Global Environmental and Climate Changes: Some Implications of Climate Change for Public Health

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Ethics, Climate Change and Public Health in an Age of Denialism.
African Climate and Development Initiative (ACDI)/EGS/School of Public Health Joint Event

March 15, 2017
Acknowledgement


Epidemiology

The study of the distribution (i.e., the \textit{where}) and determinants (i.e., the \textit{why}) of disease in populations and its application to the control of health problems

\textbf{Our focus is on \textit{preventing} harms to populations}
Epidemiology

Our job is to inform policy with a view to reducing harms by preventing disease and premature death at the community level.

How can we more effectively deliver on this obligation under global ecological change, including climate change?
Can we prevent large-scale effects?

- Primordial prevention
- Primary prevention
- Secondary prevention
- Tertiary prevention
Identify levels at which we operate

**Micro lens** – *e.g., physician-patient*
- **On the ground** … (advocate for patients; reactive; “Can’t see the wood for the trees”)

**Meso lens** – *e.g., community*
- From an elevation of about 100 meters
  (advocate for communities; more reactive than proactive; “Somewhat removed and can see the forest close-up”)

**Macro lens** – *e.g., country/world*
- From an elevation of about 10,000 meters
  (advocate for global health and well-being; proactive; observes from more distance and thus can see the whole rather than only the parts”)
Contemporary global-scale issues with major human health implications

- **Global geo-climatic system changes** (e.g., global warming, sea level rise, ocean acidification); CO2 levels continue to rise
- **Population growth** with rapid urbanization and the development of mega-cities; Mass forced and voluntary migrations
- **Expansion of consumption-intensive lifestyles** (e.g., into China and India, each with 1B + populations)
- **Increasing global and within-country disparities**
- **Fresh water declines** everywhere
- **Resurgence of old diseases and emergence of new** (e.g., malaria and tuberculosis, HIV/AIDS, SARS)
- **Species extinctions**
- **The growth-bound economic paradigm is entrenched**
Systemically, and, hence, institutionally ...

... what are some of the causes of these trends?
“Industry’s offensive against the regulation of health and safety hazards uses academics to downplay or deny the seriousness of the hazards...”

Clayson and Halpern

J. of Public Health Policy

September, 1983
The ‘Four D’s’ - Institutional

Applied to scientists studying that which does not support the status quo:

- Deny
- Delay
- Divide
- Discredit

[ Dismiss ] [ Death – Meryl Streep in the movie Silkwood, 1983; Julia Roberts in Erin Brockovich, 2000]
How ethical is all of this?
### Ecological Footprint (EF) (ha/person)

<table>
<thead>
<tr>
<th></th>
<th>1991</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>5.1</td>
<td>9.5</td>
</tr>
<tr>
<td>Canada</td>
<td>4.3</td>
<td>6.5</td>
</tr>
<tr>
<td>India</td>
<td>0.4</td>
<td>0.8</td>
</tr>
<tr>
<td>World</td>
<td>1.8</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Footprints are rising with rising energy and material consumption, even in the richest and most efficient countries, and fastest in the fastest growing countries, like China and India. The 2006 Living Planet Report shows the rising global EF since 1960, recognizing that the earlier years have wider margins of error.

**Sources:** Wackernagel & Rees. *Our Ecological Footprint* 1996; and the 2006 Living Planet Report
Ethics & Justice Dimensions of Climate Change

November 6, 2007 (Courtesy J. Patz) -- Cartograms
China, India attack Western climate ‘hypocrites’

*Daily Telegraph*

**BEIJING, NEW DELHI**

China is insisting that rich countries commit to large cuts in emissions of greenhouse gases, while declining to put a ceiling on its own levels.

Four months before the Copenhagen negotiations, which aim to produce a successor to the Kyoto treaty, China’s chief climate change negotiator confirmed that the world’s leading polluter was holding out for developed countries to reduce emissions by 40 per cent by 2020 from 1990 levels.

"We have all along believed that due to the historical responsibility of the developed nations, they must continue to take the lead with large reductions beyond 2012," said Yu Qingtai.

While China has developed green energy industries, it has also resisted any regulations that would dampen growth. It is not required to set emission targets since its per-capita rate is still far lower than those in Western countries.

Meanwhile, India’s climate change envoy said Wednesday that "hypocritical" Western countries must sacrifice some luxuries before asking developing countries to cut their greenhouse gas emissions.

Shyam Saran said the country would not take any measures that could restrict its growth. Instead, he said it would fund developments to reduce carbon emissions, increase green power generation and improve energy efficiency.

He added that any further measures demanded by developed countries would be taken only if full funding and technological support were provided.

Saran said his government planned to bring electricity to remote villages by transforming agricultural waste into power. But he said the government would not yield to pressure from the "hypocritical" West.

"No one is prepared to touch their living standards," he said. "If Europe or the US increased fuel prices by $1 a litre, it would make a substantial change in private transport, a major source of emissions."
Gap between rich and poor growing by the hour

DEREK ABMA
Postmedia News

Another day, another dollar? For Canada’s top executives, it’s more like another half-day, another \$44,366.

That’s how much the average member of the 100 top-paid chief executives of companies listed on the Toronto Stock Exchange’s composite index was projected to earn by noon on Tuesday, the first working day of the year. That’s according to the Canadian Centre for Policy Alternatives, which for the fifth straight year has measured how long it takes for Canada’s richest chief executives to make the average Canadian’s annual pay.

The think-tank based its report on data from 2010. Its previous report, based on numbers from 2009, showed the average CEO among Canada’s top 100 making the average person’s pay by 2:30 p.m. on the year’s first working day.

The latest report showed Canada’s top executives earned, on average, \$8.4 million in 2010, including salary, bonuses, stock grants and options. That was up 27 per cent from a year earlier. The average person, on the other hand, is actually earning less than during the 2008-09 recession, if inflation is taken into account, the centre said. The report says those working minimum wage jobs on a full-time basis made an average of \$19,798 in 2010.

Not only is the gap between the country’s elite money earners and regular people big, but it’s getting bigger, the report said.

“The average of Canada’s CEO elite 100 make 189 times more than Canadians earning the average wage,” the report’s author, economist Hugh Mackenzie, said in a statement. “If you think that’s normal, it’s not. In 1998, the highest paid 100 Canadian CEOs earned 105 times more than the average wage, itself likely more than double the figure for a decade earlier.”

The centre said no comparable data are available for the 1980s. The report says inequality between Canada’s richest and the rest has been growing since the mid-1980s, reversing a trend since the 1930s.
GINI COEFFICIENT

- Is a measure of statistical dispersion most prominently used as a measure of inequality of income distribution or inequality of wealth distribution.
- It is defined as a ratio with values between 0 and 1. “0” corresponds to perfect equality (everyone having exactly the same income), and “1” corresponds to perfect inequality (where one person has all the income, while everyone else has zero income).
<table>
<thead>
<tr>
<th>Country</th>
<th>GINI %</th>
<th>Country</th>
<th>GINI %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>24.9</td>
<td>United Kingdom</td>
<td>36.0</td>
</tr>
<tr>
<td>Sweden</td>
<td>25.0</td>
<td>Iran</td>
<td>43.0</td>
</tr>
<tr>
<td>Germany</td>
<td>28.3</td>
<td>United States</td>
<td>46.6</td>
</tr>
<tr>
<td>France</td>
<td>32.7</td>
<td>Argentina</td>
<td>52.2</td>
</tr>
<tr>
<td>Pakistan</td>
<td>33.0</td>
<td>Mexico</td>
<td>54.6</td>
</tr>
<tr>
<td>Canada</td>
<td>33.1</td>
<td>South Africa</td>
<td>57.8</td>
</tr>
<tr>
<td>Switzerland</td>
<td>33.1</td>
<td>Namibia</td>
<td>70.7</td>
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There are none so blind as those that will not see.
The global temperature has increased to a level not seen for 115,000 years, requiring daunting technological advances that will cost the coming generations hundreds of trillions of dollars, according to the scientist widely credited with bringing climate change to the public’s attention. A new paper submitted by James Hansen, a former senior NASA climate scientist, and 11 other experts states that the 2016 temperature is likely to be 1.25 degrees C above pre-industrial times, following a warming trend where the world has heated up at a rate of 0.18 C per decade over the past 45 years.

The link between rapid climate change and human extinction is basically this: the planet becomes uninhabitable by humans if the average temperature goes up by 4-6°C.

We have already tripped several irrevocable, non-linear, positive feedback loops (melting of permafrost, methane hydrates, and arctic sea ice) that make an average global temperature increase of only 2°C by 2100 seem like a fairy tale. Instead, we’re talking 4°C, 6°C, 10°C, 16°C ....
The Challenges are to

- Influence values for sustainability
- Instill new ethical norms for sustainable behaviour in:
  - Individuals
  - Organizations (NGOs, professional societies, etc)
  - Institutions (financial, schools, universities, etc)
  - Corporations
  - Governments (local, national, supranational)
- Influence law and its enforcement
- Reduce & embrace scientific uncertainties
Grave Challenges: Individually & Collectively

OPPORTUNITY and HOPE:

1. The Earth Charter
2. Constitution and Bill of Rights
3. Teaching about Sustainability
4. Local Land Ethic (*Indiana Dunes*)
5. Websites that are global
6. Conventions and Treaties
7. Agency policy documents
The Earth Charter

A soft law instrument … to save us from ourselves

Preamble

- Respect and care for the community of life
- Ecological integrity
- Social and economic justice
- Democracy, non-violence, and peace

The Way Forward

http://www.earthcharter.org/

Accessible in ~70 different languages including Chinese:

24. Environment

Everyone has the right
(a) To an environment that is not harmful to their health and well-being; and
(b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that
   (i) prevent pollution and ecological degradation;
   (ii) promote conservation; and
   (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable social and economic development.
South Africa’s Consideration of Ethics and Justice Issues in Formulating Climate Change Policies

By: Radhika Perrot, pp. 123-133; In: *Ethics and Climate Change: A Study of National Commitments*. Donald A. Brown and Prue Taylor (Eds.)

- International Union for the Conservation of Nature (IUCN): World Commission on Environmental Law
- Environmental Policy and Law Paper No. 86 (2014)
How should those who are concerned about the enormous threat of climate change respond to the Trump nomination of Exxon CEO Rex Tillerson to be the US Secretary of State given the enormous damage that Exxon has already caused through the company’s successful efforts in delaying the adoption of US climate change policies?

Trump’s selection of Tillerson for Secretary of State has received considerable understandable attention from the US media largely because of concern about Exxon’s ties to Russia, including, for instance, a contract with Russia negotiated by Tillerson in the amount of $500 billion that can’t be executed until economic sanctions placed on Russia for its invasion of the Ukraine are lifted.
QUOTE OF THE WEEK:

“Take the challenge of climate change,” he said. “In just eight years, we’ve halved our dependence on foreign oil, doubled our renewable energy, and led the world to an agreement that has the promise to save this planet. But without bolder action, our children won’t have time to debate the existence of climate change; they’ll be busy dealing with its effects; environmental disasters, economic disruptions, and waves of climate refugees seeking sanctuary.”

“Now, we can and should argue about the best approach to the problem,” he continued. “But to simply deny the problem not only betrays future generations: It betrays the essential spirit of innovation and practical problem solving that guided our Founders.”
Social Inequalities Drive Health Inequalities

The Australian Broadcasting Corporation’s annual Boyer Lecture series featured prominent epidemiologist and public health researcher Sir Michael Marmot delivering four lectures entitled Fair Australia: Social Inequalities and the Health Gap (September, 2016)

http://www.abc.net.au/radionational/programs/boyerlectures/
Discussion paper

Global Change and Public Health: Addressing the Ecological Determinants of Health

It is accessible [here](#) and adds “ecological determinants as a critical factor to the “social determinants”.
The most recent newsletter reflects on:

- A scientific defense of the environment and health
- Why earlier springs matter for our health
- Q&A: How climate change harms health
- Podcast: Climate change and health
- "A sense of despair": The mental health cost of unchecked climate change
A major force in the world that works against longevity and for ever-widening disparities:

1. Neoliberal Globalization: Is There an Alternative to Plundering the Earth? - by Prof. Claudia von Werlhof
   [Link to article](http://www.globalresearch.ca/neoliberal-globalization-is-there-an-alternative-to-plundering-the-earth/24403)

2. *Encirclement*: A 2 hr and 40 minute-long docu-drama about neo-liberalism, 2008. Learn about accessing the DVD at [Link](http://encirclement.info/index2.html) The production arm is at: [Link](http://www.filmsdupasseur.com) In French with some English (interviews with Noam Chomsky), but with excellent English sub-titles throughout.

→ Sociopaths as leaders of corporations & governments?
A Priestly Letter to US Speaker, Paul Ryan
Invoking Pope Francis’ encyclical *Laudato Si* of 24 May, 2015

Dismantle the EPA so that the rest of God’s sacred creation is imperiled by human narcissism (Pope Francis’ words). Have you not read Pope Francis’ encyclical *Laudato Si* that teaches everyone—believer and non-believer alike—that we humans are not here to destroy but to support creation for the good of all beings on earth now and in the future? If you have studied this great document—as you must as a thinking believer—where is it to be found in your legislative agenda?
From where does wisdom derive?

From

- Data to
- Information to
- Knowledge to
- Wisdom