emergency staff are generally reluctant to say much about wait time. They may tell you your wait will be at least three hours. It’s more difficult to say it’s going to be between three and four hours. But we’re close to having models that narrow the gap.”

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The software doctor is in

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When computer science professor Greg Wilson began teaching at U of T, he came with industry experience that he had exposed him to these sorts of portals. But he noticed they weren’t being used in classrooms — and he thought they should be.

“By a stroke of luck I found some off-the-shelf products that are intended to support the development of software on the scale of something like Firefox,” he says. “But they’re just too big for classroom use. They have features students don’t need and features that get in the way of a novice trying to learn the basics.”

So Wilson took the closest thing he could find to what he wanted and had his students turn it into a classroom-friendly portal called DrProject. Wilson calls it a “simple-to-learn, simple-to-install introductory tool” that integrates project management with features like mailing lists, shared calendars and wikis that keep track of things like design ideas and meeting minutes.

It’s a stripped down version of the sorts of development portals students will encounter when they enter the world of work. He hopes this jump-start will help them make the transition to the bigger portals used inside companies or on large open-source projects.

“These kinds of tools can take quite a while to learn your way around, but it’s going to be easier if you’ve got the concepts internalized.”

It isn’t just students who are benefiting from DrProject. Wilson developed the software under an open source license and it’s being used by small companies in the Greater Toronto Area, other educational institutions and the Belgian Space Agency.
Jordan Manners. Jane Creba. These high-profile victims of crime are symbolic of the rise of gang violence in Toronto and other Canadian cities, and the number of government commissions and inquiries created to understand the problem. Scot Wortley has become a fixture on these commissions, offering insight and analysis honed over a decade studying patterns of youth crime and victimization, gang involvement and criminal activity.

Together with co-investigator Julian Tanner of the Department of Sociology, Wortley, a professor at the Centre of Criminology, developed one of the first studies in Canada that conducted detailed interviews with gang members, speaking to more than 300 of them on a range of issues, from why they first became involved in gangs to why violence erupted within the gang context.

Around the time those interviews were nearing completion, the Jordan Manners shooting took place at C.W. Jeffreys Collegiate in Toronto’s Jane-Finch corridor, immediately leading to the creation of two different commissions of inquiry to examine what governments and school boards should be doing to prevent violence both inside and outside schools. Wortley was asked to be the research coordinator for both commissions.

“The Manners case caused a moral panic in terms of violence because it happened within a school,” he says. “But most of the violence in these disadvantaged neighbourhoods takes place outside of the school and therefore gets a lot less attention.” Regardless, Wortley says, his approach on these two commissions was not only to document the extent and nature of the violence, but to review the international program evaluation literature to find out what community programs are working and which aren’t. “In the Canadian context, there is very little high quality evaluation of crime prevention strategies, not to mention policing, law enforcement and sentencing strategies,” he says. “It’s only through better evaluations that we can find out how to spend taxpayer money wisely. We want to find funding for those programs that are working and stop funding programs that are not meeting their objectives.”

This past fall, U of T and the City of Toronto were awarded a $5 million grant from Public Safety Canada to operate and evaluate a gang intervention program in the Jane-Finch corridor. The evaluation team, led by Wortley, will examine the effectiveness of this new project over a three year period. The evaluation strategy has a broader aim. “We not only want to uncover whether this program helps youth refrain from criminal activities and exit the gang lifestyle. We also want to determine if the program has an impact on youth mental health, educational and employment opportunities and a number of other quality of life outcomes,” Wortley says. 

Wortley says that research shows that, in the long run, early prevention is more effective than specific, short-term law enforcement strategies. “If they don’t address the root causes of youth violence, narrow law enforcement approaches are doomed to failure. We are not going to arrest our way out of this problem.” Nonetheless, Wortley notes: “It seems that every time there is a high profile shooting that allegedly involves gang members, there is a multi-million dollar government investment in special police guns and gangs units. Unfortunately, the long-term impact of these dedicated enforcement initiatives are rarely evaluated. By contrast, once we were approached by the City of Toronto to evaluate this gang intervention program, we jumped at the opportunity. It is an important project and we hope to find some promising results that could lead to significant reductions in youth violence within the GTA.”

**Violence prevention**

Scot Wortley tackles the gang problem by Anjali Baichwal
In the winter of 1969, The Varsity — one of U of T’s student newspapers — ran an article that would give birth to the Canadian environmental movement. Pollution: Is there a future for our generation?, written by student Sherry Brydson, discussed possible fluoride poisoning in Dunnville, Ontario, and elicited hundreds of letters to the paper, with students up in arms about the potential harm to the environment. Activism was the name of the game during that time and students were eager to get behind this cause that threatened their very health and future.

The outcry led to the establishment of Pollution Probe — a student-run organization determined to get the environment and the effects of pollution onto the public agenda. Zoology department chair Donald Chant had been researching natural alternatives to pesticides when he was approached by students to help lobby for a cleaner environment. “I was delighted because I thought the issue of air pollution was an important one and here young people were prepared to take action,” he said.

It was a passionate drive to personalize the issues that was Pollution Probe’s trademark. From ads and inquiries to a funeral for Toronto’s Don River, the students’ commitment to the environmental cause motivated Pollution Probe to push the envelope.

Pollution Probe has matured over the years. A registered charity, it is no longer involved in the activist eco-theatre of the past. Today it co-operates with government and the private sector to find workable solutions to urgent environmental issues.

The birth of a movement

Pollution Probe got Canada thinking about the environment

by Anjali Baichwal (with files from U of T Magazine)