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TROTTIER ISPP
INSTITUTE FOR SCIENCE AND PUBLIC POLICY
INSTITUT POUR LA SCIENCE ET LES POLITIQUES PUBLIQUES

# Inaugural Symposium on

# Science and Public Policy

**Friday, September 25, 2015, 15:00 – 18:00h**

**McGill University Faculty Club**

McGill

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**Reports from Trottier Fellows in Science and Public Policy:**

**Elena Bennett, Lea Berrang Ford, and Catherine Potvin**

**Proposed activities from the 'new' Trottier Fellows:**

**Jeff McKenzie, Tony Ricciardi and Nancy Ross**

**Round Table Discussion on**
**Issues in Science and Public Policy:**

**Elena Bennett, Lea Berrang Ford, Catherine Potvin,**
**Antonia Maioni and Nigel Roulet**

**Reception**

# Science and Public Policy

Setting the Agenda ✓

↓

Establishing Alternatives ✓

↓

Choosing an Alternative X

↓

Implementing a Decision X

Liberally adapted from Kingdon ‘Agendas, Alternatives and Public Policies’, Longman.

# Canadian Association of University Teachers Campaign: Get Science R!ght

# Reports from the Trottier Fellows:

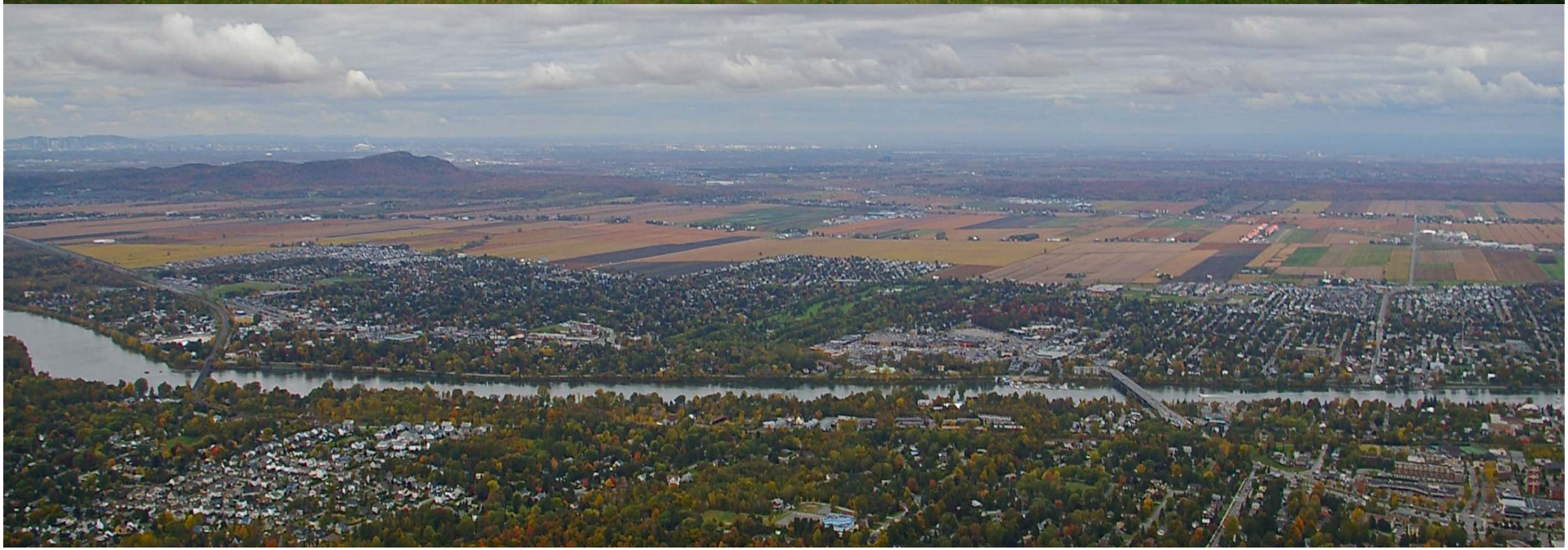
# Elena Bennett

**McGill School of Environment and**
**Department of Natural Resource Sciences**

# The Montérégie Connection

Elena M. Bennett

@ElenaBennett



**Goal:** Communities making proactive decisions to design a resilient, multi-functional landscape

**How:** Understand ecosystem services & how they are affected by landscape configuration

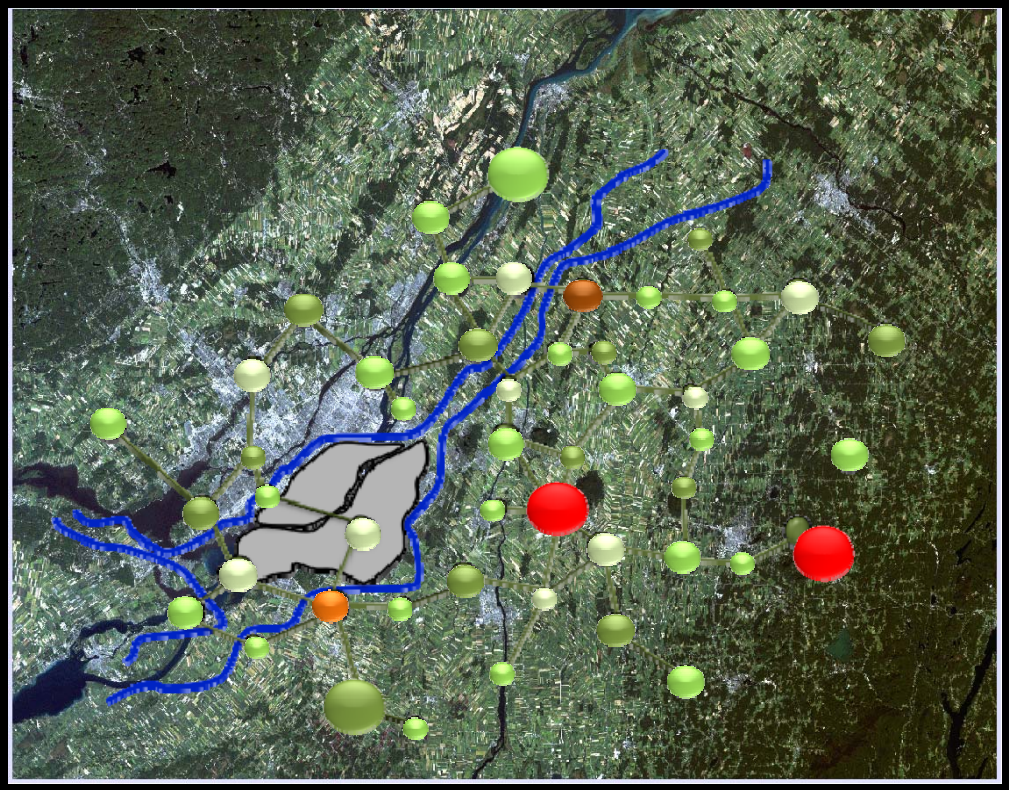
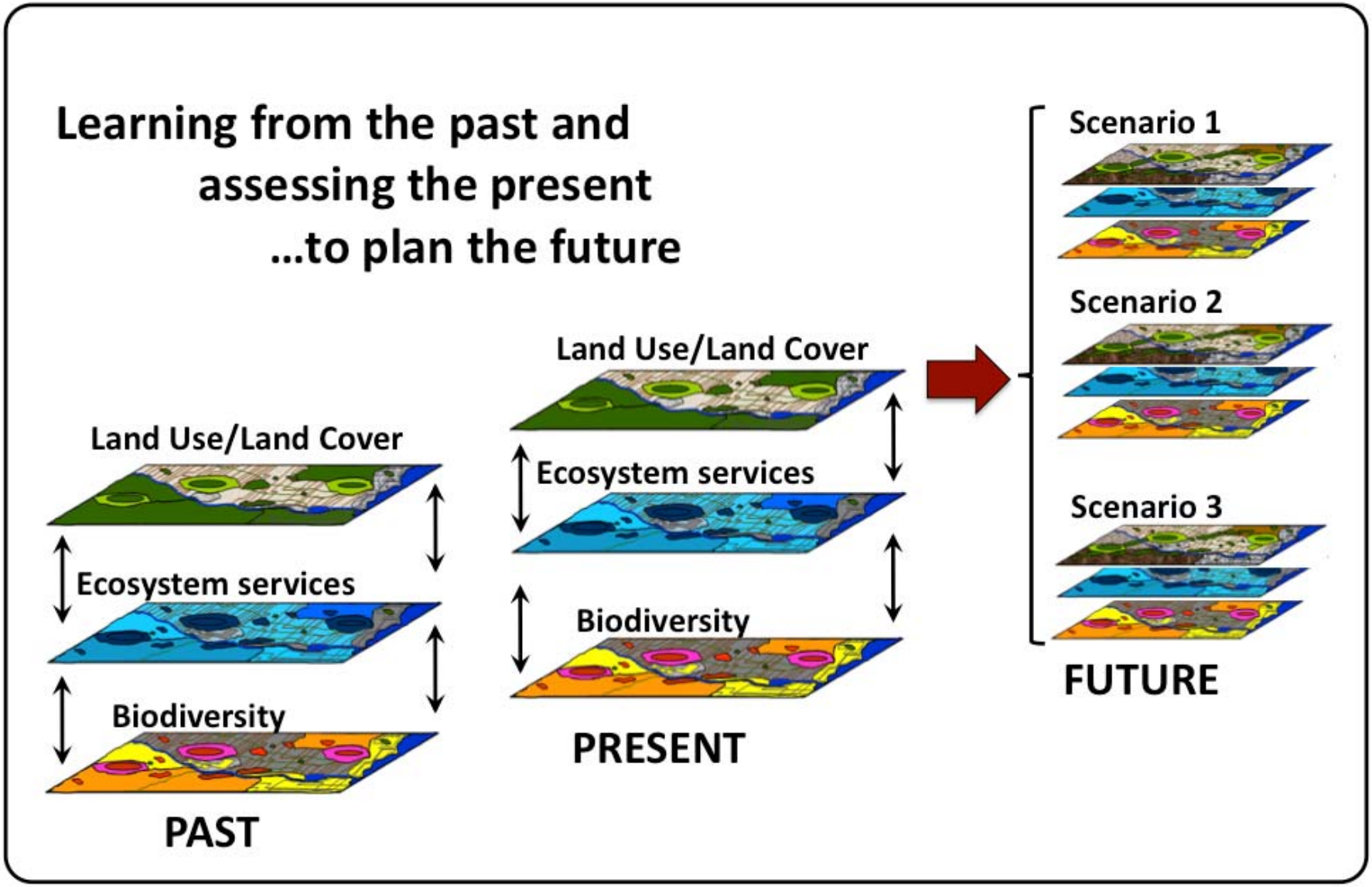
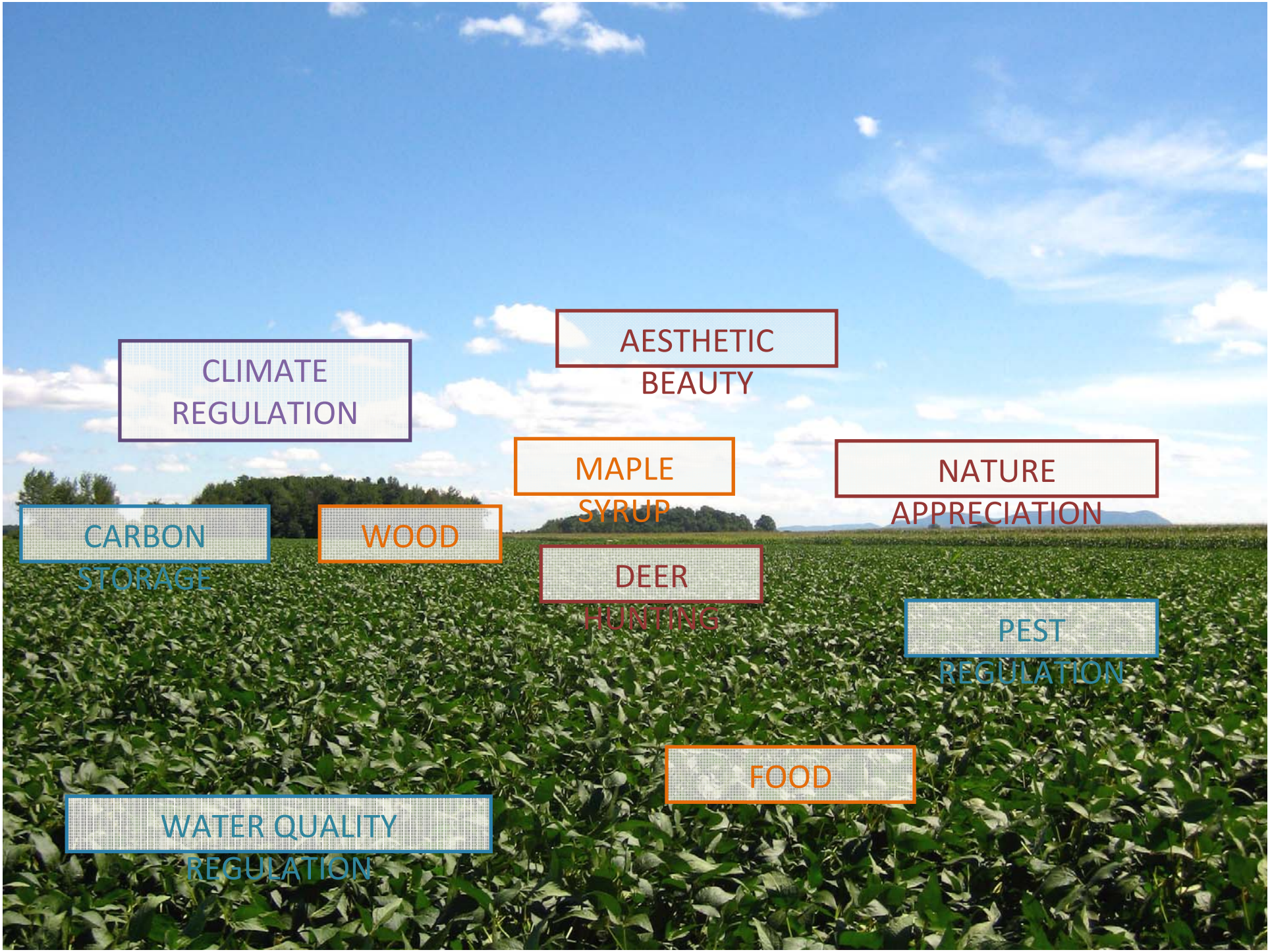
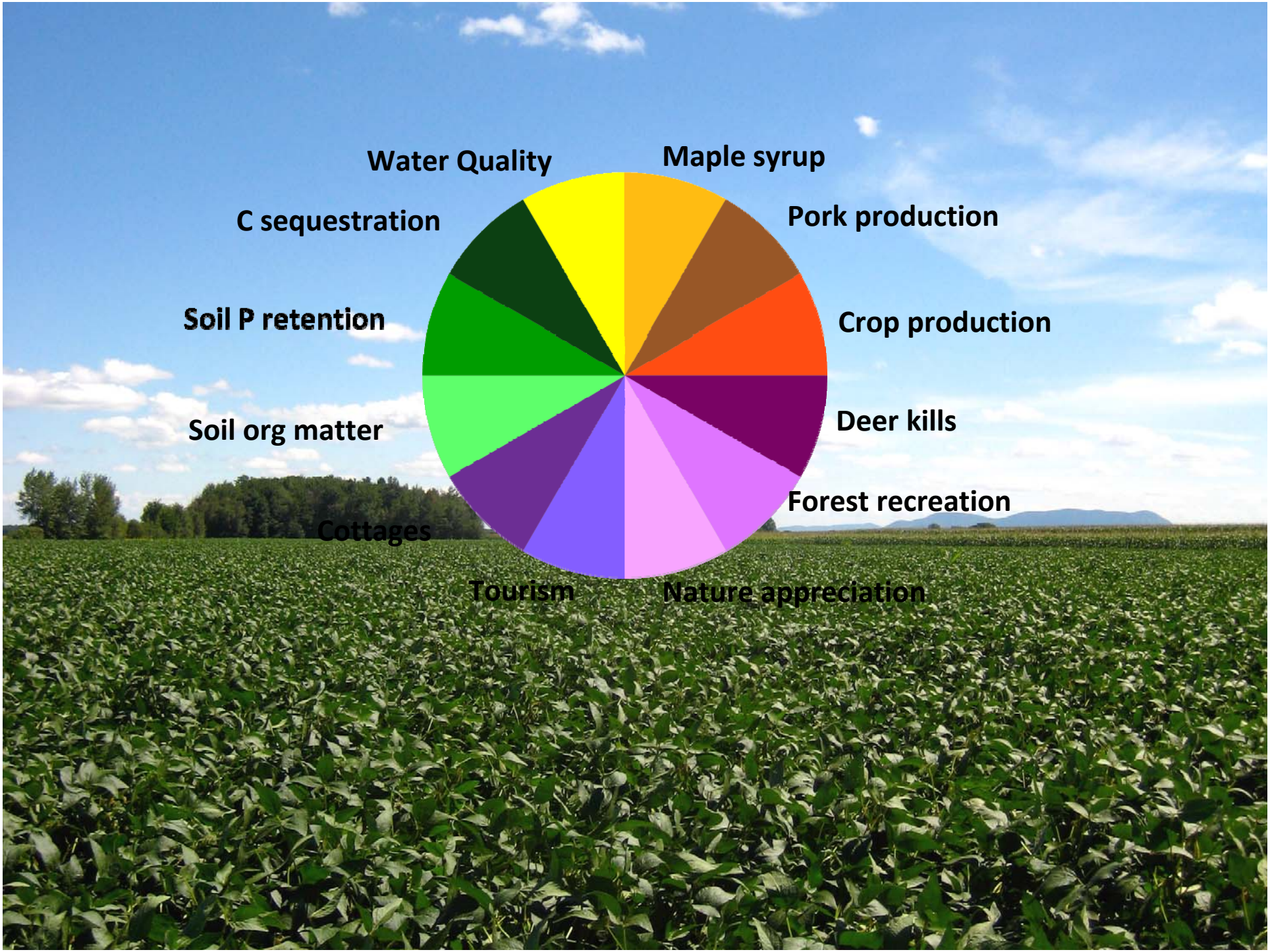


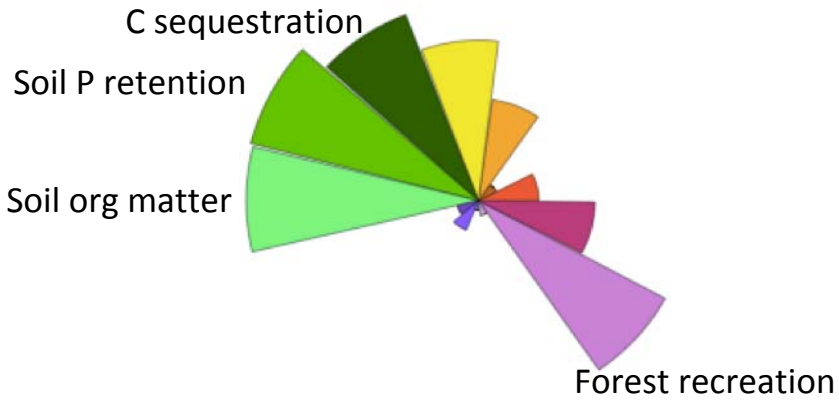
Image: Andy Gonzalez

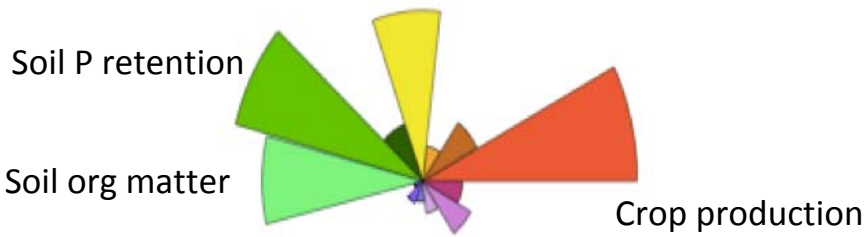
# Working with local stakeholders

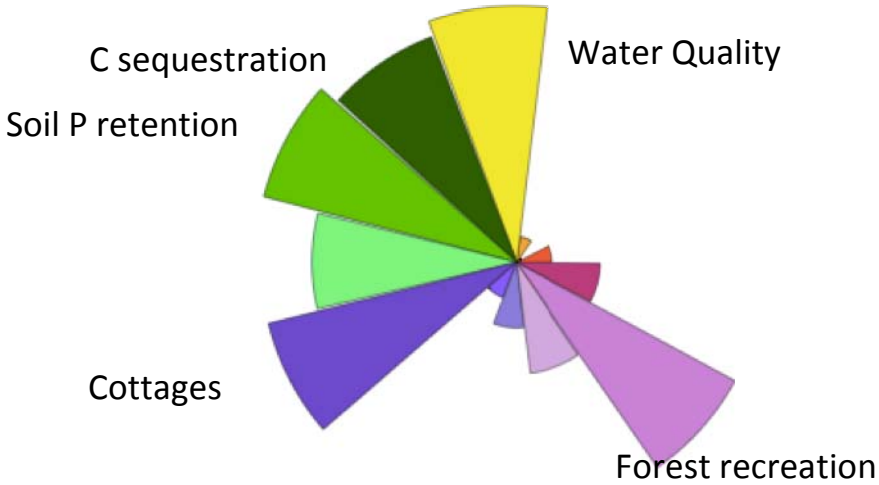

Learning from the past and
assessing the present
...to plan the future
Land Use/Land Cover
Ecosystem services
Biodiversity
PAST
Land Use/Land Cover
Ecosystem services
Biodiversity
PRESENT
Scenario 1
Scenario 2
Scenario 3
FUTURE

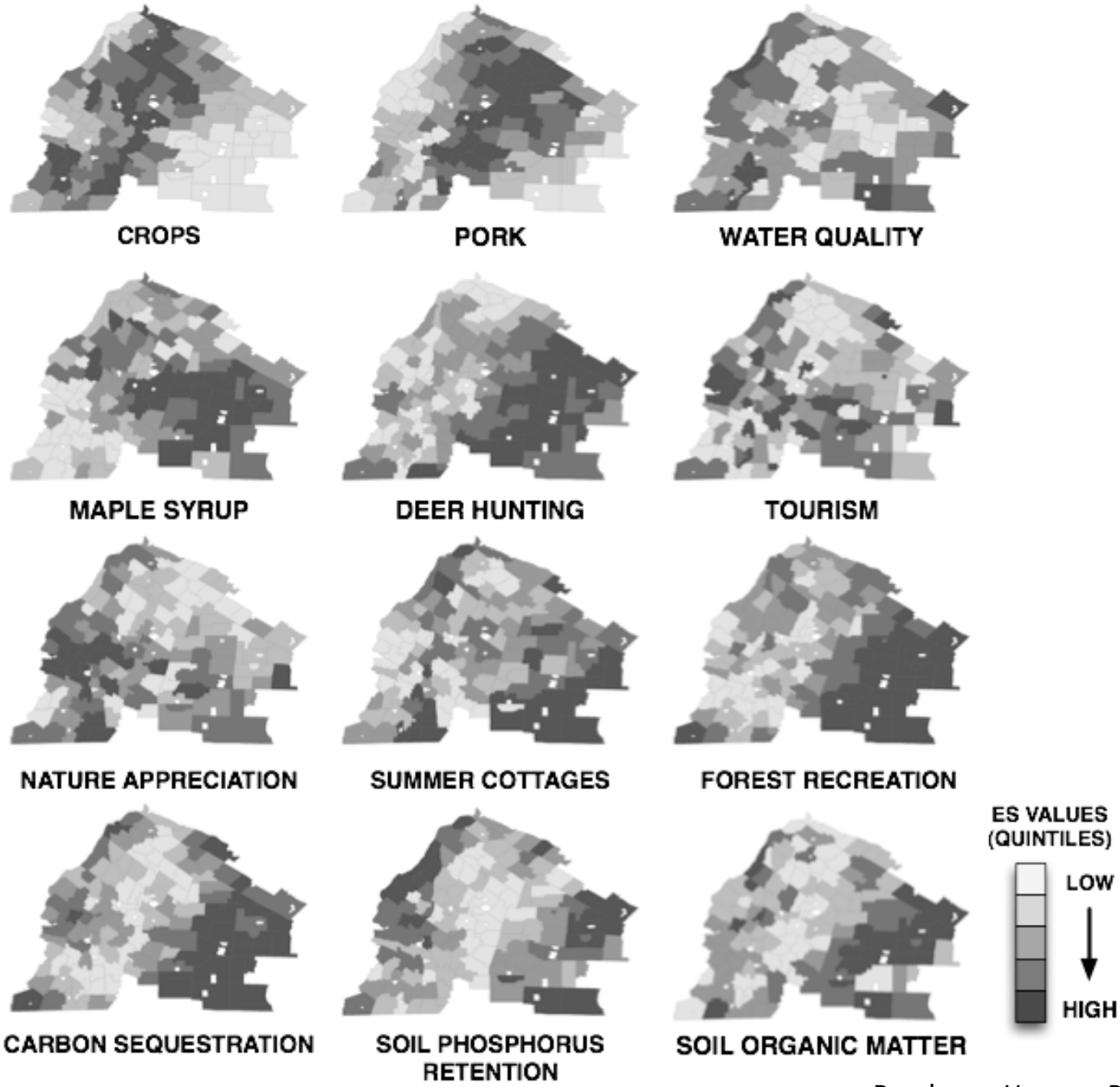

CLIMATE REGULATION
AESTHETIC BEAUTY
MAPLE SYRUP
NATURE APPRECIATION
CARBON STORAGE
WOOD
DEER HUNTING
PEST REGULATION
FOOD
WATER QUALITY REGULATION


Water Quality
Maple syrup
C sequestration
Pork production
Soil P retention
Crop production
Soil org matter
Deer kills
Forest recreation
Cottages
Tourism
Nature appreciation


C sequestration
Soil P retention
Soil org matter
Forest recreation

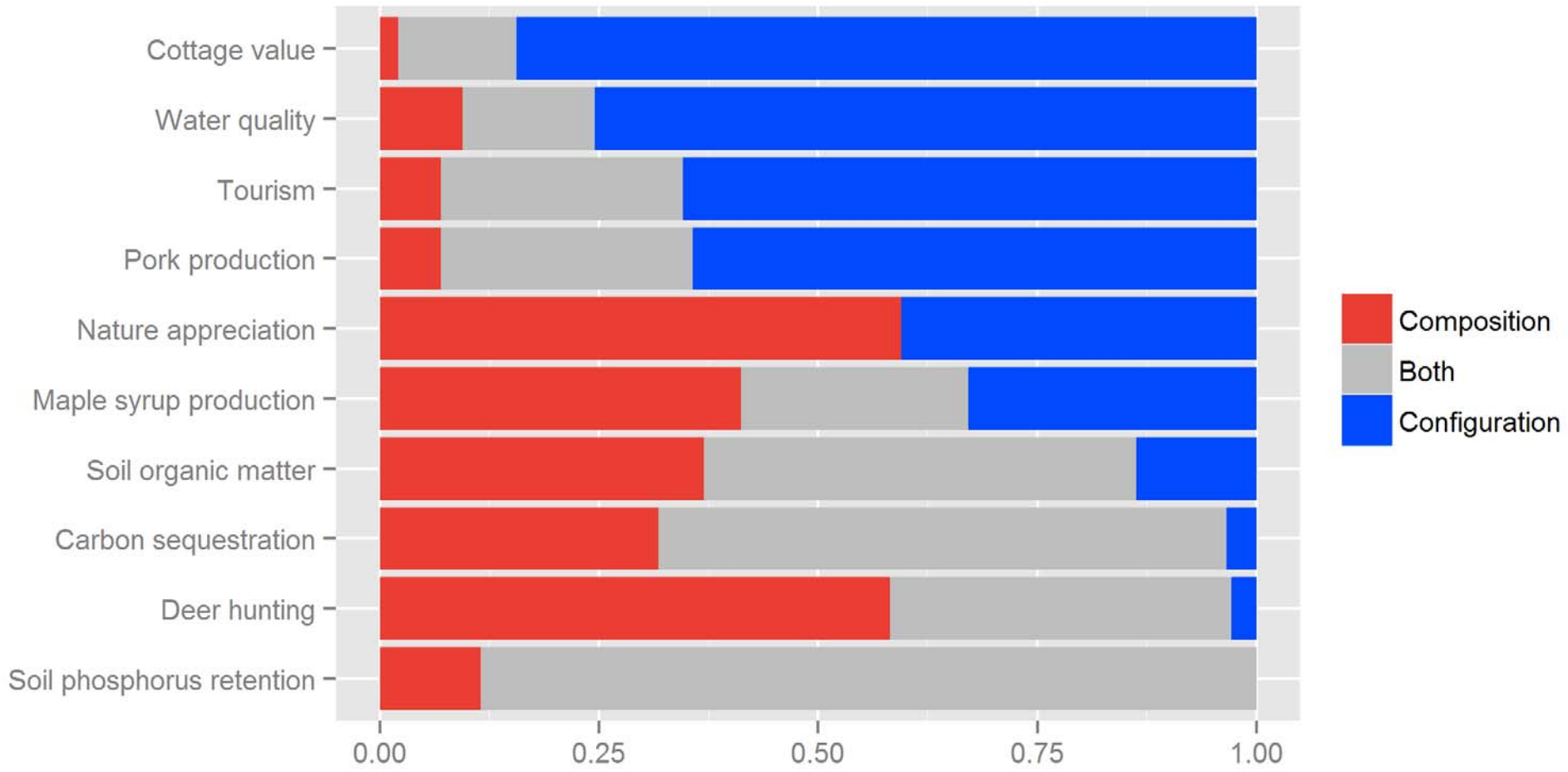

Soil P retention
Soil org matter
Crop production


C sequestration
Water Quality
Soil P retention
Cottages
Forest recreation




Raudsepp-Hearne, Peterson, Bennett 2010 PNAS

# The Role of Landscape Composition and Configuration



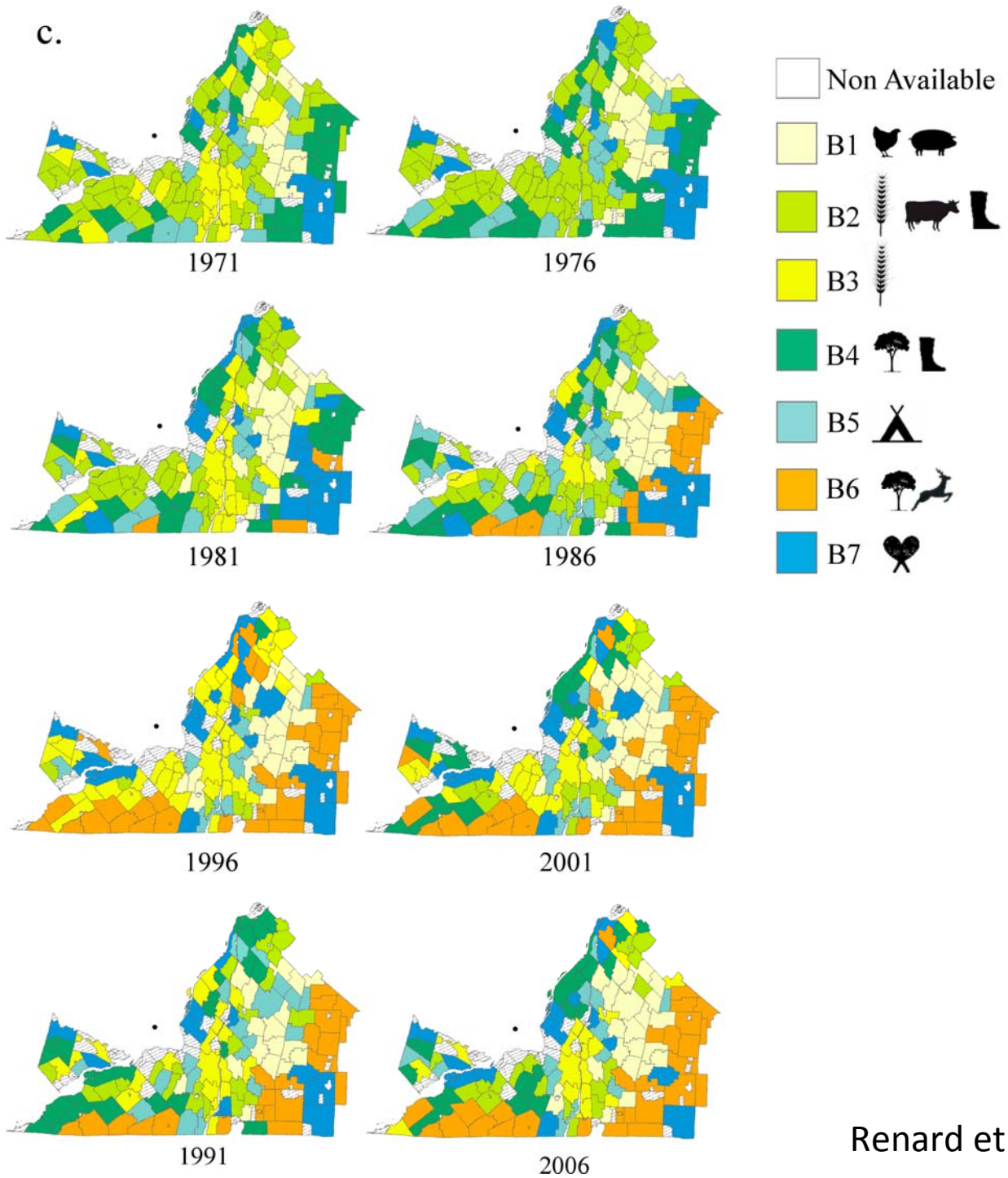

Lamy, Liss, Bennett, and Gonzalez. In review





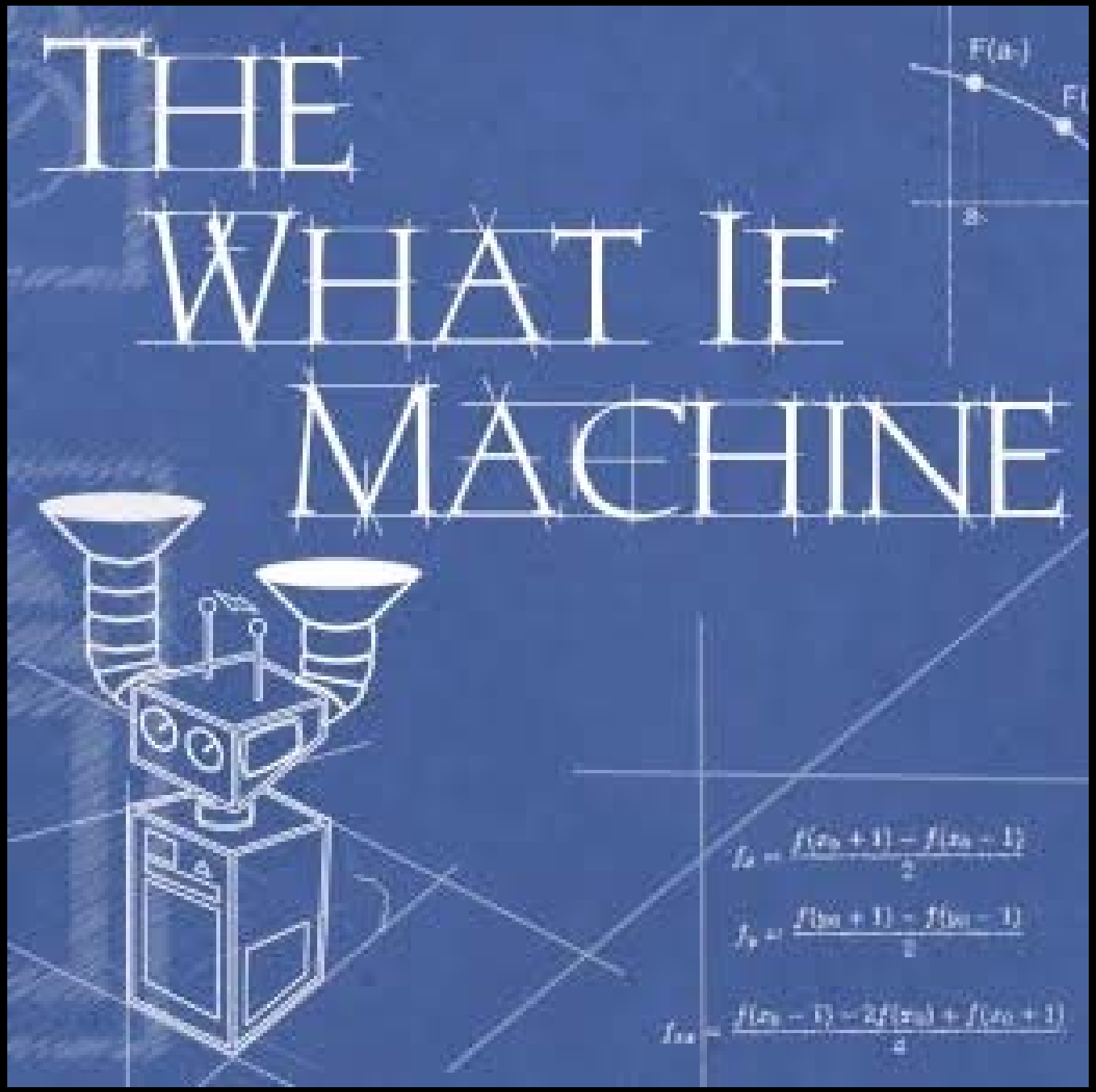





Renard et al. PNAS In Press

# The What If Machine




Scénario 1

# TROP, C'EST COMME PAS ASSEZ


Scénario 2

# LE PLEIN D'ÉNERGIE

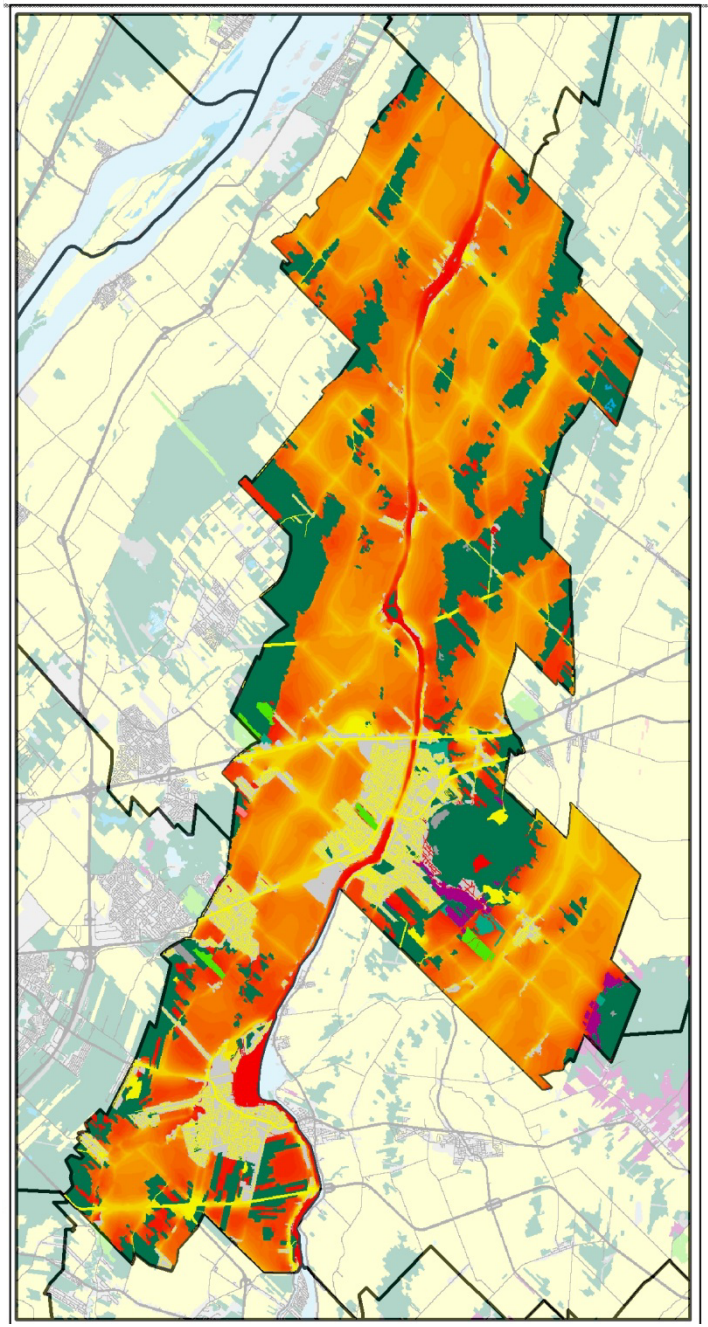

Scénario 3

# UNE VIE DE FRICHE


Scénario 4

# VIRER AU VERT

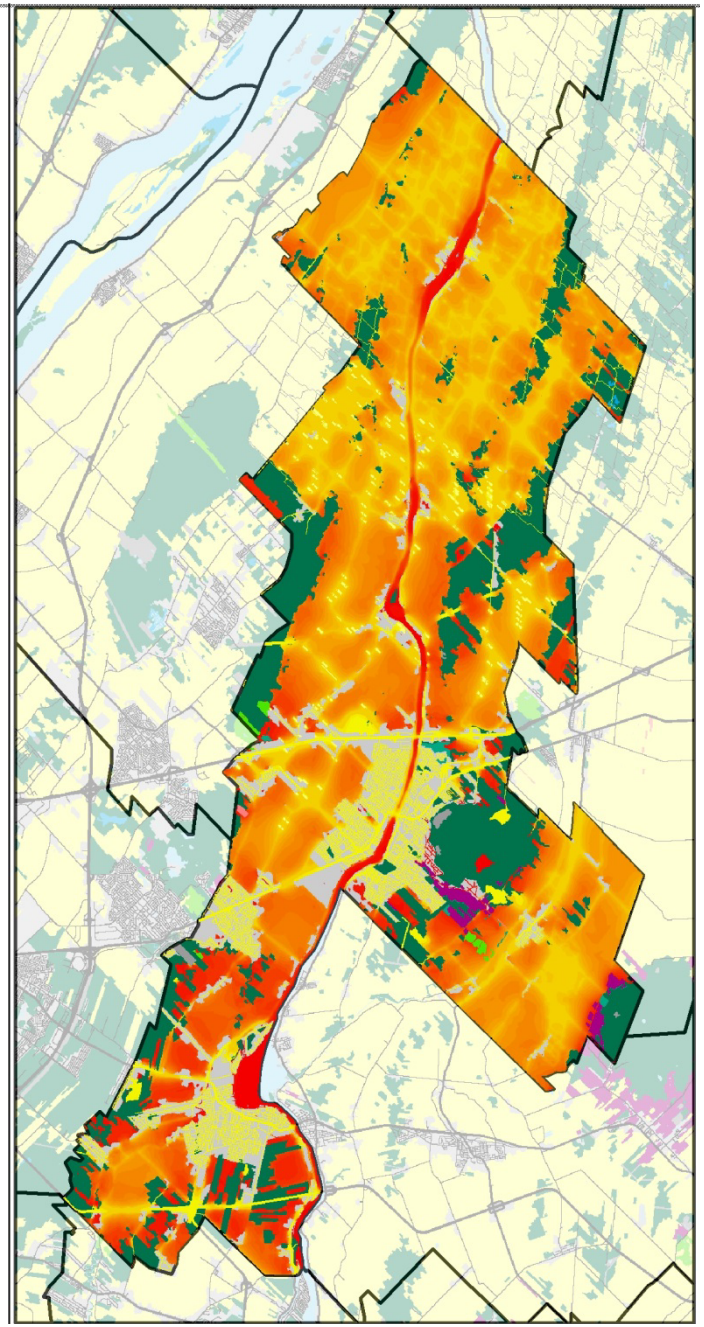
# Scénario 2 : Le plein d'énergie



Qualité esthétique

Aujourd'hui

Scénario 2



# Thank you!

## Partners:

Ville de Mont-Saint-Hilaire

Centre de la Nature Mont Saint-Hilaire

Développement durable, Environnement et Parcs Québec

M.R.C. de La Vallée-du-Richelieu

ÉEM Sustainable Management Gestion Durable

Centre de la science de la biodiversité du Québec / Quebec Centre for Biodiversity Science

Canada Foundation for Innovation
Fondation canadienne pour l'innovation

Max Bell Foundation

NSERC CRSNG

Trottier ISPP
Institute for Science and Public Policy
Institut pour la science et les politiques publiques

**Students**:

- Ciara Raudsepp-Hearne
- Matt Mitchell
- Kate Liss
- Martine Larouche
- Carly Ziter
- Dorothy Maguire
- Kyle Teixeira-Martins
- Bronwyn Rayfield
- Cecile Albert
- Delphine Renard
- Sylvestre Delmotte

**Collaborators**:

- Jeff Cardille
- Andy Gonzalez
- Martin Lechowicz
- Jeanine Rhemtulla
- Chris Ruddle

***Montérégie Farmers et Vergers*** - Yvan Savaria, Francois Brodeur, Lamoureux Noel, Cyrille Beaudreault, Marcel Viens, Louis-Alexandre Gurtin, Claire Lavoie, Ghyslain Lamontagne, Daniel Lussier, Genevieve Blain, Yves Bessette, Andre Palardy, Rosaire Bernard, Andre Jelbert

Au Pavillon de la Pomme, Verger Barber, Verger Boucher et Fils, Verger Gauvin, Verger Gingras, Verger Kessler, Verger MacLean, Verger Messier, Verger Riquita, Verger St-Paul

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# Reports from the Trottier Fellows:


## Lea Berrang Ford

### Department of Geography


ENVIRONMENTAL INDICATORS FOR PUBLIC HEALTH POLICY

# ADAPTATION TRACKING

Dr Lea Berrang Ford
2013-15 TISPP Fellow

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# CLIMATE CHANGE & HEALTH



TRAC3 Tracking Research in Adaptation to Climate Change Consortium

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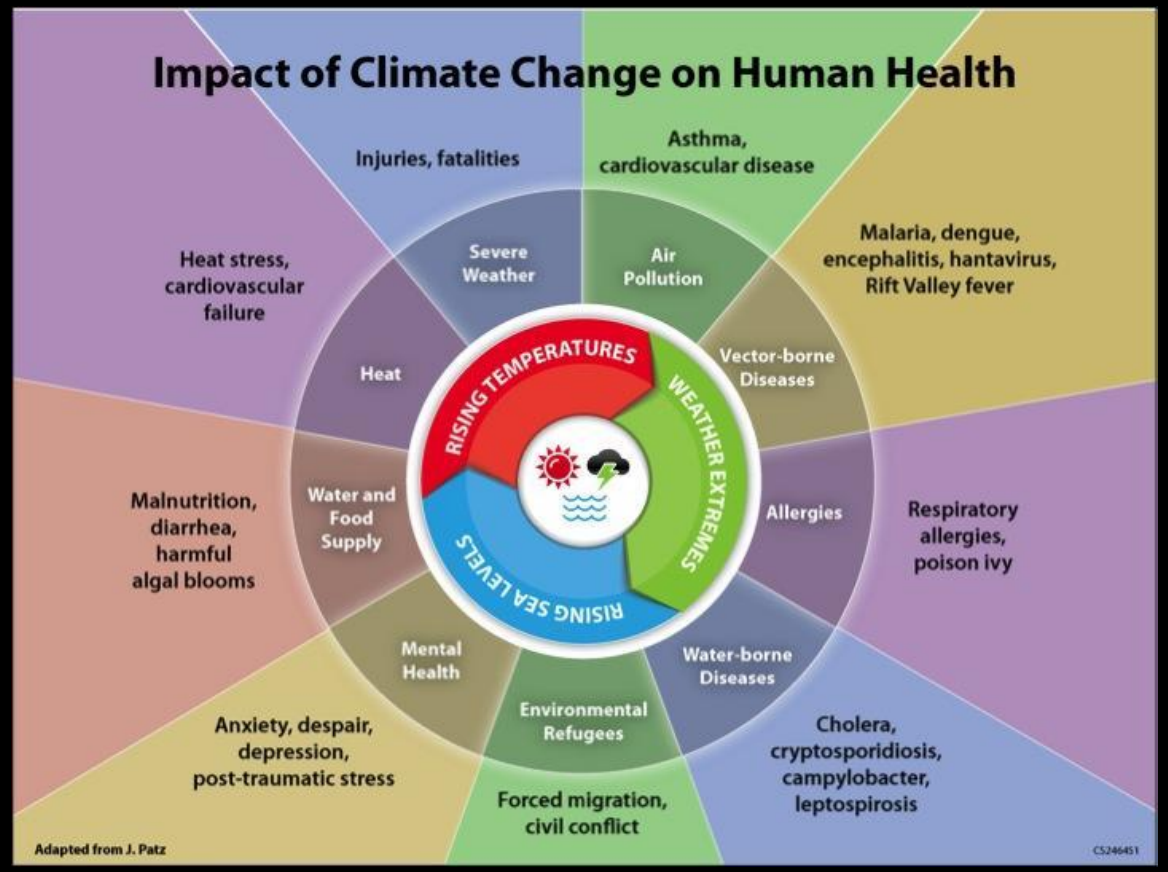
# CLIMATE CHANGE & HEALTH




*https://toolkit.climate.gov/image/505*

Climate change is the greatest challenge (2009) and opportunity (2015) to health this century

Costello, Lancet

TRAC3 Tracking Research in Adaptation to Climate Change Consortium

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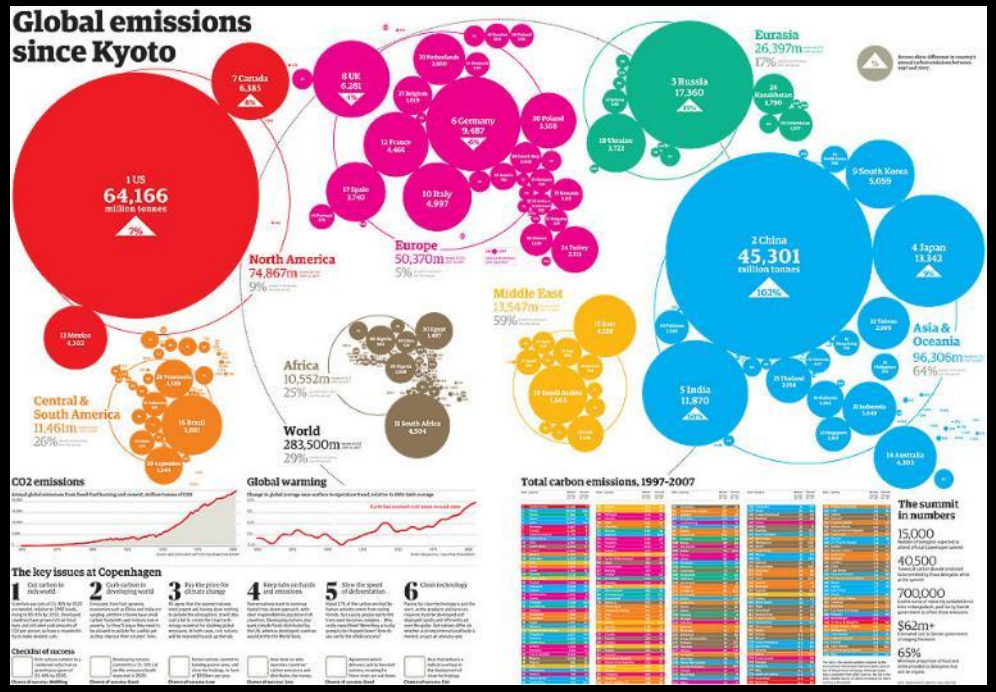
# THE CHALLENGE FOR PUBLIC HEALTH: ADAPTATION

- Are we adapting to climate change?
- What does adaptation 'look' like?
- Can we track adaptation?




TRAC³ Tracking Research in Adaptation to Climate Change Consortium

TROTTIER ISPP INSTITUTE FOR SCIENCE AND PUBLIC POLICY INSTITUT POUR LA SCIENCE ET LES POLITIQUES PUBLIQUES

# TRAC3

www.trac3.ca


2014

Launch of TRAC3: Tracking Adaptation to Climate Change Consortium

- ✓ McGill University (Canada)
- ✓ Wageningen University (Netherlands)
- ✓ 3 pillars

1. Adaptation metrics
   Lea Berrang Ford
2. Case-studies
   James Ford
3. Policy theory
   Robbert Biesbroeck

McGill

TRAC3 Tracking Research in Adaptation to Climate Change Consortium

# TRAC3 PUBLICATIONS

Global Environmental Change 21 (2011) 25–33
Contents lists available at ScienceDirect
Global Environmental Change
journal homepage: www.elsevier.com/locate/gloenvcha

Are we adapting to climate change?

Lea Berrang-Ford *, James D. Ford [1], Jaclyn Paterson
Dept. Of Geography, McGill University, Montreal H3A2K6, Canada

Contents lists available at SciVerse ScienceDirect
Global Environmental Change
journal homepage: www.elsevier.com/locate/gloenvcha

National-level factors affecting planned, public adaptation to health impacts of climate change

A.C. Lesnikowski [a,1,*], J.D. Ford [a], L. Berrang-Ford [a], M. Barrera [b], P. Berry [c], J. Henderson [d], S.J. Heymann [b,1,2]

COMMENTARY: NATURE CLIMATE CHANGE | VOL 5 | NOVEMBER 2015 |

Adaptation tracking for a post-2015 climate agreement

J.D. Ford, L. Berrang-Ford, R. Biesbroek, M. Araos, S. Austin and A. Lesnikowski

PUBLIC HEALTH 127 (2013) 403–409
Available online at www.sciencedirect.com
Public Health
journal homepage: www.elsevier.com/puhe

Original Research

Civil society organizations and adaptation to the health effects of climate change in Canada

C. Poutiainen [a,*], L. Berrang-Ford [a], J. Ford [a], J. Heymann [b]

Climatic Change (2014) 124:441–450
DOI 10.1007/s10584-014-1078-3

LETTER

What drives national adaptation? A global assessment

Lea Berrang-Ford · James D. Ford · Alexandra Lesnikowski · Carolyn Poutiainen · Magda Barrera · S. Jody Heymann

Mitig Adapt Strateg Glob Change (2015) 20:277–293
DOI 10.1007/s11027-013-9491-x

ORIGINAL ARTICLE

How are we adapting to climate change? A global assessment

Alexandra C. Lesnikowski · James D. Ford · Lea Berrang-Ford · Magda Barrera · Jody Heymann

Paterson et al. BMC Public Health 2012, 12:452
http://www.biomedcentral.com/1471-2458/12/452
BMC Public Health

RESEARCH ARTICLE Open Access

Adaptation to climate change in the Ontario public health sector

Jaclyn A Paterson[1*], James D Ford[1], Lea Berrang Ford[1], Alexandra Lesnikowski[1], Peter Berry[2], Jim Henderson[3] and Jody Heymann[4]

Reg Environ Change
DOI 10.1007/s10113-014-0708-7

REVIEW ARTICLE

Systematic review approaches for climate change adaptation research

Lea Berrang-Ford · Tristan Pearce · James D. Ford

IOP Publishing
Environmental Research Letters
Environ. Res. Lett. 6 (2011) 044009 (9pp)
doi:10.1088/1748-9326/6/4/044009

Adapting to health impacts of climate change: a study of UNFCCC Annex I parties

A C Lesnikowski[1], J D Ford[1], L Berrang-Ford[1], J A Paterson[1], M Barrera[2] and S J Heymann[2]

Mitig Adapt Strateg Glob Change
DOI 10.1007/s11027-014-9627-7

The 4Cs of adaptation tracking: consistency, comparability, comprehensiveness, coherency

James D. Ford · Lea Berrang-Ford

# TRAC3

www.trac3.ca


## TRAC3 Launches!

TRAC3 was launched in 2014 to link a growing network of researchers working to advance approaches to tracking progress on adaptation to impacts of climate change. Our goal is to explore the conceptual dimensions of adaptation tracking, develop innovative methods for measuring adaptation progress across scales, and develop our understanding of what drives adaptation leaders.

Alex Lesnikowski
Adaptation metrics

Mya Sherman
Adaptation in developing regions

Jolène Labbé
Arctic M&E

Malcolm Araos-Egan
Urban adaptation

Stephanie Austin
Health Adaptation

Malanie Flynn
Arctic M&E

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Tracking Research in Adaptation to Climate Change Consortium

# ADAPTATION IN THE CANADIAN PUBLIC HEALTH SECTOR

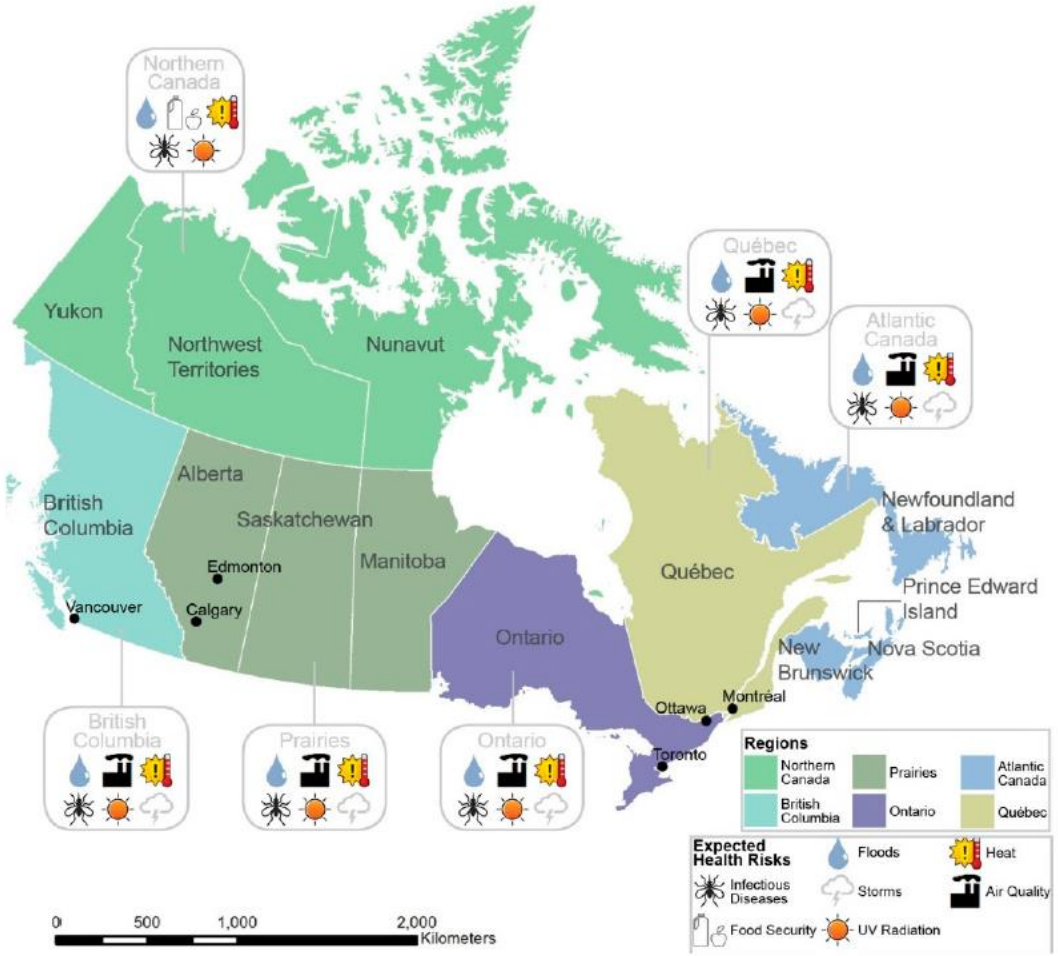


**Figure 1.** Expected health risks posed by climate change by region.

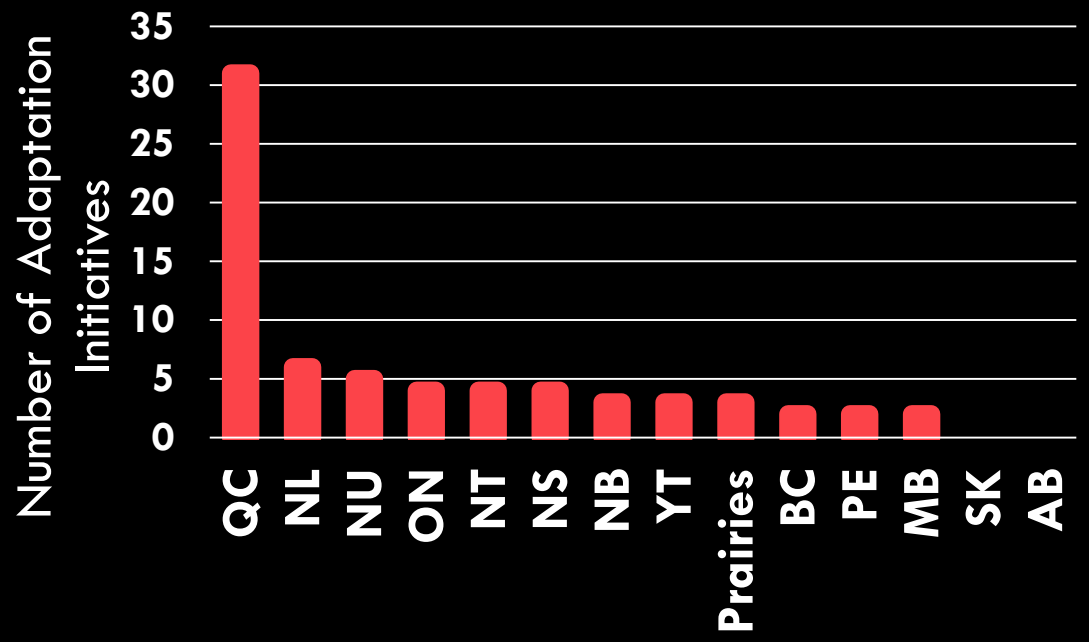


**Table 4.** Adaptation plans and initiatives in Canada's largest municipalities.

| Municipality | Adaptation Plan Available | Health Adaptation Initiative(s) Reported |
|---|---|---|
| Calgary, AB | - | - |
| Edmonton, AB | - | √ |
| Montreal, QC | - | √ |
| Ottawa, ON | - | √ |
| Toronto, ON | √ | √ |
| Vancouver, BC | √ | √ |

Austin et al.

# LOCAL PUBLIC HEALTH ADAPTATION NEEDS


Paterson et al. BMC Public Health 2012, 12:452
http://www.biomedcentral.com/1471-2458/12/452

BMC Public Health

RESEARCH ARTICLE Open Access

Adaptation to climate change in the Ontario public health sector

Jaclyn A Paterson[1*], James D Ford[1], Lea Berrang Ford[1], Alexandra Lesnikowski[1], Peter Berry[2], Jim Henderson[3] and Jody Heymann[4]

*With climate change, heat could be the big threat given our ageing population. I am concerned about knowing where vulnerable groups are and if they have social support. I am unsure if the vulnerable groups will be taken care of and of the adequacy of the current system to ensure appropriate responses to these peoples' needs to be assessed (Municipal public health official)*

*There is no way of monitoring the success of our extreme weather program. We need an evaluation strategy - every year we question the validity of this. Nowadays, you have to have research-based evidence of effectiveness and climate related extreme events (Municipal public health official)*

worldpolicycenter.org/topics/environment/policies

Most Visited | Getting Started | Suggested Sites | Web Slice Gallery

WORLD

Search rights, laws, policies, publications and resources...

# Environment

Climate change links all countries and humans on the planet as few other issues do. The effects of human activity on climate in one country impact social, economic, and environmental systems far beyond its borders. Rising temperatures and extreme weather events, accelerated sea level rise, shifts in plant and animal ranges, and spread of heat-related diseases are already having significant effects and are predicted to worsen in the future.

The WORLD Policy Analysis Center and McGill University's Climate Change and Adaptation Research Group have developed a globally comparative, quantitatively comparable database on climate adaptation policies worldwide. Our findings about adaptation to risks, actions taken by countries in different adaptation areas, and the inclusion of people with varying needs in planning and implementation are displayed on the maps in this section.

Share

Policies | Methods | Global Agreements

Global Adaptation Index

- Education
- Health
- Adult labor and working conditions
- Child labor
- Poverty
- Equal rights and discrimination

## Climate adaptation

How much progress have countries made on adaptation to the risk of extreme temperatures?

VIEW POLICY ›

Increased precipitation

How much progress have countries made on climate adaptation to the risk of changes in precipitation?

VIEW POLICY ›

Risk of erosion or landslides

How much progress have countries made on climate adaptation to the risk of extreme weather events?

VIEW POLICY ›

# DRIVERS OF ADAPTATION

Climatic Change (2014) 124:441–450
DOI 10.1007/s10584-014-1078-3

LETTER

## What drives national adaptation? A global assessment

Lea Berrang-Ford · James D. Ford ·
Alexandra Lesnikowski · Carolyn Poutiainen ·
Magda Barrera · S. Jody Heymann

Funding for adaptation may be ineffective in countries with poor governance.

# TRAC3

Policy partners:

- Public Health Agency of Canada (PHAC)
- Health Canada (HC)
- International Development Research Centre (IDRC) of Canada

# TRAC3

TRAC3 Tracking Research in Adaptation to Climate Change Consortium

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2015 UNFCCC COP 21 (Paris) Side Event

2015 Workshop: Second generation Global Adaptation Index (AI 2.0)

*Attending:*

OURANOS

ADB ASIAN DEVELOPMENT BANK

WORLD RESOURCES INSTITUTE

UCLA FIELDING SCHOOL OF PUBLIC HEALTH WORLD POLICY ANALYSIS CENTER

ND-GAIN NOTRE DAME GLOBAL ADAPTATION INDEX

MAKERERE UNIVERSITY We Build for the Future

IISD International Institute for Sustainable Development

iied International Institute for Environment and Development

WAGENINGEN UR For quality of life

# ADAPTATION TRACKING

www.trac3.ca

Dr Lea Berrang Ford
2013-15 TISPP Fellow

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# Reports from the Trottier Fellows:


## Catherine Potvin

### Department of Biology

# ACTING ON CLIMATE CHANGE

## Solutions from Canadian Scholars

Sustainable Canada Dialogues

United Nations Educational, Scientific and Cultural Organization

UNESCO Chair for Dialogues on Sustainability

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Réseau Environnement

Association francophone pour le savoir
Acfas

# The Climate regime

FCCC

1992

FCCC
Enter into force

1994

Kyoto

1997

Kyoto
Enter into force

2005

**MONTRÉAL**

*Copenhague*

2009

**Paris-Climate**

**2015**

@dialoguescanada @dialogsustainab

Montréal 2005
Sustainable Canada Dialogues

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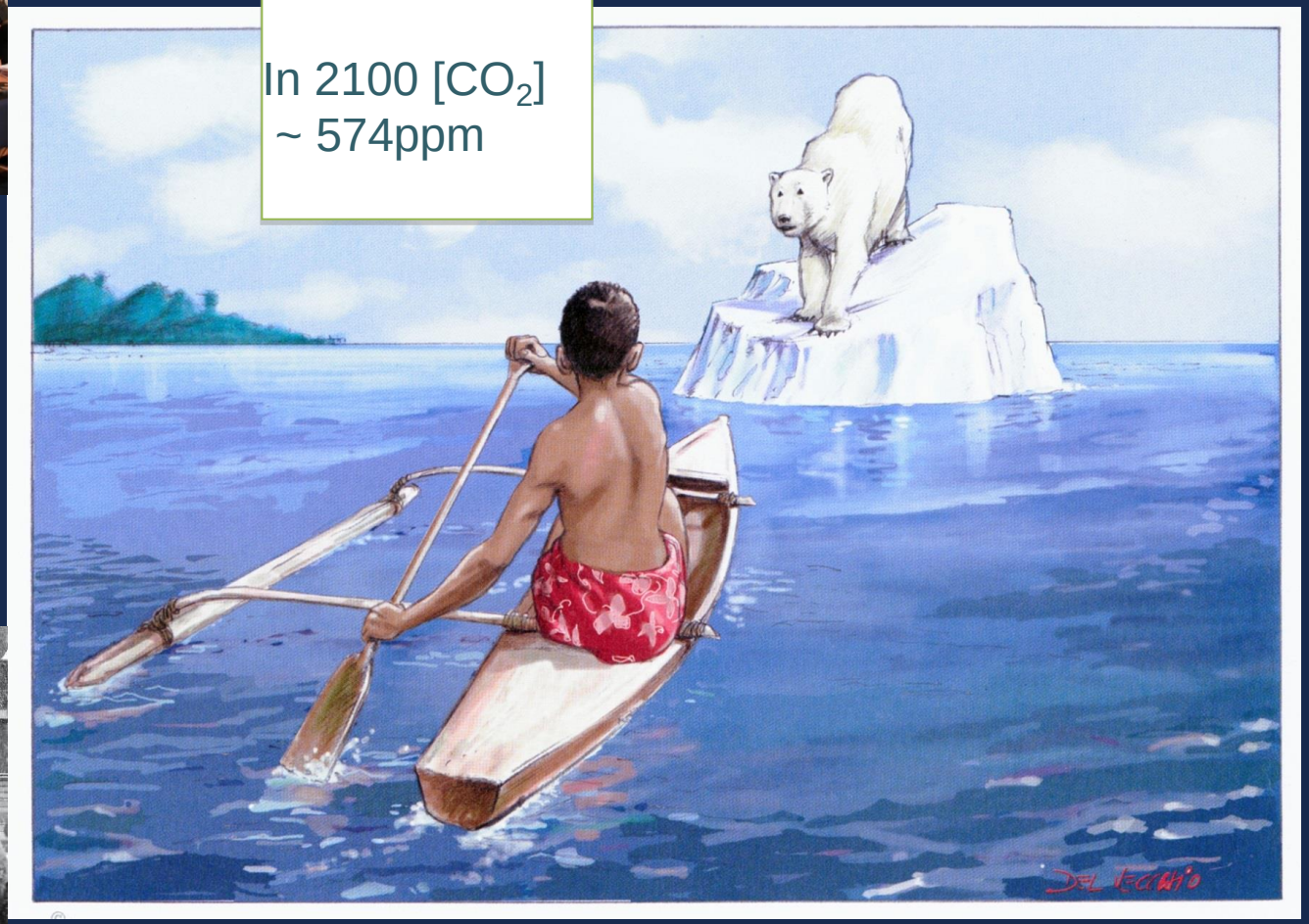
In 2100 [$CO_2$]
~ 574ppm



@dialoguescanada @dialogsustainab

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Sustainable
Canada
Dialogues

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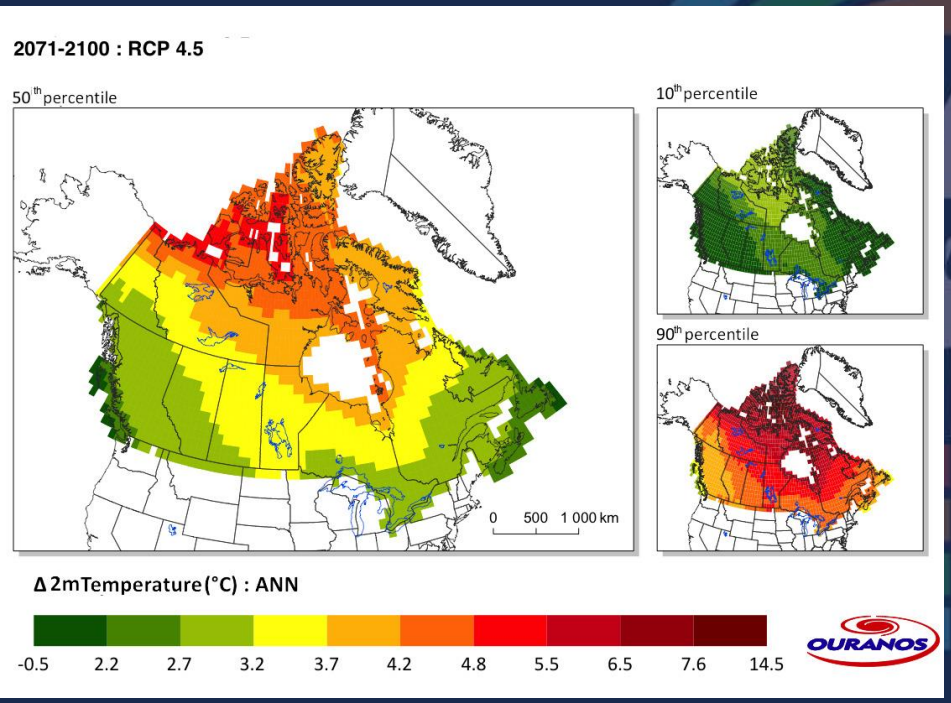
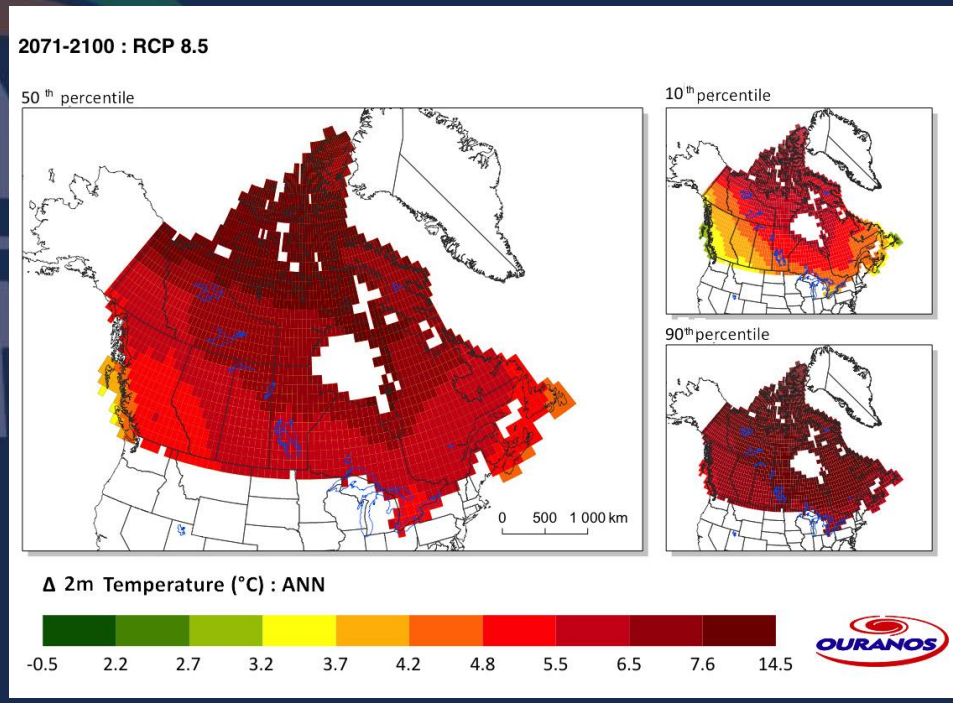
# Climate change scenarios over the next 100 years according to IPCC scenarios

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Sustainable Canada Dialogues

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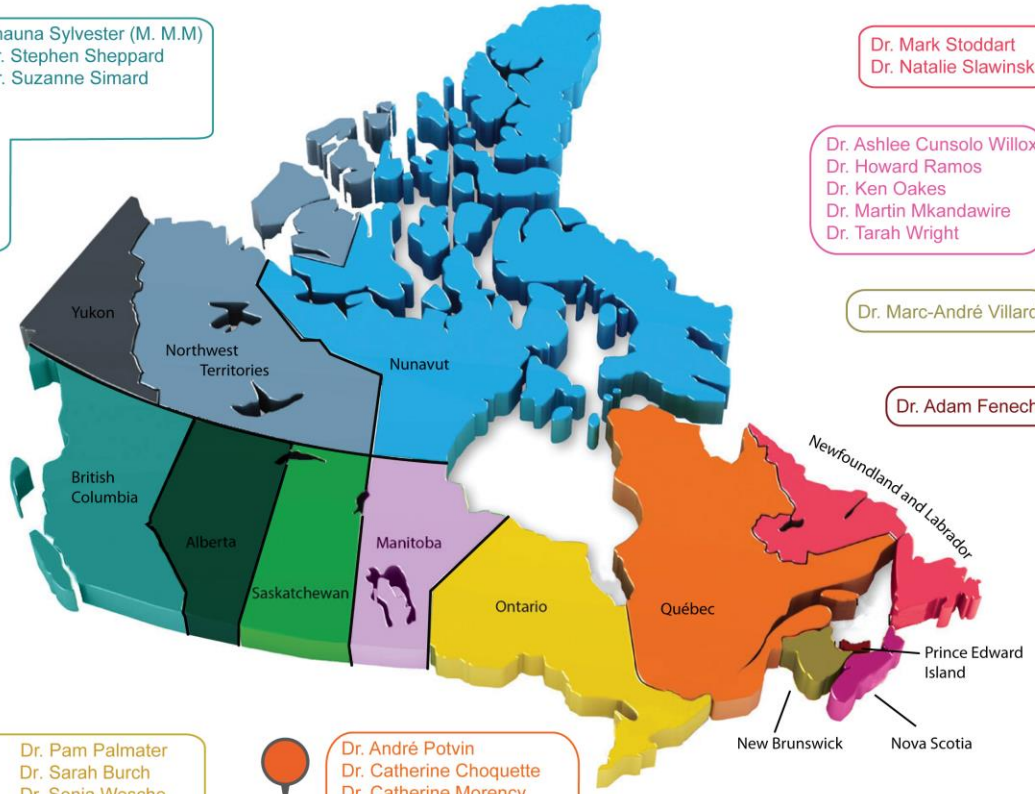
# MAP OF SCD SCHOLARS




Dr. Aerin Jacob
Dr. Ann Dale
Dr. Anthony Perl
Dr. George Hoberg
Dr. John Robinson
Dr. Lauchlan Fraser
Dr. Meg Holden
Dr. Ralph Matthews
Dr. Sally Aitken
Dr. Sally Otto
Shauna Sylvester (M. M.M)
Dr. Stephen Sheppard
Dr. Suzanne Simard

Dr. Bryson Brown
Dr. James Byrne

Dr. Jeffrey McDonnell
Dr. Gordon Huang

Dr. Bruno Dyck
Dr. Fikret Berkes
Dr. Ian Mauro
Dr. Martin Entz

Dr. Mark Stoddart
Dr. Natalie Slawinski

Dr. Ashlee Cunsolo Willox
Dr. Howard Ramos
Dr. Ken Oakes
Dr. Martin Mkandawire
Dr. Tarah Wright

Dr. Marc-André Villard

Dr. Adam Fenech

Dr. Alison Kemper
Dr. Andreas Heyland
Dr. Brent Sinclair
Dr. Chantelle Richmond
Dr. Deborah de Lange
Dr. Irena Creed
Dr. Irene Henriques
Dr. James Meadowcroft
Dr. Jose Etcheverry
Liat Margolis (MLA)
Dr. Matthew Hoffmann
Dr. Pam Palmater
Dr. Sarah Burch
Dr. Sonia Wesche
Dr. Steven Bernstein
Dr. Stewart Elgie

Dr. André Potvin
Dr. Catherine Choquette
Dr. Catherine Morency
Dr. Catherine Potvin
Dr. Christian Messier
Dr. Ciara Raudsepp-Hearne
Dr. Claude Villeneuve
Dominique Paquin (M.Sc)
Dr. Elena Bennett
Dr. François Anctil
Dr. Louis Fortier
Dr. Magda Fusaro
Dr. Marc Lucotte
Nathalie Bleau (M.Sc)
Dr. Nik Luka
Dr. Normand Mousseau
Dr. Roxane Maranger
Sébastien Jodoin (M.Phil, LL.M)
Dr. Stéphane Godbout

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Sustainable Canada Dialogues

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# Towards a low carbon sustainable Canada

## A POSSIBLE TRANSITION PATHWAY

Long-term target of 80% emissions reduction by 2050.
Medium-term target 26-28% below 2005 levels by 2025.

| SHORT TERM | MIDDLE TERM | LONG TERM |
|---|---|---|
| **POLICY ORIENTATION 1**<br>**Put a price on carbon.** | | |
| Adopt either a national carbon tax or a national cap and trade program. | | |
| **POLICY ORIENTATION 2**<br>**Include aggressive goals for low-carbon electricity production in federal and provincial climate action plans.** | | |
| Adopt ambitious sectorial targets for low-carbon electricity production. | | |
| Support interprovincial electricity transportation infrastructure. | | |
| **POLICY ORIENTATION 3**<br>**Integrate the oil and gas production sector in climate policies.** | | |
| Eliminate all direct and indirect subsidies to the fossil fuel industry. | | |
| Develop a clear regulatory framework coherent with the transition to a low-carbon economy. | | |
| **POLICY ORIENTATION 4**<br>**Adopt a multi-level energy policy with energy efficiency and cooperation in electrification at its core.** | | |
| Develop a national energy policy with long-term plans for transitioning to low-carbon energy. | Implement efficiency targets for energy use in the extractive industry. | |
| Ensure government efficiency standards and procurement. | | |
| **POLICY ORIENTATION 5** | | |

# Energy production

**Second policy orientation**

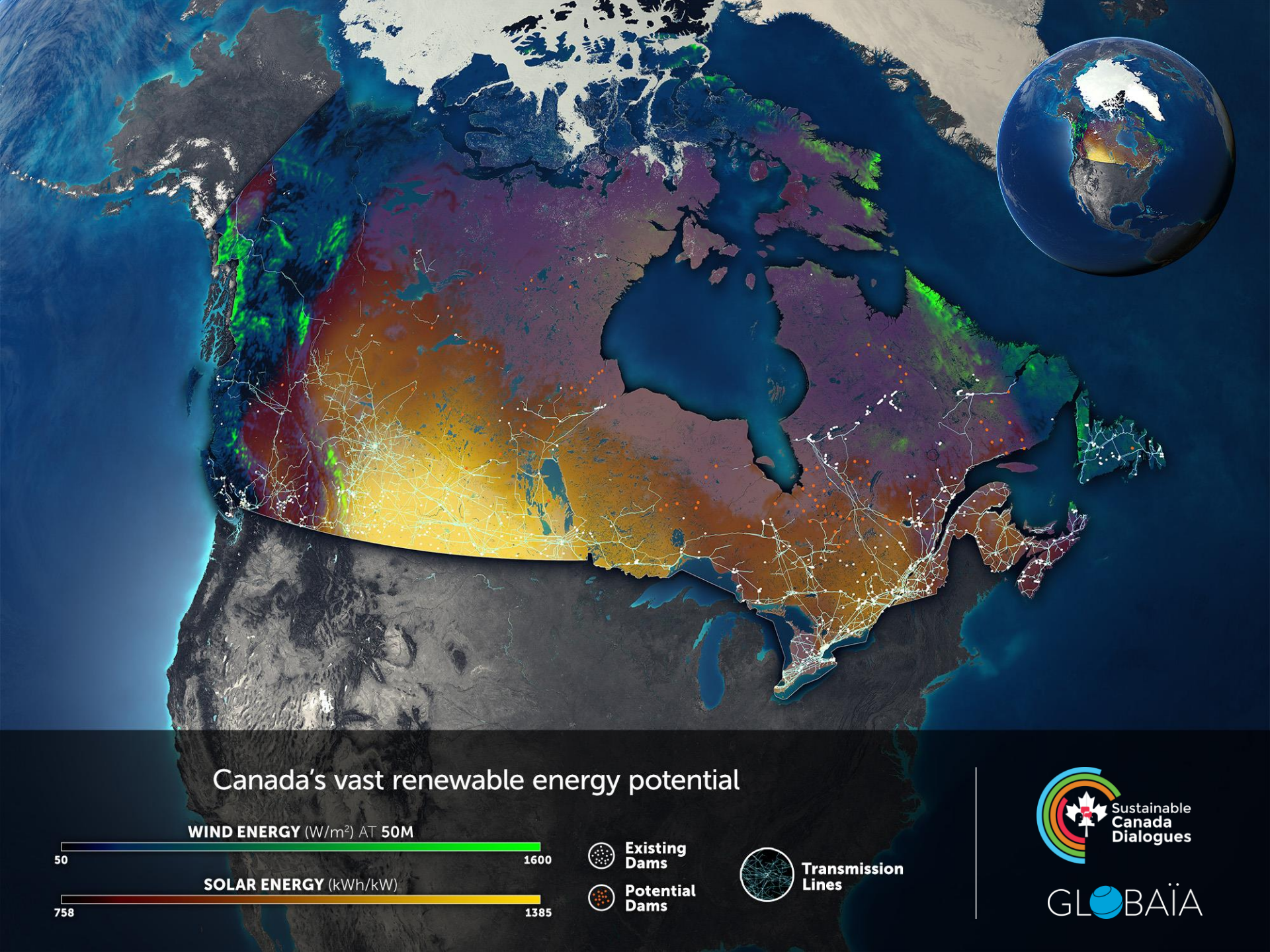
**Third policy Orientation:**

**First policy orientation**

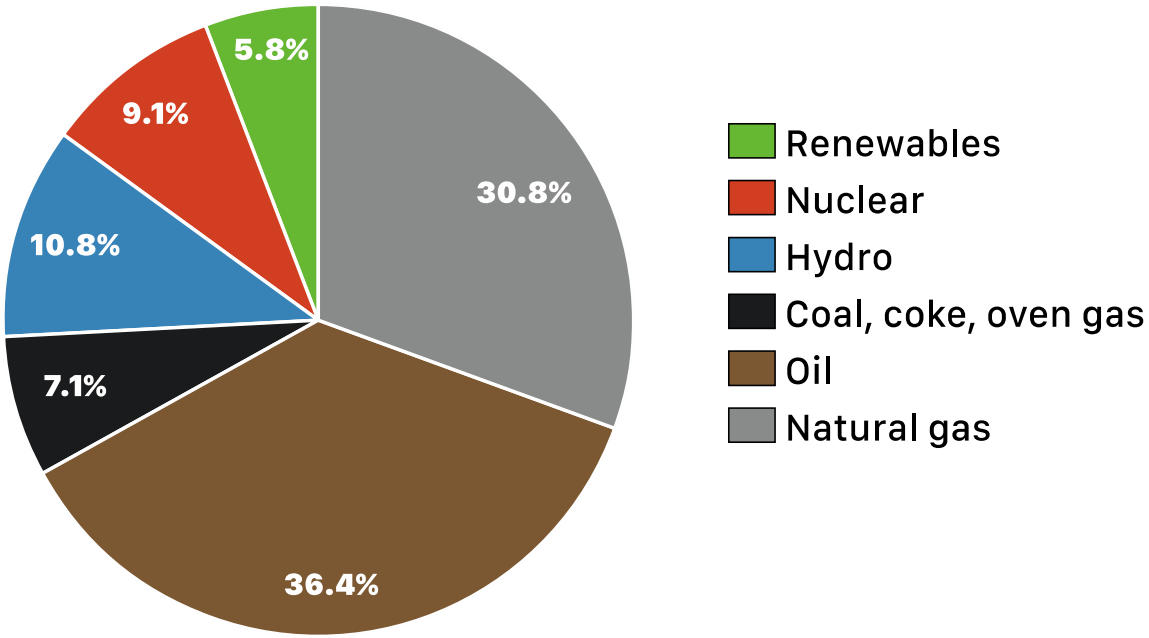
**Fourth policy orientation**

**Put aggressive goals for low-carbon electricity production in the federal and provincial climate action plans.**

@dialoguescanada @dialogsustainab


Canada's vast renewable energy potential
WIND ENERGY (W/m²) AT 50M
50
1600
SOLAR ENERGY (kWh/kW)
758
1385
Existing Dams
Potential Dams
Transmission Lines
Sustainable Canada Dialogues
GLOBAÏA

# Total energy consumed in 2012



# Energy usage

**Fifth: transport**

**Sixth: Landuse planning**

**Seventh: buildings**

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# Moving towards sustainability

Building on visions for the future

@dialoguescanada @dialogsustainab

@ Judith DesBrisay

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**Eight: Natural Assets**

**Nineth: Managing natural resources**

**Tenth: Governance**

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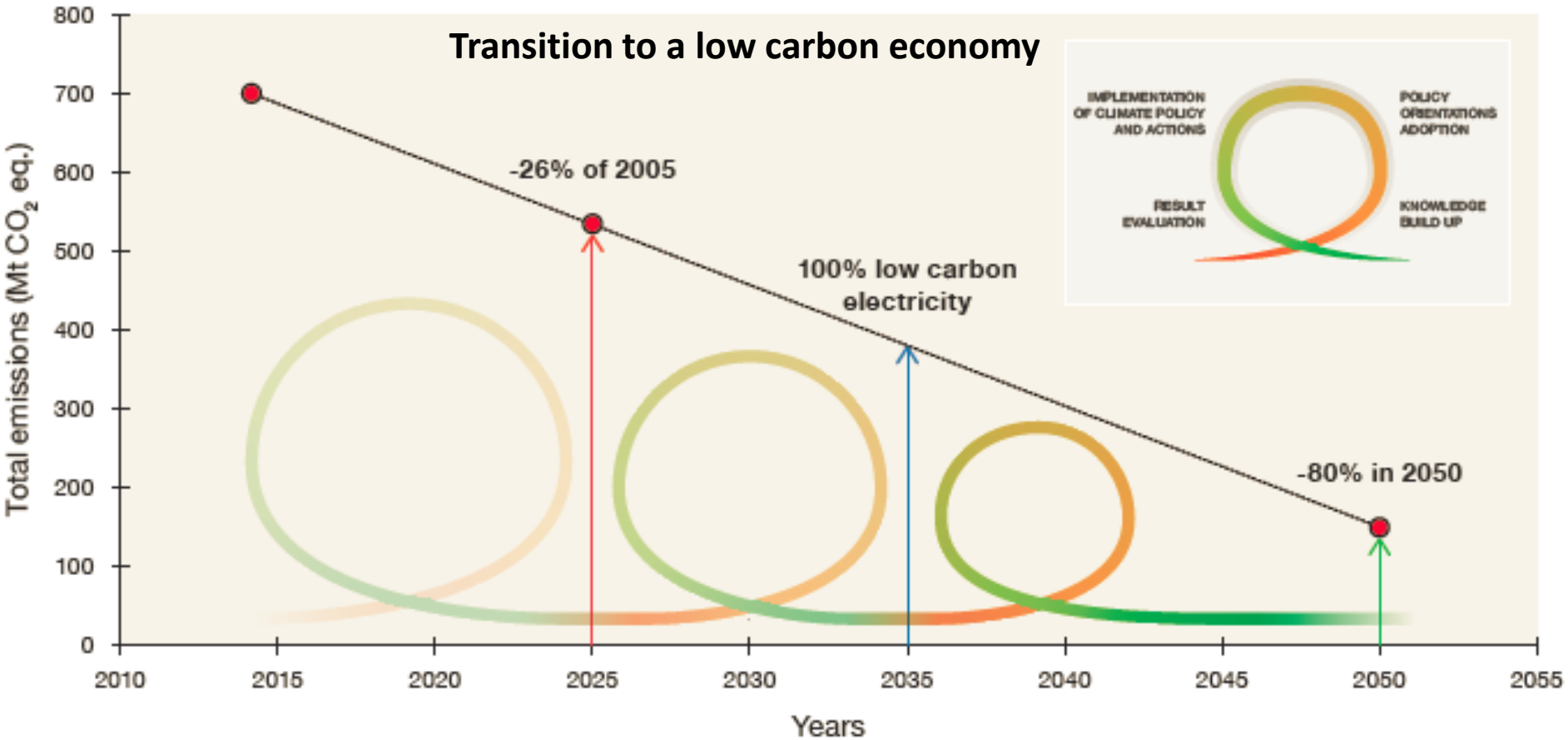


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Sustainable Canada Dialogues

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**Directly met with over 50 policy-makers, including two Prime Ministers, two povincial Ministers, two Provincial Deputy Ministers and 15 Members of Parliament (Federal).**


**Referenced in more than 85 print and online articles; 44 radio interviews; three television segments; our scholars gave 20 conferences over two months**

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Sustainable Canada Dialogues

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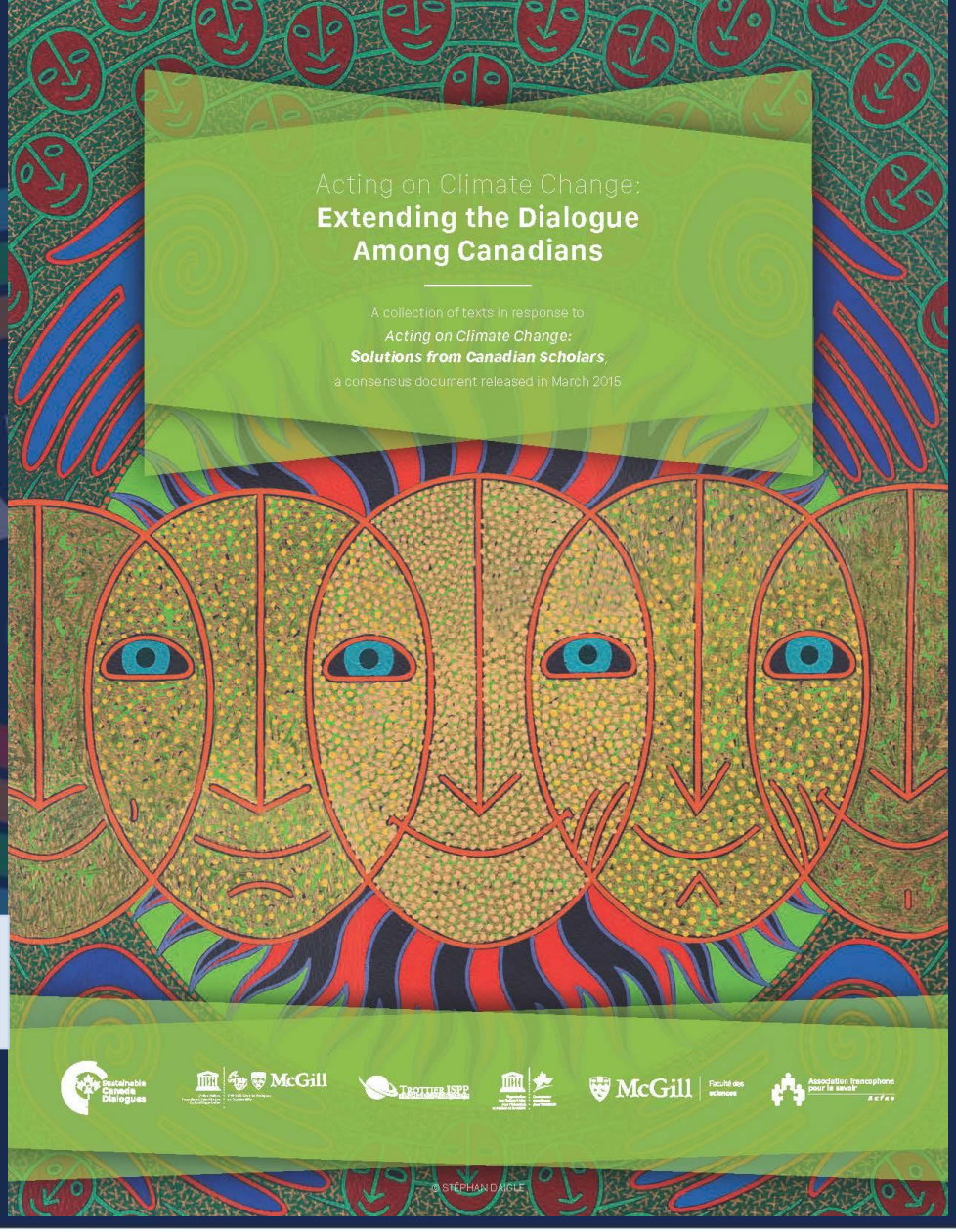
**Launching a second report**
**October 8th 2015 in Toronto**




**FACEBOOK:**
https://www.facebook.com/mcgillatwork

**http://www.sustainablecanadadialogues.ca**

@dialoguescanada @dialogsustainab

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# Proposals from the new Trottier Fellows:


## Jeff McKenzie

### Department of Earth & Planetary Sciences

# Groundwater in the Canadian Arctic: New Tools for Climate Change Policy

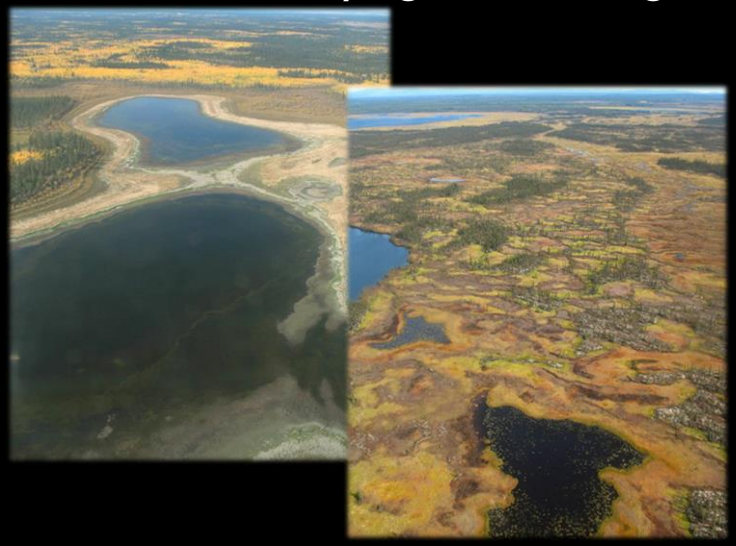
*Jeffrey McKenzie*

**Earth and Planetary Sciences**

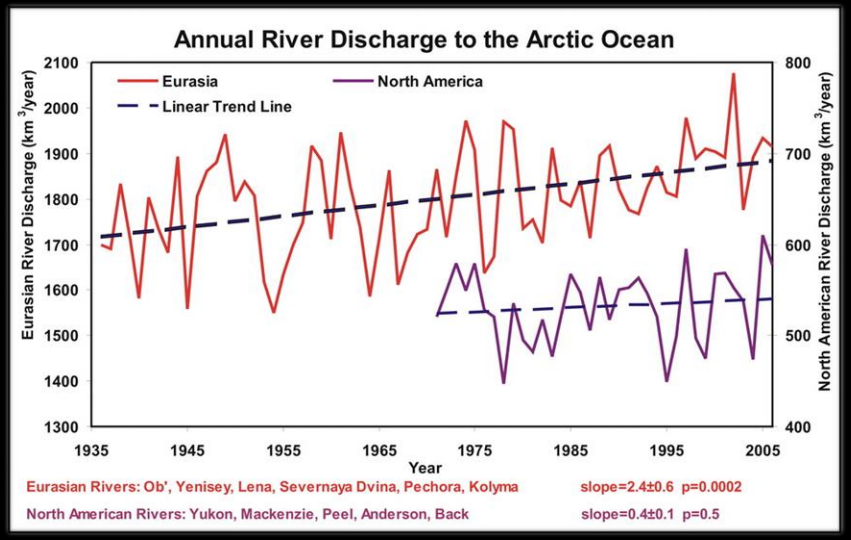
**2015-2017 Trottier Fellow**

# How is Climate Change Affecting the Arctic?

Ex. 1: Surficial Drying and Wetting



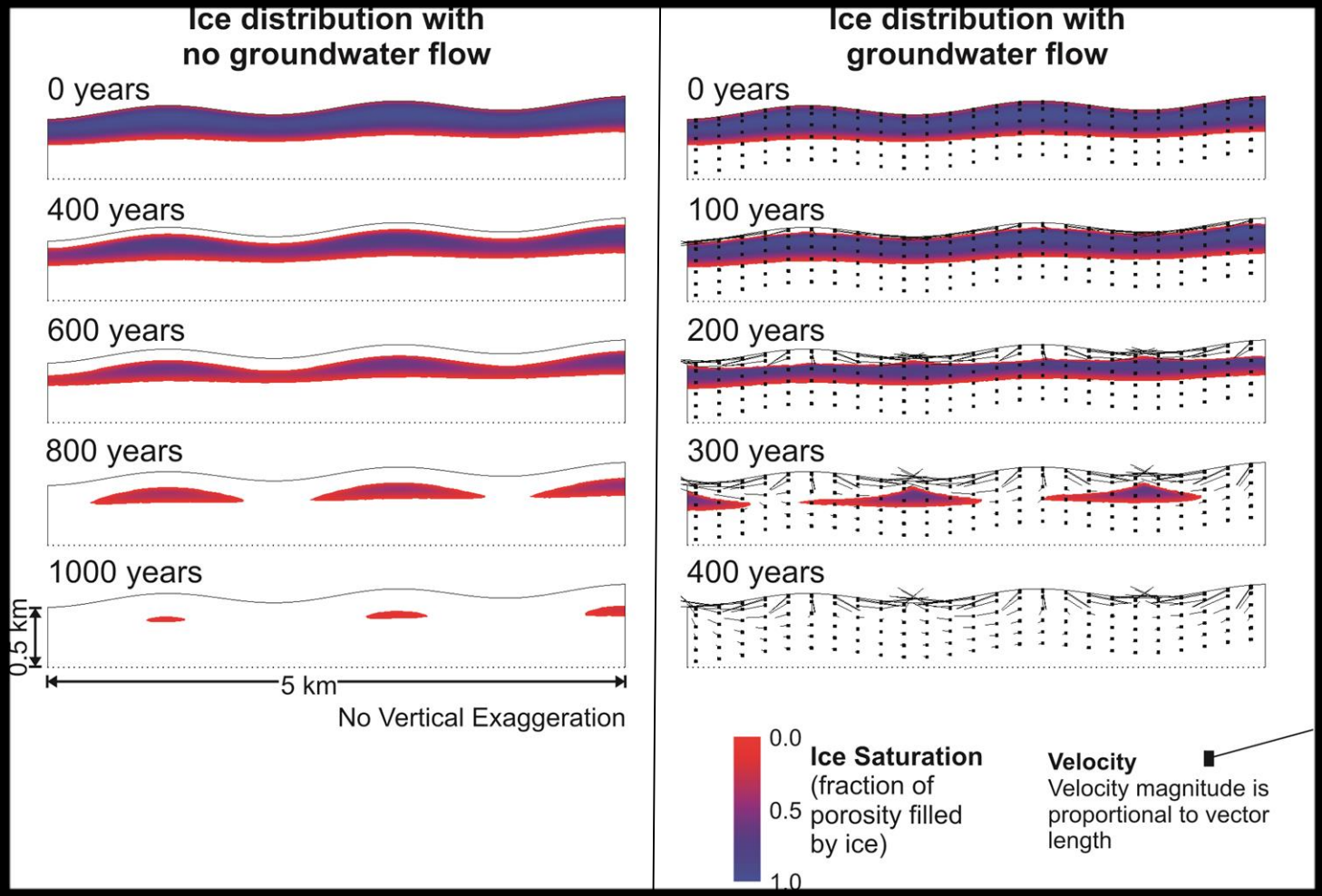
Ex. 2: Increasing Arctic River Discharge




Ex. 3:

Economic Impacts: Carbon Dioxide and Methane emissions from thawing permafrost will cost at least $43 trillion USD.

# New Numerical Model to Address Arctic Groundwater Changes



**As a Trottier Fellow, my goal is to transform our technical advances for groundwater into a tool for policy questions in the Arctic.**

**How to achieve this goal?**

1) Involvement of Northern stakeholders.
2) Develop guidelines and best practices for model usage.
3) Application to a Northern test site.

**Jeffrey McKenzie**
**jeffrey.mckenzie@mcgill.ca**

# Proposals from the new Trottier Fellows:


## Tony Ricciardi

**McGill School of Environment and Redpath Museum**

# The Science and Management of

# Microplastic Pollution in Freshwater Ecosystems

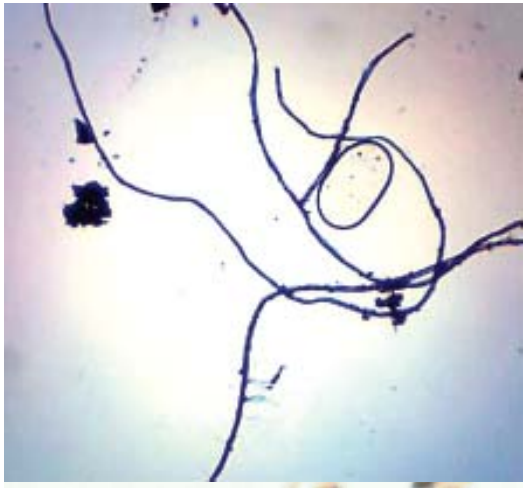
Anthony Ricciardi

Associate Professor

Redpath Museum / McGill School of Environment

## What are Microplastics ?

Small (<5mm) polymer particles: beads, pellets, flakes, fibres



## Where do they come from?

- Products of fragmentation of larger plastic debris
- Manufactured for **industrial use** (e.g. biotechnology, microscopy)
- …or **domestic use** (e.g. cosmetics; textiles)


GENTLE
SCRUB
oil free
microbeads gently exfoliate,
NEUTROGENA
DEEP CLEAN®
GENTLE
SCRUB
oil free
microbeads gently exfoliate,
Beta Hydroxy cleans deep into
pores for soft, smooth skin
Neutrogena
125 mL

# 2012: Microplastics found in the Great Lakes

ELSEVIER

Marine Pollution Bulletin

journal homepage: www.elsevier.com/locate/marpolbul

## Microplastic pollution in the surface waters of the Laurentian Great Lakes

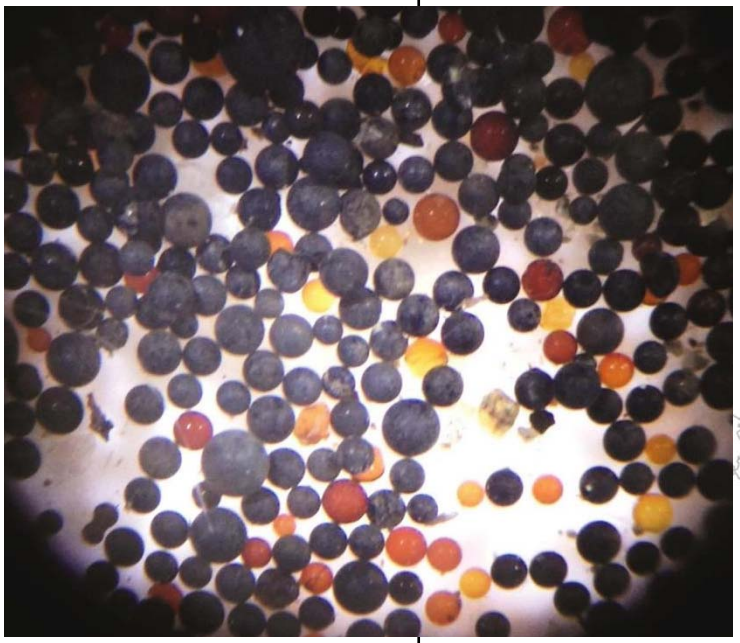
Marcus Eriksen [a,*], Sherri Mason [b,1], Stiv Wilson [a,2], Carolyn Box [a,3], Ann Zellers [c,4], William Edwards [
Hannah Farley [b,1], Stephen Amato [a]

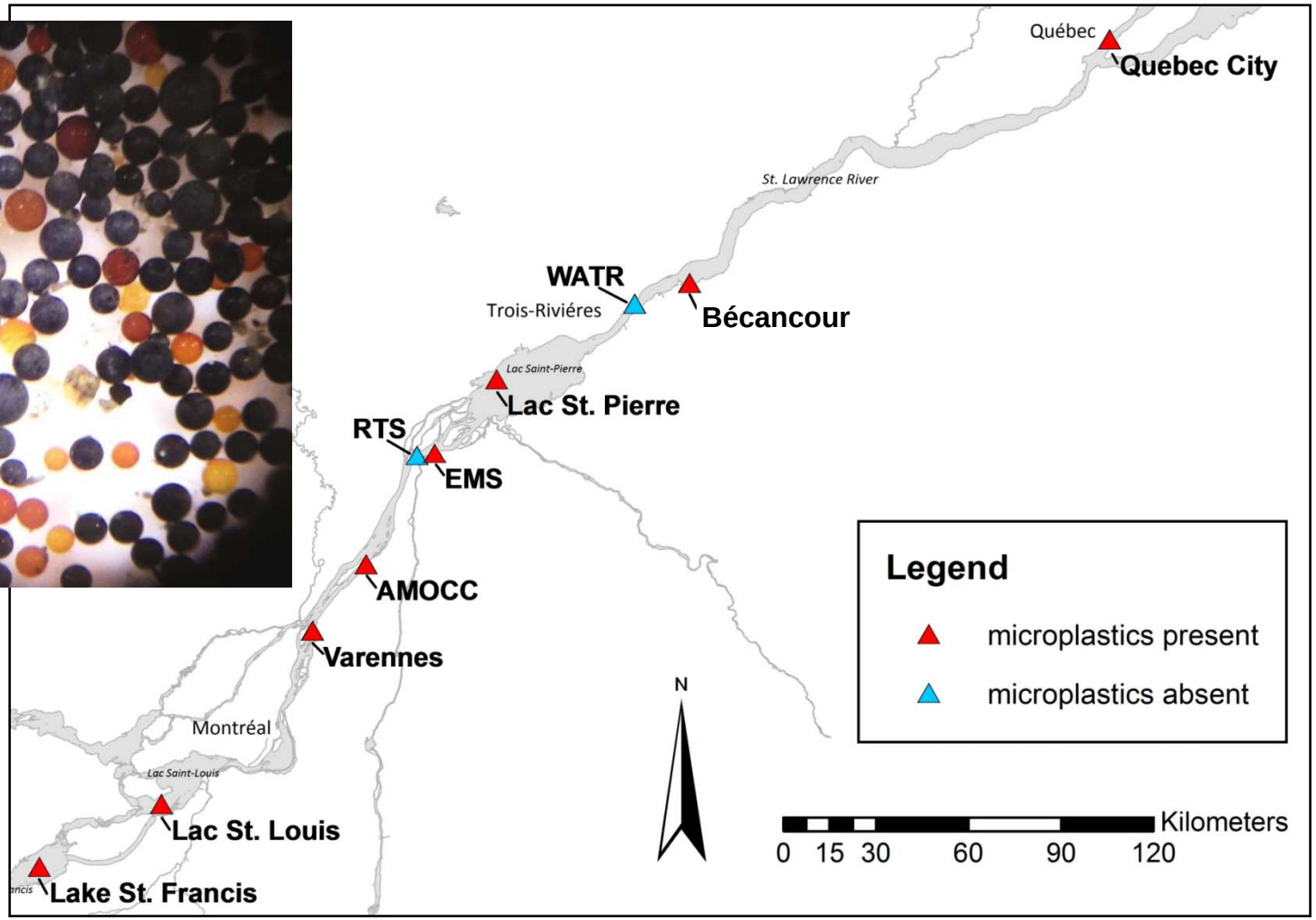
NRC Research Press

RAPID COMMUNICATION

# Microplastic pollution in St. Lawrence River sediments

Rowshyra A. Castañeda, Suncica Avlijas, M. Anouk Simard, and Anthony Ricciardi





# Why the concern?

- Small enough to be ingested by aquatic animals
- Readily adsorb toxic contaminants (e.g. PCBs) and can transfer these to animals that ingest them
- Impacts on animal physiology and behaviour

SCIENTIFIC REPORTS

*Scientific Reports* **3**, Article number: 3263 (2013)
doi:10.1038/srep03263

OPEN

SUBJECT AREAS:
ECOPHYSIOLOGY
ECOLOGY
CONSERVATION

## Ingested plastic transfers hazardous chemicals to fish and induces hepatic stress

Chelsea M. Rochman[1], Eunha Hoh[2], Tomofumi Kurobe[1] & Swee J. Teh[1]

# The regulatory response:

Govt of Canada: Microbeads in consumer products listed as a toxic substance (Aug 1, 2015)

Ontario: Proposed Bill 75 *Microbead Elimination & Monitoring Act.*

USA: Cosmetic microbeads banned in several states (e.g. Illinois, New Jersey, Minnesota, Wisconsin, California).

Overseas: Bans on microbeads proposed in Europe and Australia.

# Our objectives

1. Determine the diversity, abundance and potential sources of microplastics in the St. Lawrence River and Great Lakes tributaries.

2. Test the extent to which different kinds of microplastics are consumed by fish.

3. Develop rapid and reliable monitoring methods to assess the efficacy of future regulation.

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# Proposals from the new Trottier Fellows:


## Nancy Ross

### Department of Geography

# Urban Policy Prescriptions to Increase Walking

Nancy Ross

Professor of Geography

Trottier Fellow in Science and Public Policy (2015-2017)

Associate member: Department of Epidemiology and Biostatistics; Institute for Health and Social Policy

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# The Broader Public Health Policy Landscape

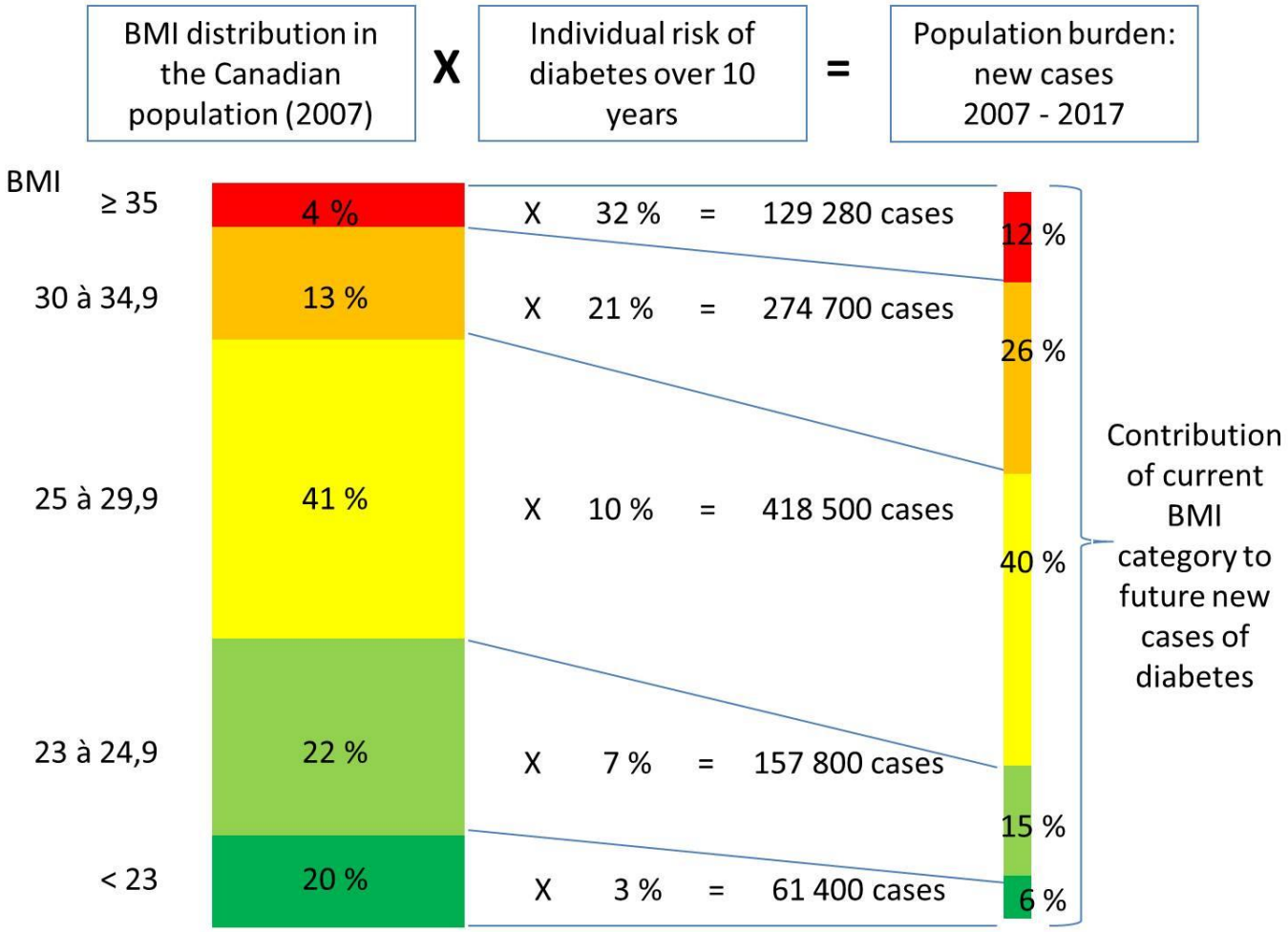
**January 11, 1964**


**September 9, 2015**

# Interest in the Walking-Friendliness of Places

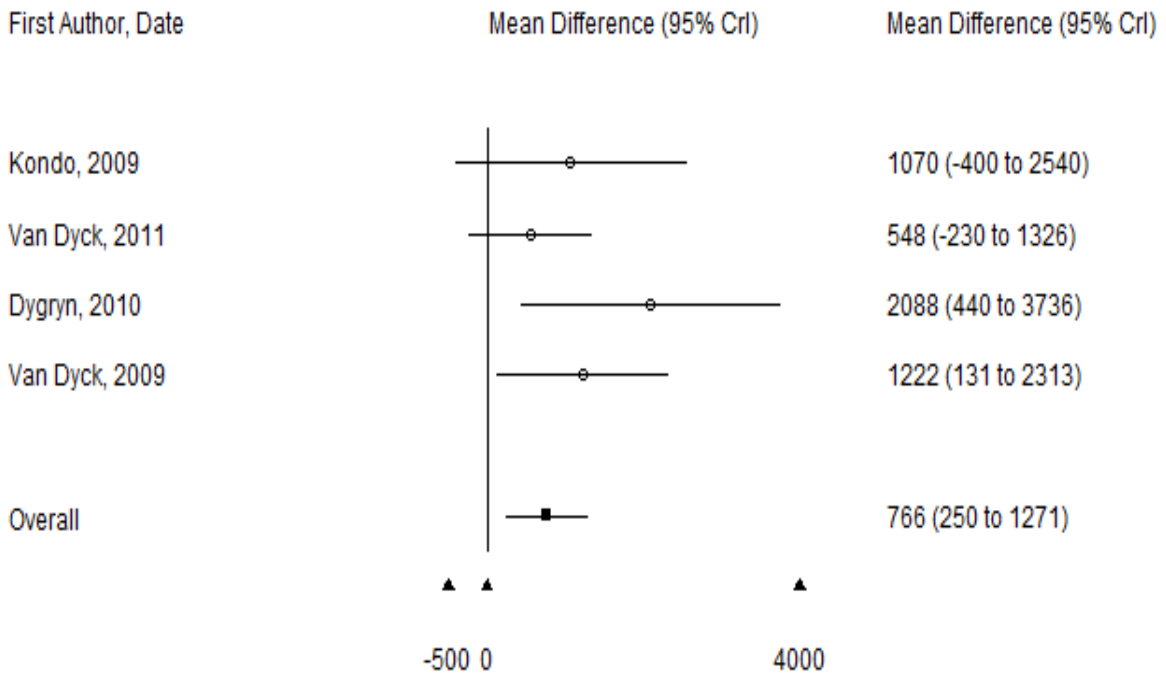
- 399 articles in Medline with the search term “walkability” in title/abstract
- Term first appeared in Medline in 2000
- Conceptually very appealing: walking is a low-cost, low barrier-to-entry activity
- Jurisdictions around the world are struggling to find policies that increase physical activity and reduce obesity

# The Burden of Chronic Disease From Obesity is in the Middle of the Distribution, Not the Tails




Source of statistics: ICES Investigative Report, June 2010: "How many Canadians will be diagnosed with diabetes between 2007 and 2017?"

# Walkable Neighbourhoods Account for an Additional 766 Steps Per Day

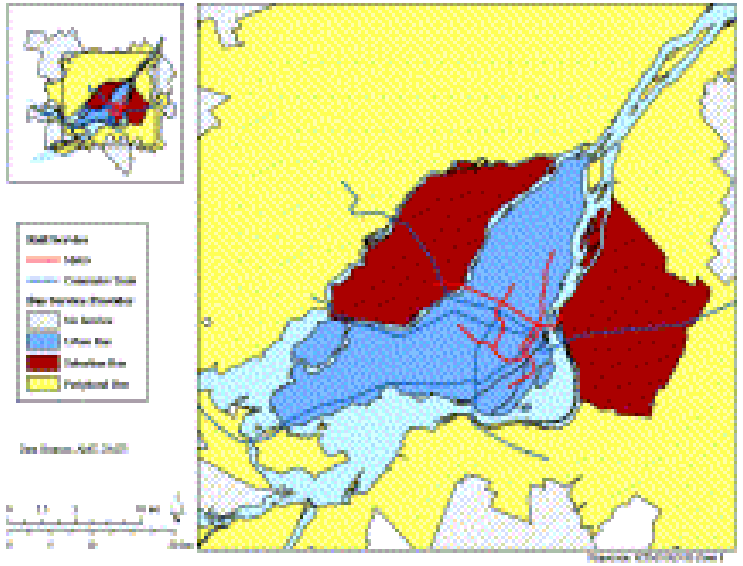



Forest plots of the previous studies conducted on the association between GIS-assessed measures of walkability based on street connectivity, land use mix, and/or residential density and pedometer and/or accelerometer-assessed steps per day (mean differences in steps/day between high and low walkability neighborhoods, 95% credible intervals).

Hajna S, Ross NA, Brazeau A-S, Belisle P, Joseph L, Dasgupta K (2015) Associations between neighbourhood walkability and daily steps in adults: as systematic review and meta-analysis. *BMC Public Health* 15 (1) article #768.

# Suburbs Are Surprisingly Walkable if You Add Public Transportation

***Public Transit Network, Montreal, QC Canada***

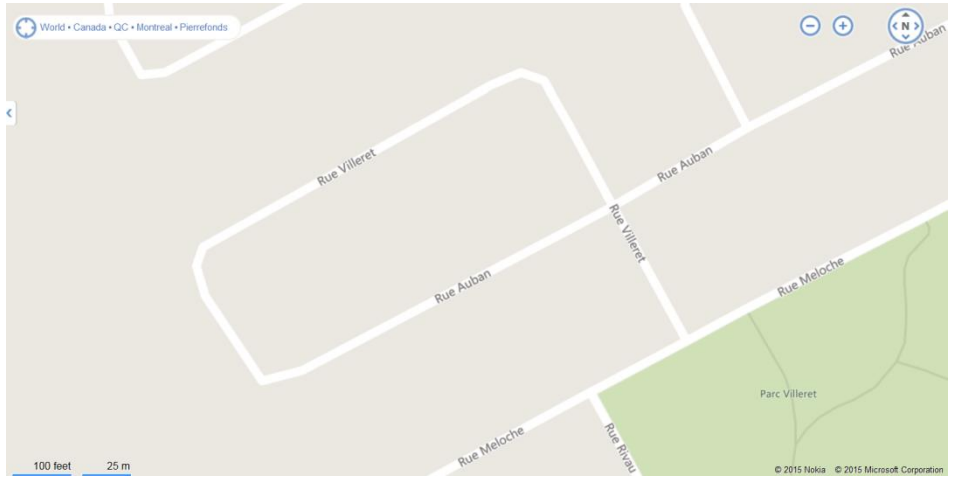


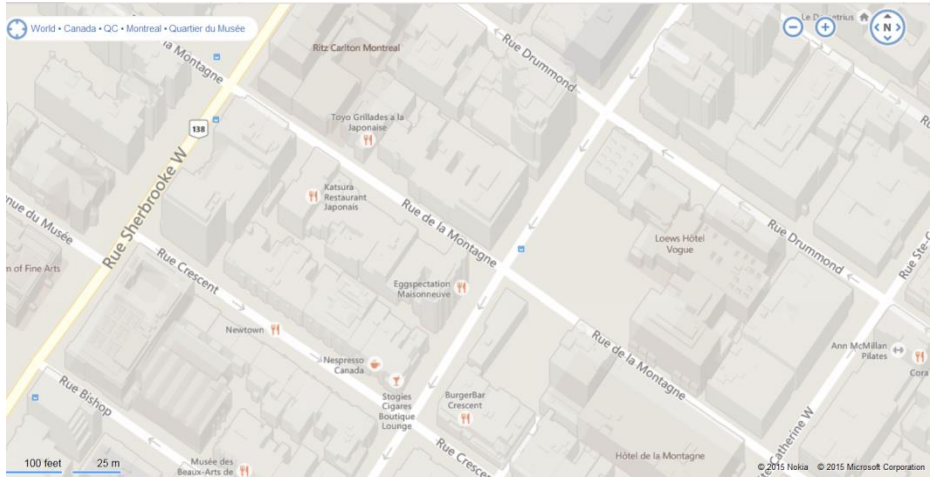
***Distance and minutes walked by commuters to and from transit***

| | No transfers | 2 Transfers to Metro | 2 Transfers to City Bus |
|---|---|---|---|
| **City bus** | 1.2km | 2.5km | 1.7km |
| | 13 minutes | 26 minutes | 19 minutes |
| | 1200 steps | 2500 steps | 1700 steps |
| **Commuter train** | 3.28km | 4.6km | 3.8km |
| | 36 minutes | 50 minutes | 42 minutes |
| | 3280 steps | 4600 steps | 3800 steps |
| **Metro** | 1.9km | 3.2km | 2.5km |
| | 21 minutes | 35 minutes | 27 minutes |
| | 1900 steps | 3200 steps | 2500 steps |
| **Suburban bus** | 1.6km | 2.8km | 2.1km |
| | 17 minutes | 31 minutes | 23 minutes |
| | 1600 steps | 2800 steps | 2100 steps |
| **Peripheral bus** | 2.4km | 3.7km | 3.0km |
| | 27 minutes | 41 minutes | 33 minutes |
| | 2400 steps | 3700 steps | 3000 steps |

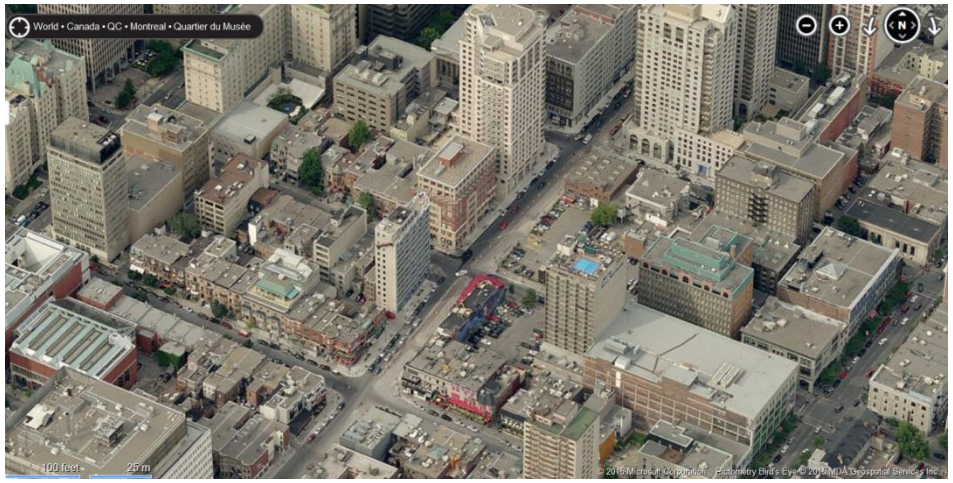

Wasfi R, Ross NA, El-Geneidy (2013) Achieving recommended daily physical activity by commuting with public transit.

# What Makes a Neighbourhood Walkable? The View From 35,000 Feet







# Plans for the Trottier Funding

- Research: the view from the ground – identifying local features of highly walkable places; understanding the socio-demographic environments of walkable neighbourhoods in Canada; social survey research in neighbourhoods stratified by walkability/walking levels
- Policy research in the classroom

# Promoting Inter-sectoral policy activity and knowledge uptake

Active transportation promotes public health in ways that influence many academic disciplines and policy actors:

- Reduces air pollution
- Reduces fatal motor vehicle accidents
- Increases exercise
- Increases social contact

# Thank You

- Doctoral students: Samantha Hajna, Rania Wasfi
- Collaborators on the Trottier Fellowship: Prof. Sebastien Breau, Dr. Kaberi Dasgupta, Prof. Ahmed El-Geneidy, Prof. Kevin Manaugh

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**Reports from Trottier Fellows in Science and Public Policy:**

**Elena Bennett, Lea Berrang Ford, and Catherine Potvin**

**Proposed activities from the 'new' Trottier Fellows:**

**Jeff McKenzie, Tony Ricciardi and Nancy Ross**

**Round Table Discussion on**
**Issues in Science and Public Policy:**

**Elena Bennett, Lea Berrang Ford, Catherine Potvin,**
**Antonia Maioni and Nigel Roulet**

**Reception**