Healthy Cities 2.0
Towards One Planet Cities

IUHPE Plenary 2
Rotorua, New Zealand

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Outline

1. Health Promotion 2.0: An eco-social approach
2. The global context: The Anthropocene and planetary health
3. Cities and countries of ‘The North’: Ecological and health inequity
4. One Planet Cities: Thinking globally, acting locally
1. Health Promotion 2.0: An eco-social approach to health
Health promotion has been ecologically blind

- The Ottawa Charter (1986)
  - Recognised “stable ecosystems and sustainable resources” as prerequisites for health
  - Proposed a socio-ecological approach to health
  - “An ecosystem which is stable now and sustainable in the long term” is one of the 11 parameters of a Healthy City

  Hancock and Duhl, 1986

But in practice, HP has focused on the SOCIAL determinants of health
The ecological determinants of health

But we depend on ecosystems for the very stuff of life:

- Air
- Water
- Food
- Fuel and materials
- Protection from UV radiation
- Waste recycling and detoxification
- A relatively stable and livable climate.
2. The global context: The Anthropocene and planetary health
Three aspects to the Anthropocene

- A geological phenomenon, a new geological epoch
- An ecological phenomenon – massive and rapid global ecological change
- A human phenomenon - we are the anthropos in the Anthropocene
Key ecological aspects of the Anthropocene

- Climate change
- Ocean acidification
- Ozone layer depletion
- Resource depletion
- Pollution and ecotoxicity
- Species extinctions

ALL AT THE SAME TIME
It is the both the **scale** and the **rapidity** of change that matters.
- World biocapacity has increased about 27% in the past 50 years.
- Humanity's Ecological Footprint has increased about 190% over the same time period.

**Planetary Boundaries**

**Note more than 1/2 is carbon**

**Average abundance of 16,704 vertebrate populations representing 4,005 species monitored across the globe - mammals, birds, fish, reptiles and amphibians**

60% decline since 1970

**Global Ecological Footprint, 1961 - 2014**

**Living Planet Index, 1970 - 2014**

**Annual CO₂ emissions by world region**

Annual carbon dioxide (CO₂) emissions measured in billion tonnes (Gt) per year

- China
- India
- Africa
- Middle East
- Americas (other)
- United States
- Europe (other)
- EU-28

Source: Carbon Dioxide Information Analysis Center (CDIAC)

Note: Emissions data have been converted from units of carbon to carbon dioxide (CO₂) using a conversion factor of 3.67. Regions denoted "other" are provisional totals minus emissions from the EU-28, USA, China and India. Here, we have rephrased the general term "bunker (fuels)" as

[Relevant chart and data sources provided]
‘The Great Acceleration’

**Socio-economic trends**

- Population
- Real GDP
- Foreign direct investment
- Urban population
- Primary energy use
- Fertilizer consumption
- Large dams
- Water use
- Paper production
- Transportation
- Telecommunications
- International tourism

**Earth system trends**

- Carbon dioxide
- Nitrous oxide
- Methane
- Stratospheric ozone
- Surface temperature
- Ocean acidification
- Marine fish capture
- Shrimp aquaculture
- Nitrogen to coastal zone
- Tropical forest loss
- Domesticated land
- Terrestrial biosphere degradation

**Year:** 1950
### Earth System trends

<table>
<thead>
<tr>
<th>Earth System trend</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO$_2$</td>
<td>+ 26%</td>
</tr>
<tr>
<td>Methane</td>
<td>+59.5%</td>
</tr>
<tr>
<td>Global surface temperature anomaly ($^\circ$C) $\vee$ 1961-1990</td>
<td>+ 0.471 (\vee) - 0.036</td>
</tr>
<tr>
<td>Ozone loss (2012)</td>
<td>50.8%</td>
</tr>
<tr>
<td>Ozone loss (peak loss, 1994)</td>
<td>66.9%</td>
</tr>
<tr>
<td>Ocean H ion</td>
<td>+18%</td>
</tr>
<tr>
<td>Marine fish capture</td>
<td>+ 4.6 x</td>
</tr>
<tr>
<td>Nitrogen flux to coast</td>
<td>4.26 x</td>
</tr>
<tr>
<td>Tropical forest loss (1700 vs. 2005)</td>
<td>27.66% (\vee) 15.65%</td>
</tr>
<tr>
<td>Agricultural land % of total (1750 vs. 2005)</td>
<td>0.38% (\vee) 0.31%</td>
</tr>
<tr>
<td>Terrestrial biosphere degradation (1700 vs. 2000)</td>
<td>28.6% (\vee) 14% (1950)</td>
</tr>
</tbody>
</table>

### Socio-economic trends

<table>
<thead>
<tr>
<th>Socio-economic trend</th>
<th>Value</th>
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<tbody>
<tr>
<td>Population</td>
<td>2.73 x</td>
</tr>
<tr>
<td>Real GDP (2005 US$)</td>
<td>11.1 x</td>
</tr>
<tr>
<td>Urban population</td>
<td>4.74 x</td>
</tr>
<tr>
<td>Primary energy use</td>
<td>5.14 x</td>
</tr>
<tr>
<td>Fertilizer consumption</td>
<td>14.4 x</td>
</tr>
<tr>
<td>Large dams</td>
<td>5.85 x</td>
</tr>
<tr>
<td>Water use</td>
<td>3.28 x</td>
</tr>
<tr>
<td>Paper production</td>
<td>5.38 x</td>
</tr>
<tr>
<td>Transportation (vehicle #s)</td>
<td>7.23</td>
</tr>
<tr>
<td>Telecommunications (bil. landlines)</td>
<td>&gt; 9,000 x</td>
</tr>
<tr>
<td>International tourism arrivals</td>
<td>37 x</td>
</tr>
</tbody>
</table>
“At the heart of this assessment is a stark warning. Human activity is putting such strain on the natural functions of Earth that the ability of the planet’s ecosystems to sustain future generations can no longer be taken for granted.”
The ecological determinants of health

We depend on ecosystems for the very stuff of life:

- Air
- Water
- Food
- Fuel and materials
- Protection from UV radiation
- Waste recycling and detoxification and
- A relatively stable and livable climate.
Global Change and Public Health: Addressing the Ecological Determinants of Health

THE REPORT IN BRIEF

WORKING GROUP ON THE ECOLOGICAL DETERMINANTS OF HEALTH

APRIL 2015

Available at
The Rockefeller Foundation–Lancet Commission on planetary health

Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health

Sarah Whitmee, Andy Haines, Chris Beyrer, Frederick Boltz, Anthony G Capon, Braulio Ferreira de Souza Dias, Alex Ezeh, Howard Frumkin, Peng Gong, Peter Head, Richard Horton, Georgina M Mace, Robert Marten, Samuel S Myers, Sania Nishtar, Steven A Osfsky, Subhrendu K Pattanayak, Montira J Pongsiri, Cristina Romanelli, Agnes Soucat, Jeanette Vega, Derek Yach
“we have been mortgaging the health of future generations to realise economic and development gains in the present. By unsustainably exploiting nature’s resources, human civilisation has flourished but now risks substantial health effects from the degradation of nature’s life support systems in the future.”

Rockefeller Foundation–Lancet Commission on Planetary Health
The Anthropocene is arguably the greatest threat to global health in the 21st century.
3. Cities and countries of ‘The North’: Ecological and health inequity
Over the period from 1850 to 2012,

- the USA was responsible for 22% of total CO2 emissions and the EU for 18%;
- China, Russia, India and Brazil were responsible for 13, 6, 5 and 4 percent respectively, with the rest of the world accountable for 37%.
- It is estimated that by 2100 the USA and the EU will have contributed almost half (45%) of temperature increase resulting from overall Kyoto GHG emissions.

Rocha et al., 2015
Inequitable carbon emissions

• “the poorest half of the global population – around 3.5 billion people – are responsible for only around 10% of total global emissions attributed to individual consumption”

• “50% of these emissions . . . can be attributed to the richest 10% of people around the world”.

• This latter group “have average carbon footprints 11 times as high as the poorest half of the population, and 60 times as high as the poorest 10%.

• The average footprint of the richest 1% of people globally could be 175 times that of the poorest 10%”

Oxfam, 2015
Inequity in the Ecological Footprint

Figure 6: Ecological Footprint per capita (gca) in high-, middle- and low-income countries (World Bank classification and data) between 1961 and 2010. The green line represents world average biocapacity per capita. (Global Footprint Network, 2014).

Key

- **Blue line**: High income
- **Purple line**: Middle income
- **Blue-green line**: Low income
- **Green line**: World biocapacity

The green line represents world average biocapacity per capita.
Inequity in the Living Planet Index

Figure 7: LPI and country income groups (World Bank classification), 1970-2010. (ZSL, WWF, 2014).

Key

- High income
- Middle income
- Low income

- High-income countries - 10% increase
- Middle-income countries - 18% decline
- Low-income countries - 58% decline

WWF (2014) *Living Planet Report – 2014* ©2018 WWF – All rights reserved
In Canada we act as if we had this . . .
. . . but this is what we have
So this means an 80% reduction in our ecological footprint
... while at the same time meeting basic needs and ensuring high levels of human and social development and good health for all
4. One Planet Cities: Thinking globally, acting locally
How do we live equitably, in harmony and in good health on this one small planet we call home?
People, planet and participation: The Kuching Statement

- **People:** People’s physical, mental and social wellbeing is the core business of cities. . . . successful cities put the focus on quality of life.

- **Planet:** People cannot thrive without the Earth’s support systems or the biodiversity of natural ecosystems.

- **Participation:** In order to put people and the planet at the heart of governance, healthy, just and sustainable cities engage fully with their citizens and community organizations.
Conversations for a One Planet Region

Vision
• The Greater Victoria Region achieves social and ecological sustainability, with a high quality of life and a long life in good health for all its citizens, while reducing its ecological footprint to be equivalent to one planet’s worth of bio-capacity.

Mission
• The Mission of *The Conversations* is to establish and maintain community-wide conversations on One Planet living and a One Planet Region.

https://creativelyunited.org/one-planet-region/

Learn - Discuss - Imagine - Design - Create
### 10 Principles of One Planet Living

<table>
<thead>
<tr>
<th>Principle</th>
<th>Icon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and happiness</td>
<td><img src="image" alt="Smiley" /></td>
</tr>
<tr>
<td>Equity and local economy</td>
<td><img src="image" alt="Handshake" /></td>
</tr>
<tr>
<td>Culture and community</td>
<td><img src="image" alt="People" /></td>
</tr>
<tr>
<td>Land and nature</td>
<td><img src="image" alt="Butterfly" /></td>
</tr>
<tr>
<td>Sustainable water</td>
<td><img src="image" alt="Water" /></td>
</tr>
<tr>
<td>Local and sustainable food</td>
<td><img src="image" alt="Apple" /></td>
</tr>
<tr>
<td>Travel and transport</td>
<td><img src="image" alt="Bicycle" /></td>
</tr>
<tr>
<td>Materials and products</td>
<td><img src="image" alt="Cloud" /></td>
</tr>
<tr>
<td>Zero waste</td>
<td><img src="image" alt="Recycle" /></td>
</tr>
<tr>
<td>Zero carbon energy</td>
<td><img src="image" alt="Wind turbine" /></td>
</tr>
</tbody>
</table>

*Bioregional Annual Review, 2015 -16*
Comparison of Outputs – Saanich & Victoria

- **Victoria Ecological Footprint**
  - 24% Transportation
  - 43% Food
  - 15% Consumables
  - 18% Buildings

- **Saanich Ecological Footprint**
  - 29% Transportation
  - 44% Food
  - 10% Consumables
  - 17% Buildings

- **Key Points**
  - Waste/Consumables is a much lower component of the GPC inventory
  - In the CBEI the largest impact is transportation (40%) followed by buildings
  - Food has a much greater impact in the EF

Source: Moore and Hallsworth, 2018
Happily, there are many health co-benefits . . .
Source: One Planet Saanich Team, 2018
Suggested key steps:
Target approx 1.5 gha/person

<table>
<thead>
<tr>
<th>Suggested change</th>
<th>EF reduction, gha/person</th>
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<tbody>
<tr>
<td>Eliminate fossil fuel emissions in buildings</td>
<td>0.41</td>
</tr>
<tr>
<td>Convert half of gasoline private vehicles to electric</td>
<td>0.18</td>
</tr>
<tr>
<td>Reduce purchase of non-food consumables by 30%</td>
<td>0.15</td>
</tr>
<tr>
<td>Reduce meat and dairy by 25%</td>
<td>0.12</td>
</tr>
<tr>
<td>Purchase 25% less food</td>
<td>0.11</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>0.97</strong></td>
</tr>
</tbody>
</table>

Source: Moore and Hallsworth, 2018
Hope, vision and exciting opportunities

・“Hope is ... the commitment to positivity in the face of adversity”
  Dutt and Brcic, 2014

・“Vision is values projected into the future”
  Clem Bezold, Institute for Alternative Futures

・“In the midst of every crisis, lies great opportunity”
  Albert Einstein
This is exciting – we need

- Visionaries, revolutionaries and evolutionaries
- Innovators, creators
- Communicators, cultural shifters
- Civic and political activists
- The new green and social entrepreneurs who will create the new economy we need.
The civilising role of cities in the 21st century

- Planetary health is about the health of human civilization and the state of the natural systems on which it depends”
  - Rockefeller-Lancet Commission on Planetary Health

- Cities – together with agriculture - are the crucibles of civilization
• But surely it is uncivilised to undermine the very things we and our families, friends, neighbours and fellow citizens need for life and health

• Cities need to take up their civilising role in creating a just, sustainable and healthy future for all
Contact

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