

Thomas F. Homer-Dixon, B.A., Ph. D.

Curriculum Vitae, September 2015

Address

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CANADA

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Born

1956, Victoria, CANADA

Citizenship

Canadian

General Research Interests

Complex threats to global security
Causes and resolution of violent conflict
The structure and change of ideologies
Climate change, energy security, and public policy
Sources of innovation
Alternatives to conventional economic growth

Education

1989

Ph.D., Political Science, Massachusetts Institute of Technology.
Dissertation: "They and We: An Empirical and Philosophical Study of a Theory of Social Conflict." Supervisor: Hayward Alker.

1980

B.A. (First Class Honours), Political Science, Carleton University, Ottawa.

Employment

Faculty, University of Waterloo:

2008 – present

CIGI Chair of Global Systems, Balsillie School of International Affairs; Professor, Faculty of Environment; cross-appointment, Department of Political Science, Faculty of Arts.

Administration, University of Waterloo:

2014 – present

Associate Director, Waterloo Institute for Complexity and Innovation (WICI).

2009 – 2013

Founding Director, WICI.

Faculty, University of Toronto:

1993 – 2008

Joint appointment: University College and the Department of Political Science. (Assistant Professor, 1993; promoted to Associate Professor, 1998; promoted to Professor, 2006).

Administration, University of Toronto:

2001 – 2007

Director, Trudeau Centre for Peace and Conflict Studies, University College.

1990 – 2001

Director, Peace and Conflict Studies Program, University College.

Research, University of Toronto:

1990 – 1993

Principal Investigator (salaried), *Project on Environmental Change and Acute Conflict*.

Other:

1983 – 1989

Research position with Project Athena at MIT in Cambridge, Massachusetts; consultant to the World Resources Institute, Washington, DC.

1975 – 1983

Employment in the construction, forestry, and petroleum industries in western Canada and as the leader of a national student organization based in Ottawa.

Research

Current projects:

Emerging patterns of global crisis
Rapid ideological change
Catastrophic dehumanization
Complex mechanisms of societal collapse

2012-present:

Principal Investigator of the Ideological Conflict Project and (with Professor Paul Thagard, Philosophy, University of Waterloo) of the Rapid Ideological Change Project, both using complex-systems methods and research in cognitive science, history and political science to study the structure and change of ideology.

1997 – 2006:

Conducted research in ten countries and across a dozen disciplines while writing two trade books: *The Ingenuity Gap* and *The Upside of Down*.

1994 – 1996:

Directed, jointly with the American Association for the Advancement of Science in Washington, D.C., *the Project on Environment, Population, and Security*, which produced policy-oriented studies of causal links between environmental and demographic stress and violent conflict in Rwanda, South Africa, Pakistan, Chiapas, and Gaza.

1990 – 1998:

Directed, jointly with the American Academy of Arts and Sciences, in Cambridge, Massachusetts, the *Project on Environmental Change and Acute Conflict*, which analyzed the links between environmental change and violent conflict in the developing world (1990-93), and the *Project for Environmental Scarcity, State Capacity, and Civil Violence*, which studied the effects of renewable resource scarcity on state capacity in China, India, and Indonesia (1994-98).

Grants (Principal Investigator)

2013-14

Centre for International Governance Innovation, \$120,000 (Can) for the Ideological Conflict Project.

2012

Winslow Foundation, \$50,000 (US) for general research support.

2011

Balsillie School of International Affairs, \$110,000 (Can) for a study of the ideational sources of conflict (co-PI with Professor Timothy Donais of Wilfrid Laurier University).

2008

Centre for International Governance Innovation, \$30,000 (Can) for a workshop on emergency responses to severe climate change.

Winslow Foundation, \$30,000 (US) for general research support.

2003

Winslow Foundation, \$25,000 (US) for research and travel related to the writing of *The Upside of Down*.

2001

Winslow Foundation, Rockefeller Foundation, and the William and Flora Hewlett Foundation; \$45,000 (US) for promotion of *The Ingenuity Gap*.

1997

William and Flora Hewlett Foundation; \$45,000 (US) for research and travel related to the writing of *The Ingenuity Gap*.

1995

Rockefeller Foundation and Pew Charitable Trusts, Global Stewardship Initiative; \$40,000 (US) for preparing the Environmental & Conflict Database for the worldwide web.

1994

Rockefeller Foundation, New York, and Pew Charitable Trusts, Philadelphia; \$440,000 (US) for the *Project on Environmental Scarcity, State Capacity, and Civil Violence*.

1994

Pew Charitable Trusts, Global Stewardship Initiative; \$300,000 (US) for the *Project on Environment, Population, and Security*.

1990

Donner Canadian Foundation, Toronto; \$220,000 (Can) for the *Project on Environmental Change and Acute Conflict*.

1990 – 1993

Other small grants for research on environment-conflict linkages and for dissemination of research results from the Pew Charitable Trusts, the Rockefeller Foundation, the International Development Research Centre, the Canadian Institute for International Peace and Security, the Royal Society of Canada, the Rotary Club of Toronto, and the Canadian Department of National Defense, totaling \$75,000 (US).

Significant Awards and Recognition

2010

Outstanding Performance Award, University of Waterloo.

2006

National Business Book Award, Canada, for *The Upside of Down*.

2001

Governor General's Literary Award for Non-Fiction, Canada Council for the Arts, for *The Ingenuity Gap*.

2000

Lynton Keith Caldwell Prize; the Science, Technology and Environmental Politics Section of the American Political Science Association, for *Environment, Scarcity, and Violence*.

1999

Northrop Frye Award for linking teaching and research, University of Toronto.

Fellowships

1995

Associate Fellow, Canadian Institute for Advanced Research (renewed in 1996 and 1997).

1994

Visiting Scholar, Aspen Institute.

1989

Social Sciences and Humanities Research Council of Canada, Postdoctoral Fellowship (renewed in 1990).

Graduate Awards

1986

SSRC/MacArthur Foundation Dissertation Fellowship in International Peace and Security (two years).

1986

Adjunct Research Fellow, Center of Science and International Affairs, Kennedy School of Government, Harvard University (two years).

1984

Social Sciences and Humanities Research Council of Canada, Doctoral Fellowship (renewed in 1985).

1983

Department of Political Science (MIT), Full Fellowship (renewed in 1984).

1983

Canadian Department of National Defense, Doctoral Scholarship (renewed in 1984 and 1985).

Books, sole author

The Upside of Down: Catastrophe, Creativity, and the Renewal of Civilization (Knopf Canada, Island Press (US), Jan van Arkel (The Netherlands), 2006; Souvenir Press (UK), Text Publishing (Australia), 2007).

The Ingenuity Gap (Knopf Canada, Knopf (US), and Jonathan Cape (UK), 2000; Boreal (Quebec), 2002; and Espasa (Spain), 2003).

Environment, Scarcity, and Violence (Princeton University Press, 1999).

Books, edited

Carbon Shift: How the Twin Crises of Oil Depletion and Climate Change Will Define the Future, ed. with Nicholas Garrison (Random House of Canada, 2009).

Ecoviolence: Links among Environment, Population, and Security, ed. with Jessica Blitt (Rowman & Littlefield, 1998).

Science in Society: Its Freedom and Regulation, ed. with Anne Perkins, Ottawa: CSP Publications, 1982.

Refereed Articles

“Synchronous failure: The emerging causal architecture of global crisis,” with Brian Walker, Reinette Biggs, Anne-Sophie Crépin, Carl Folke, Eric F. Lambin, Garry. D. Peterson, Johan Rockström, Marten Scheffer, Will Steffen, and Max Troell, *Ecology and Society* 20, no. 3 (2015): 6.

“The Conceptual Structure of Social Disputes: Cognitive-Affective Maps as a Tool for Conflict Analysis and Resolution,” with Manjana Milkoreit, Steven Mock, Tobias Schröder, and Paul Thagard, *SAGE Open* (January-March 2014): 1-20.

“A Complex Systems Approach to the Study of Ideology: Cognitive-affective Structures and the Dynamics of Belief Change,” with Jonathan Leader Maynard, Matto Mildenerger, Manjana Milkoreit, Steven Mock, Stephen Quilley, Tobias Schröder (lead author), and Paul Thagard, *Journal of Social and Political Psychology* 1, no. 1 (2013): 337–363.

“Detecting and Coping with Disruptive Shocks in Arctic Marine Systems: A Resilience Approach to Place and People,” with Eddy Carmack (lead author) et al., *Ambio* 41 (2012): 56-65.

“Tipping Toward Sustainability: Emerging Pathways of Transformation,” with Frances Westley (lead author) et al., *Ambio* 40 (2011): 762-80.

"The Newest Science: Replacing Physics, Ecology Will Be the Master Science of the 21st Century," *Alternatives Journal* 35, no. 4 (2009): 8-38.

“Resource Scarcity and Innovation: Can Poor Countries Attain Endogenous Growth?” with Edward Barbier, *Ambio* 28, no. 2 (1999): 144-7.

“Environmental Scarcity and Violent Conflict: The Case of South Africa,” with Valerie Percival, *Journal of Peace Research* 35, no. 3 (1998): 279-98.

“Environmental Scarcity and Violent Conflict: The Case of Rwanda,” with Valerie Percival, *Journal of Environment and Development* 5, no. 3 (September 1996): .270-91.

“Strategies for the Study of Causation in Complex Ecological-Political Systems,” *Journal of Environment and Development* 5, no. 2 (Spring 1996): 132-48.

“The Ingenuity Gap: Can Poor Countries Adapt to Resource Scarcity?” *Population and Development Review* 21, no. 3 (September 1995): 587-612.

“Environmental and Demographic Threats to Canadian Security,” *Canadian Foreign Policy* 2, no. 2 (Fall 1994): 7-40.

“Environmental Scarcities and Violent Conflict: Evidence from Cases,” *International Security* 19, no. 1 (Summer 1994): 5-40.

“On the Threshold: Environmental Changes As Causes of Acute Conflict,” *International Security* 16, no. 2 (Fall 1991): 76-116.

“Environmental Change, Economic Decline, and Civil Strife in Developing Countries,” *International Studies Notes* (Spring 1991).

“Graphical Argument Analysis: A New Approach to Understanding Argument, Applied to a Debate about the Window of Vulnerability,” with Roger Karapin, *International Studies Quarterly* 33, no. 4 (December 1989): 389-410.

“A Common Misapplication of the Lanchester Square Law: A Research Note,” *International Security* 12, no. 1 (Summer 1987): 135-39.

Refereed Book Chapters

“Complexity: Shock, Innovation, and Resilience,” chapter 6 in *Co-operatives in a Post-Growth Era: Creating Co-operative Economics*, eds. Sonja Novkovic and Tom Webb (Zed Books, 2014).

“Environmental Scarcities and Civil Violence,” with Tom Deligiannis, in *Facing Global Environmental Change: Environmental, Human, Energy, Food, Health and Water Security Concepts*, eds. Hans Günter Brauch et al., Hexagon Series on Human and Environmental Security and Peace, vol. 4 (Berlin, Heidelberg, New York: Springer-Verlag, 2008).

“The Environment and Violent Conflict: A Response to Gleditsch,” with Daniel Schwartz (first author) and Tom Deligiannis, chapter 13 in *Environmental Conflict*, eds. Paul Diehl and Nils Petter Gleditsch (Boulder, Colorado: Westview Press, 2001).

“Environmental Change, Global Security, and U.S. Policy,” with Jeffrey Boutwell, *American Defense Annual* 1994, ed. Joe Kruzal (Lexington, 1994).

“Physical Dimensions of Global Change,” chapter 2 in *Global Accord: Environmental Challenges and International Responses*, ed. Nazli Choucri (Cambridge, Massachusetts: MIT Press, 1993).

Selected Non-Refereed Publications

“Unconventional Wisdom: Economies Can’t Just Keep on Growing,” *Foreign Policy*, January 2011.

Der Heilsame Schock: Wie der Klimawandel unsere Gesellschaft zum Guten verändert (Munich: oekom, 2010). Based on the text of a keynote speech titled “Climate Change and the Renewal of Civilization” given at a conference on The Great Transformation: Climate Change as Cultural Change, Essen Germany, June 2009.

“Complexity Science and Public Policy,” Institute of Public Administration of Canada, New Directions Series (Toronto, 2010).

“A Straw Man in the Wind: A Response to David Victor” *The National Interest* (January-February, 2008).

“Positive Feedbacks, Dynamic Ice Sheets, and the Recarbonization of the Global Fuel Supply: The New Sense of Urgency about Global Warming,” Chapter 2 in *A Globally Integrated Climate Policy for Canada*, eds. Steven Bernstein, Jutta Brunnée, and Andrew Green (Toronto: University of Toronto Press, 2007).

“Outs of the Energy Box,” with Julio Friedman, *Foreign Affairs* 83, No. 6 (November/December 2004): 72-83.

“Bringing Ingenuity to Energy,” in *Fueling the Future: How the Battle over Energy is Changing Everything*, eds. Andrew Heintzman and Evan Solomon (Toronto: Anansi, 2003).

“The Rise of Complex Terrorism,” *Foreign Policy* (January/February 2002).

“Environmental Scarcities and Civil Violence,” in *US Policy and the Global Environment: Memos to the President*, A Report of the Environment Policy Forum, eds. Donald Kennedy and John Riggs (Washington, DC: Aspen Institute, 2000).

“Environmental Scarcity, Mass Violence, and the Limits of Ingenuity,” *Current History*, November 1996.

“Environmental Change and Violent Conflict,” with Jeffrey Boutwell and George Rathjens, *Scientific American*, February 1993.

“Taxes, Fuel Consumption, and Carbon Dioxide Emissions,” Global Environmental Policy Project, G90-07, Kennedy School of Government, Harvard University, July 1990.

Selected Book Reviews

Vaclav Smil, *Global Catastrophes and Trends* and Chris Patten, *What Next?* reviewed in *Nature*, vol. 458 (March 19, 2009).

Helge Brunborg, Ewa Tabeau, and Henrik Urdal, *The Demography of Armed Conflict* (Dordrecht, The Netherlands: Springer, 2006), reviewed in *Population Development Review* 34, no. 2 (June 2008): 364-66.

Colin Kahl, *States, Scarcity, and Civil Strife in the Developing World* (Princeton: Princeton University Press, 2006), reviewed in *Population and Development Review* 32, no. 3 (September 2006): 585-87.

Selected Op-Eds

"Fix the Link where Science and Policy Meet," with Heather Douglas and Lucie Edwards, *Toronto Globe and Mail*, June 23, 2014.

"The Tar Sands Disaster," *The New York Times*, April 1, 2013.

"Disaster at the Top of the World," *New York Times*, Monday, August 23, 2010.

"Fear is Good," *Toronto Globe and Mail*, April 4, 2009.

"Unbounded Uncertainty," *Toronto Globe and Mail*, September 26, 2008.

"Blocking the Sky to Save the Earth," with David Keith, *New York Times*, September 20, 2008.

"A Swiftly Melting Planet," *New York Times*, Thursday, October 4, 2007.

"Terror in the Weather Forecast," *New York Times*, Tuesday, April 24, 2007.

"The End of Ingenuity," *New York Times*, Wednesday, November 29, 2006.

"Unleash Capitalism's Creativity on Climate Change," *Toronto Globe and Mail*, Saturday, October 21, 2006.

"Pull up Terrorism by the Roots," *Toronto Globe and Mail*, Monday, September 11, 2006.

"Caught Up in Our Own Connections," *New York Times*, August 13, 2005.

“Coal in a Nice Shade of Green,” with Julio Friedmann, *New York Times*, March 25, 2005.

“War: Which Way to Turn,” *Toronto Globe and Mail*, February 8, 2003.

“Why Population Growth Still Matters,” *Toronto Globe and Mail*, March 6, 2002.

“Now Comes the Real Danger,” *Toronto Globe and Mail*, September 12, 2001.

“The Virulence of Violence: Small Arms, Many Wars, Large Threat,” *Washington Post*, February 4, 2001.

“A World that Turns Too Fast,” *Financial Times*, London, January 2, 2001.

“On the Razor’s Edge: Today’s Graduates are Entering a Winner-Take-All World,” *Toronto Globe and Mail*, June 17, 2000.

Selected Invited Presentations and Papers

(Full list available at: www.homerdixon.com/speaking/past-talks/)

“China in the Global Economy: Challenges and Opportunities,” Royal Canadian Mint, Ottawa, Ontario, May 27, 2014.

“Growth, Environmental Damage, and Innovation,” Annual Conference of the Institute for New Economic Thinking, Toronto, Ontario, April 12, 2014.

“Urban Resilience in a Turbulent World: Shock, Creativity, and Prosperity,” Dallas Institute of Humanities and Culture; keynote for conference on What Makes a Resilient City? Dallas, Texas, April 19, 2013.

“Climate Change and Violent Conflict,” Seminar XXI, Washington, D.C., March 5, 2012.

“Catastrophic Dehumanization: The Psychological Dynamics of Severe Conflict,” Oxford Martin School, University of Oxford, April 17, 2012.

“Civilization Far from Equilibrium: Energy, Complexity, and Human Survival,” keynote, Equinox Summit: Energy 2030, Perimeter Institute, Waterloo, Ontario, June 7, 2011.

“Critical Infrastructure in Canada: Crisis, Resilience, and Systemic Innovation,” Public Safety Canada, Ottawa, December 1, 2010.

“The Ingenuity Gap: What Makes Our Problems So Hard?” Royal Society for the Arts, London, England, October 15, 2010.

“Complexity, Crisis, and Change: Implications for Federal Public Service,” 2010 Manion Lecture, Canada School of Public Service, Ottawa, May 5, 2010.

“The Ontology of Dangerous Outcomes: Uncertainty, Resources, and Governance in a Complex Future,” International Risk Governance Council, Zurich, Switzerland, December 16, 2009.

“Climate Change and the Renewal of Civilization,” keynote for conference on The Great Transformation: Climate change as cultural change, Essen, Germany, June 8, 2009.

“Convergence and Crisis: Challenges to Foreign Ministries in a Turbulent World,” keynote for conference on the Future of Foreign Ministries, Toronto, June 3, 2009.

“Uncertainty, Lags, and Nonlinearity: Challenges to Governance in a Turbulent World,” Oxford Institute for Ethics, Law and Armed Conflict, University of Oxford, May 7 2009.

“A Theory of Societal Collapse: Convergent Stress, Thermodynamic Disequilibrium, and Brittleness,” Winchester Lecture, University of Oxford, May 6, 2009.

“Climate Change, the Arctic, and Canada: Avoiding Yesterday's Analysis of Tomorrow's Crisis,” 20th Anniversary Conference of the National Round Table on the Environment and the Economy, Ottawa, Ontario, Oct. 30, 2008.

“Conflict in a Nonlinear World: Complex Adaptation at the Intersection of Energy, Climate, and Security,” Ingar Moen Memorial Lecture, Science & Technology Symposium, Defence Research and Development Canada, Ottawa, Ontario, April 25, 2007.

“Ingenuity Theory: Adapting to Complexity,” Carl Gustaf Bernhard Lecture, Royal Swedish Academy of Sciences, Stockholm, Sweden, April 27, 2005.

“Ingenuity Theory: Can Humankind Create a Sustainable Civilization?” Royal Society, London, England, October 2, 2003.

“Synchronous Failure: The Real Danger of the 21st Century,” Robert J. Pelosky, Jr., Distinguished Speaker Series, Elliott School of International Affairs, George Washington University, November 25, 2002.

Courses Taught

University of Waterloo

MA, PhD

Complexity and Global Governance, GGOV 622

Global Environmental Governance, GGOV 620

Graduate Seminar in Security Governance, GGOV 631

PhD

Core Seminar in Research Methods, GGOV 701

University of Toronto:

Undergraduate:

Complex Social Systems: War and Peace, POL486H

Security Ontology: Threats, Referents, and Values, JUP460Y

Conflict Management and Strategic Negotiation in International, Intergroup, and
Interpersonal Relations, UNI360Y

Social Adaptation to Complex Change, UNI360Y

Environmental Conflict and Security, POL346H

Introduction to Peace and Conflict Studies, UNI 260Y

PhD

Core Seminar in International Politics, POL2200Y (PDF)