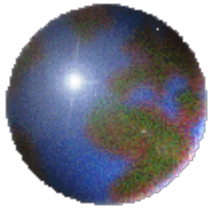


How Health of the Environment Affects Health

1



Colin L. Soskolne, PhD
Professor emeritus
University of Alberta

Adjunct Professor, Faculty of Health
University of Canberra, Australia

URL: www.colinsoskolne.com

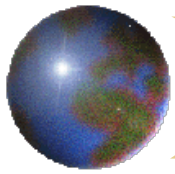
Edmonton Lifelong Learners Association (ELLA)

Global Health Course (coordinated by Anne Fanning)

April 27-May 15, 2015

University of Alberta, Education North N2-115

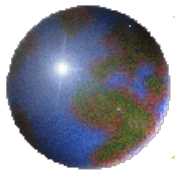




Epidemiology

- ❖ **Our job is to **inform policy** with a view to reducing harms by preventing disease and premature mortality at the community level**
- ❖ *How can we more effectively deliver on this obligation under global ecological change, including climate change?*

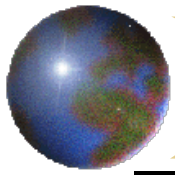




Two objectives

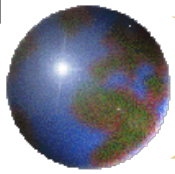
- 1. Distinguishing between global health and health in the Anthropocene: the social and ecological determinants of health**
- 2. Ethics and principles that determine our path, collectively and individually as global citizens and as scientists**





Courtesy of NASA...*Planet Earth*





The state of Earth's ecosystems

Nine Earth System Processes:

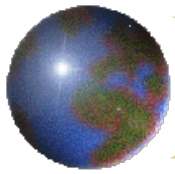
(Steffen et al, 2015)

- *Climate Change*
- *Loss of Biodiversity*
- *Nitrogen & Phosphorus Cycle*
- *Ozone Depletion*
- *Ocean acidification*
- *Global freshwater use*
- *Changes in land use*
- *Novel entities**
- *Atmospheric aerosol loading*



new substances, new forms of existing substances and modified life-forms that have the potential for unwanted geophysical and/or biological effects e.g. POPs, heavy metals, nano-particles, genetically engineered organisms



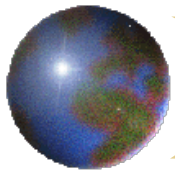


❖ *Global Change and Public Health: Addressing the Ecological Determinants of Health*

❖ **Hancock, Trevor; Spady, Donald W. and Soskolne, Colin L. (Editors) (2015)**

❖ **<http://www.cpha.ca/uploads/policy/edh-brief.pdf> on or about May 25 , 2015**

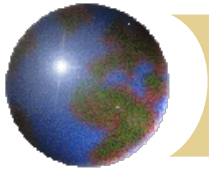




✚ **Public Health in the Anthropocene: Responding to the ecological determinants of health**

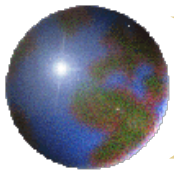
- ✚ Vancouver, Canadian Public Health Association annual conference. Monday, May 25 2015
 - Plenary, from noon until 2 pm





The DENIAL machine





Distinguish between

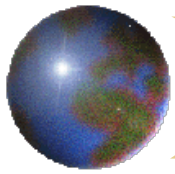
“(Honest) *INCOMPETENCE*”

vs.

“(Deliberate) *MISCONDUCT*”

Which Paradigm And In Whose Best Interests?





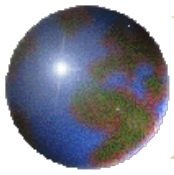
DISCLOSURE - May 9, 2014

Alberta Energy Regulator (AER) Proceeding No. 1769924

into Odours and Emissions in the Peace River Area, Alberta, Canada

This work was prepared under contract to a participant in the Inquiry, but my report was not presented as evidence or discussed at the hearing. My client has provided me with approval to publish in the interest of advancing the discussion with respect to health science.

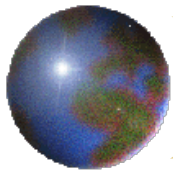




A real-world problem

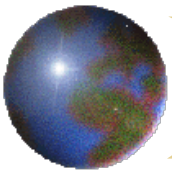
- ✦ **Baytex** and four other companies use a method of heating bitumen in above-ground tanks to extract oil, and residents have complained of odours, feeling sick, and other issues from living near the site. The Baytex tanks use open venting.
- ✦ **Shell** decided in advance not to contest the health complaints.



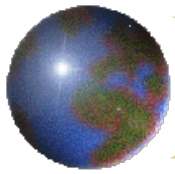


Baytex Reno Field, Peace River Alberta





Brian Labrecque and his cousin Alain Labrecque left their homes near Peace River because of fumes from bitumen processing they say are causing their health problems

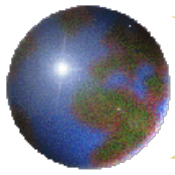


My task was to ...

... evaluate two independent health risk assessment reports commissioned by the AER for the hearing:

- **one that adopted linear reductionist methods (by Davies)**
- **the other that used more of a post-normal science approach (by Sears).**

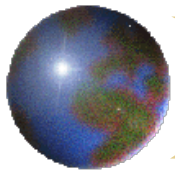




Classical techniques that skew results: from biased methods to junk science

- **Under-powered studies**
- **Inadequate follow-up methods**
- **Inadequate follow-up time**
- **Contaminated controls**
- **Unbalanced discussion**
- **Selective disclosure of competing interests**
- **Linear-reductionist quantitative methods without post-normal qualitative approaches to complement them**

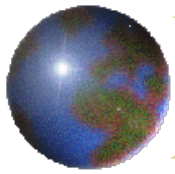




Classical techniques that skew results: biased/selective interpretation

- **Mechanistic information is ignored for inferring effects**
- **Exaggerated differences are made between human and toxicology studies, the insistence being on separating effects seen in animals from effects in humans**
- **The fact that molecular structures predict hazard potential is ignored**

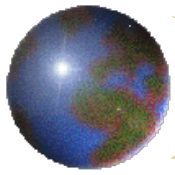




Techniques that skew policy

- **The insistence on first demonstrating effects in local populations of exposed people despite demonstrated effects in humans elsewhere**
- **The failure to make explicit the implicit value judgements that go into deciding appropriate standards of evidence for drawing policy-relevant conclusions (i.e., supressing dominant interests and values)**

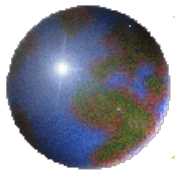




Conclusions

The complexity, post-normal quantitative and qualitative approach taken by Sears - as opposed to the **liner-reductionist, quantitative approach of Davies - is more credible, especially in light of the failure of Davies' predictive modelling to bear out that which happens in the real world.**



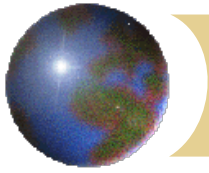


One Way to Move Forward

19

Greater vigilance on the part of professionals has to be relied upon in support of science in the public interest. But, it is like David vs. Goliath. So, the challenge lies in its operationalization.





Questions?

