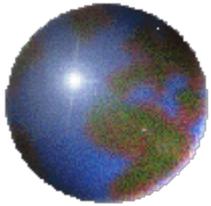


Values, Ethics, and Sustainability

1

Lecture #9



Colin L. Soskolne, PhD
Professor of Epidemiology
School of Public Health
University of Alberta
Edmonton, Alberta

URL: www.colinsoskolne.com

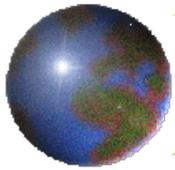
Edmonton Lifelong Learners Association (ELLA)

--- Course Number EL 21 ---

University of Alberta, Education South 165, April 30-May 11, 2012

David Thompson will teach the last week (May 14-18, 2012)





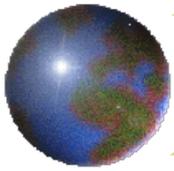
Epidemiology

The study of the distribution and determinants of disease in populations and its application to the control of health problems

- ❖ **Primordial *prevention* (policy intervention)**
- ❖ **Primary *prevention* (avoid exposure)**
- ❖ **Secondary *prevention* (early detection)**
- ❖ **Tertiary *prevention* (rehabilitation)**

Basic Epidemiology: Beaglehole, Bonita & Kjellström, WHO, Geneva 1993, 2006

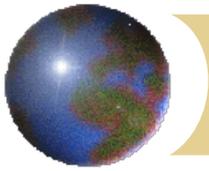




INTEGRITY ...

- ⊕ **Moral integrity** *People*
- ⊕ **Structural integrity**... *Buildings*
- ⊕ **Ecological integrity**... *Ecosystems*
- ⊕ **Biological integrity** ... *Life at the cellular level*





Environmental protection worth trillions, UN report says

Canwest News Service

Protecting natural ecosystems and biodiversity is worth trillions of dollars in annual economic benefits around the planet, says a new report released on Friday by the United Nations.

From improving food and water security to reducing greenhouse gas emissions, the report — *The Economics of Ecosystems and Biodiversity* — says money invested in protecting the planet's forests and natural systems is the best long-term solution for both the economy and the environment.

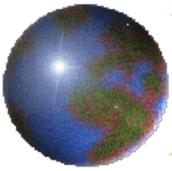
"We are running down our natural capital stock without understanding the value of what we are losing," said the report, released by the UN Environment Program. "The degradation of soils, air, water and biological resources

can negatively impact on public health, food security, consumer choice and business opportunities."

A lead author of the report, Pavan Sukhdev, said Canadians also stand to benefit from doing more to protect resources such as fishing stock and the Boreal Forest. "We must get this going as something that is cheap, effective and everyone can do this."

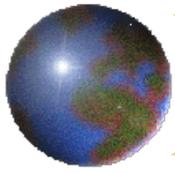
For example, Sukhdev said protecting forests can be more efficient and accessible than exploring new technologies to capture greenhouse gas emissions and bury them underground. Overall, he said annual benefits of protecting areas in land are worth up to \$5 trillion per year, while protected fishing areas are essential to preserving fishing stocks and even improving profits and revenues for the industry.





- ✓ *“The significant problems we face today, from our current patterns of thinking, cannot be solved by the same pattern of thinking which created them.” – A. Einstein*
- ✓ *“Inside the Box” vs. “Outside the Box”*
- ✓ *“Linear Reductionism” vs. “Complexity”*
- ✓ *“Uni-disciplinary” vs. “Inter-disciplinary” vs. “Multi-disciplinary” vs. “Trans-disciplinary”*
- ✓ *“Band-Aid Solutions” vs. “Systemic Solutions”*
- ✓ **THE EARTH CHARTER:** It is a **vision**, not an **instruction manual** – take it as such.”

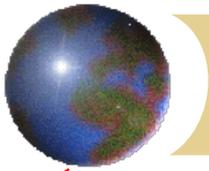




Definitions and concepts to “open our minds”⁶

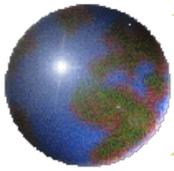
- ⊕ **BRAIN-WASHED:** *Indoctrination by propaganda*
- ⊕ **DOGMA:** *Something held as authoritative without substantiation*
- ⊕ **ENTITLEMENT:** *A right to benefits*
- ⊕ **HUMILITY** vs. **ARROGANCE**
- ⊕ **HYPOCRITE:** *Putting on a false appearance of virtue or religion, or Not **WALKING THE TALK:** *Not Doing what you preach**
- ⊕ **LIVE, SPEND, AND CONSUME AS IF THERE IS NO TOMORROW:** *A self-fulfilling prophesy?*
- ⊕ **MANIPULATION:** *To control for one’s own advantage*





- ✓ **The MILITARY-INDUSTRIAL-ACADEMIC COMPLEX:** *An alliance to influence government policy*
- ✓ **MYTH:** *An unfounded or false notion*
- ✓ **PARADIGM:** *A framework used to describe reality*
- ✓ **SELF-INTEREST:** *Concern for one's own advantage*
- ✓ **SOCIOPATHS:** *Con artists who sway the exploitable with no regard to their rights in pursuit of power (psychopaths)*
- ✓ **SOLIDARITY:** *Unity based on community of interests*

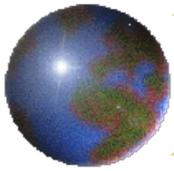




“Nestlé award” by the UofA

On March 1, 2012 ...

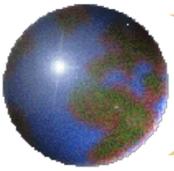




The Occupy Movement

✦ *Support, but what's wrong with existing structures in our democracies?*





INTERDISCIPLINARY

- Involving two or more academic, scientific, or artistic disciplines

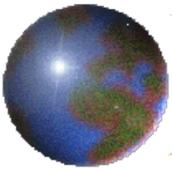
Miriam Webster's Collegiate Dictionary, Tenth Edition, 1996

MULTIDISCIPLINARY

- Many ... , multiple ... , more than two ... disciplines

Miriam Webster's Collegiate Dictionary, Tenth Edition, 1996





TRANSDISCIPLINARY

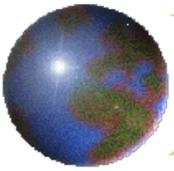
- Interdisciplinary

Miriam Webster's Collegiate Dictionary, Tenth Edition, 1996

- Of or pertaining to more than one discipline or branch of learning, interdisciplinary

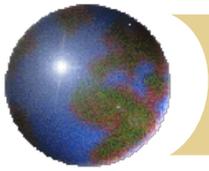
Oxford English Dictionary, Second Edition (WWW)





But, in fact ...



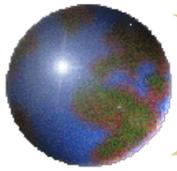


TRANSDISCIPLINARY

Transdisciplinary approaches to Human Health are approaches that integrate the natural, social and health sciences in a humanities context, and in so doing transcend each of their traditional boundaries. Emergent concepts and methods are the hallmark of the transdisciplinary effort

*Adapted from David Rapport by Colin Soskolne, 1999
Rosenfield, Patricia L. The potential of transdisciplinary research for sustaining and extending linkages between the health and social sciences. *Social Science and Medicine*, 1992;35(11):1343-1357.*



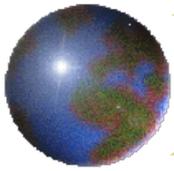


Newtonian vs. Complexity Paradigms

14

- ✚ **Reductionism vs. Holism**
- ✚ **Predictability vs. unpredictability**
- ✚ **Linear vs. non-linear**
- ✚ **Uncertainties acknowledged**
- ✚ **Deterministic vs. non-deterministic**
- ✚ **System equilibrium vs. instability**

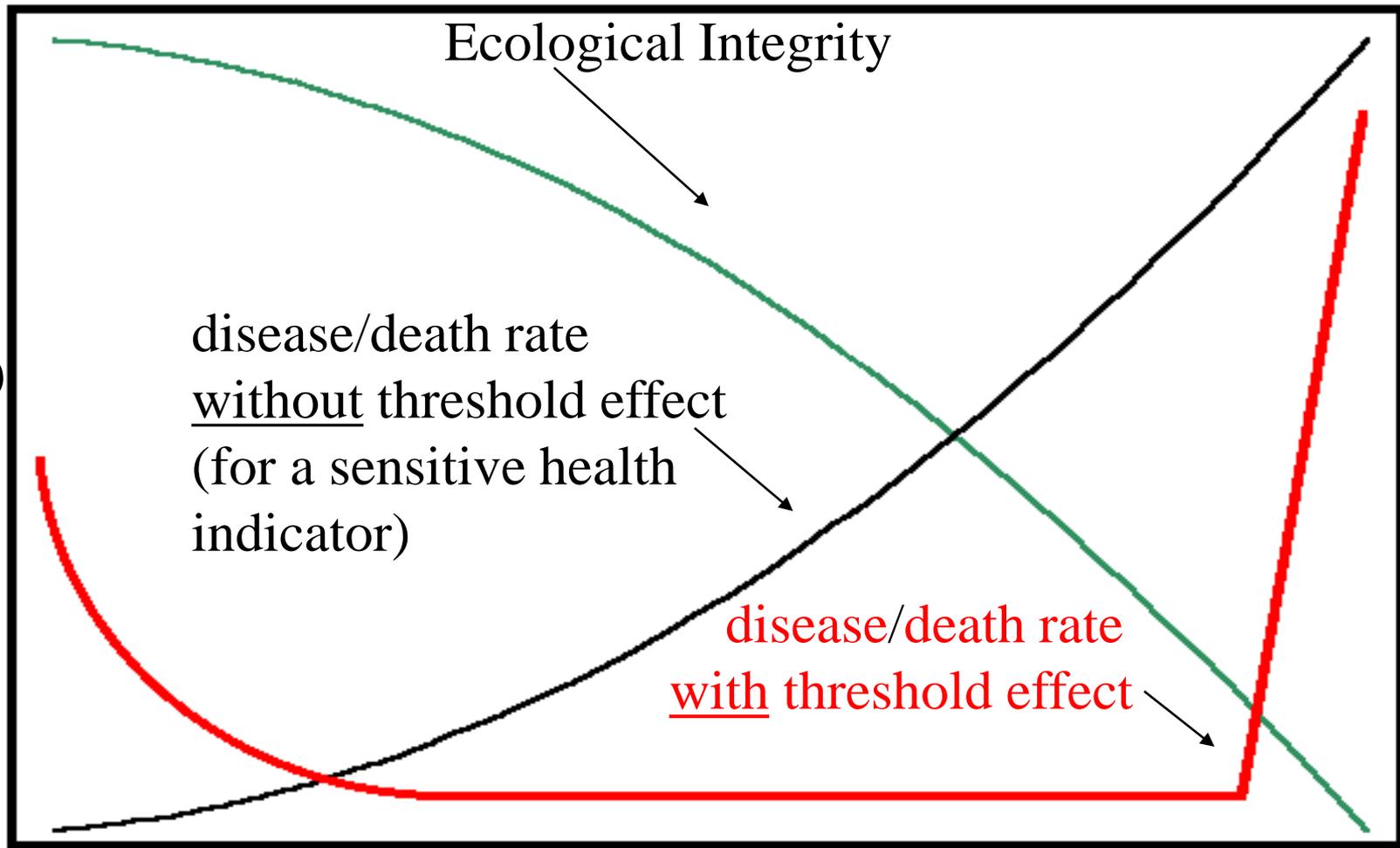




Threshold health effect in a hypothetical time-trend study, superimposed on an idealized relationship between ecological disintegrity and a sensitive health indicator

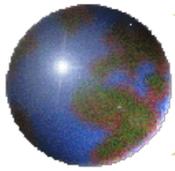


↑
effects
(health/
ecological)



time (years) →

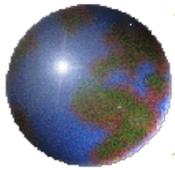




POLICY RELEVANCE

- ✦ **Epidemiology is the science that is basic to rational public health policy formulation**
 - ❑ **Infectious Diseases – *proximate***
 - ❑ **Chronic Diseases – *distal determinants: complex interactions, industrial activities, pollution, synergies***
- ✦ **Uncertainty is inherent to science**
and interplays with
- ✦ **The policy-maker's conundrum**





The Manufacture of Doubt

⊕ David Michaels' work

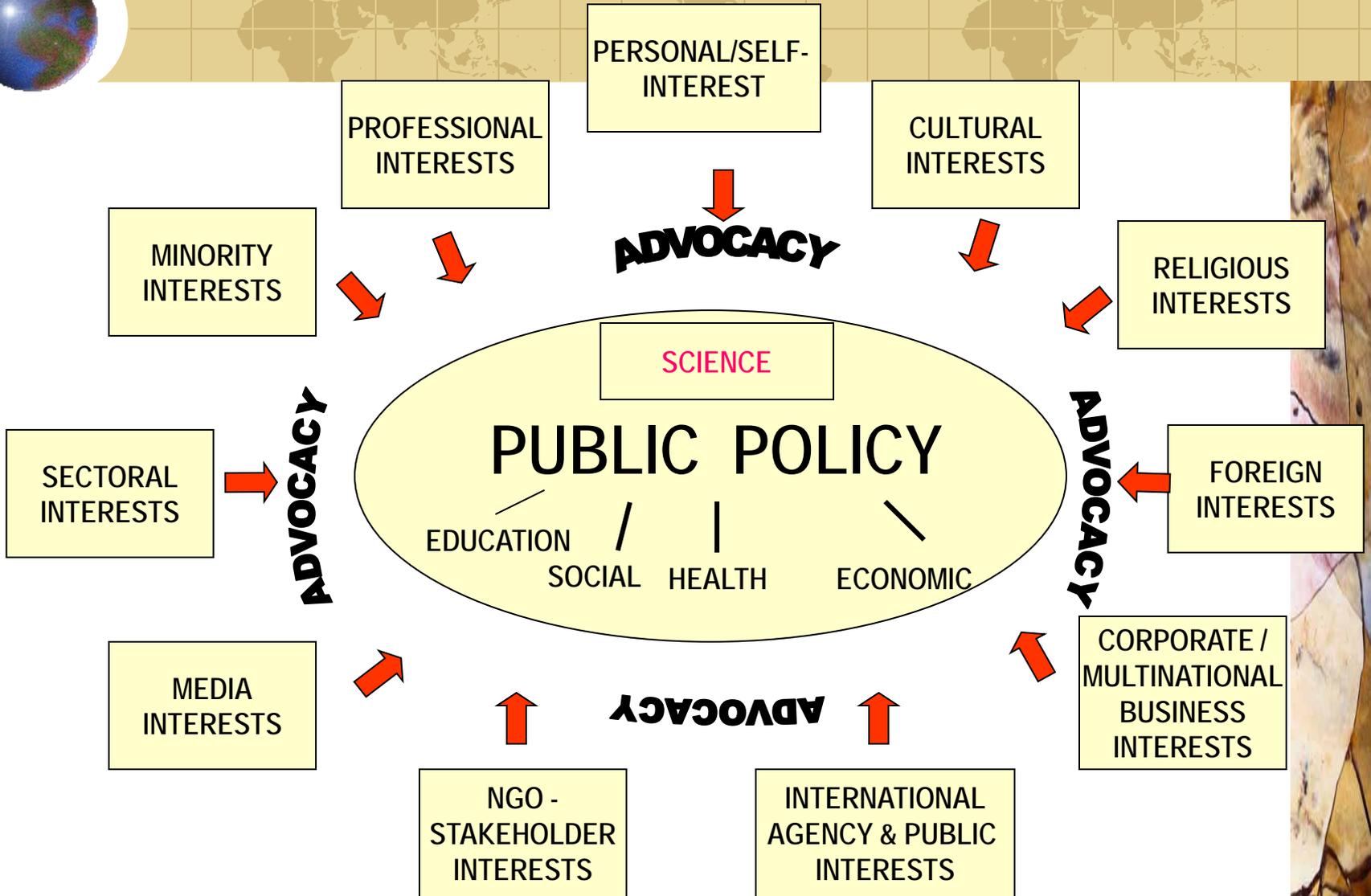
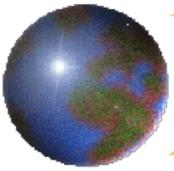
⊕ **“Doubt is Their Product: How Industry's Assault on Science Threatens Your Health”**

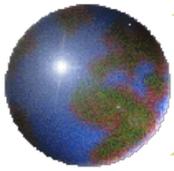
OUP, 2008

⊕ The policy-maker's conundrum

⊕ **the fomentation of uncertainty by vested interests.** By increasing uncertainty, the policy-maker's ability to implement health policy is made all the more difficult



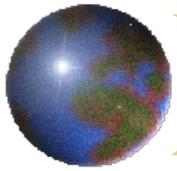




Science is but one such pressure

***--- HUMILITY AND
EMPATHY FOR THE
POLICY-MAKER***





Traditional Health Indicators

20

- ✦ **Life Expectancy**

- ✦ **Percent Low Birth Weight Babies**

- ✦ **Infant Mortality**

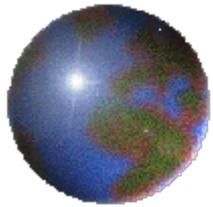
- ▣ ***Intuitively linkable to measures of ecological degradation, but no association was found (Sieswerda et al., 2001)***

- ▣ ***Wealth is the buffer***

So, what happens to those who live in poverty without the buffer of wealth?



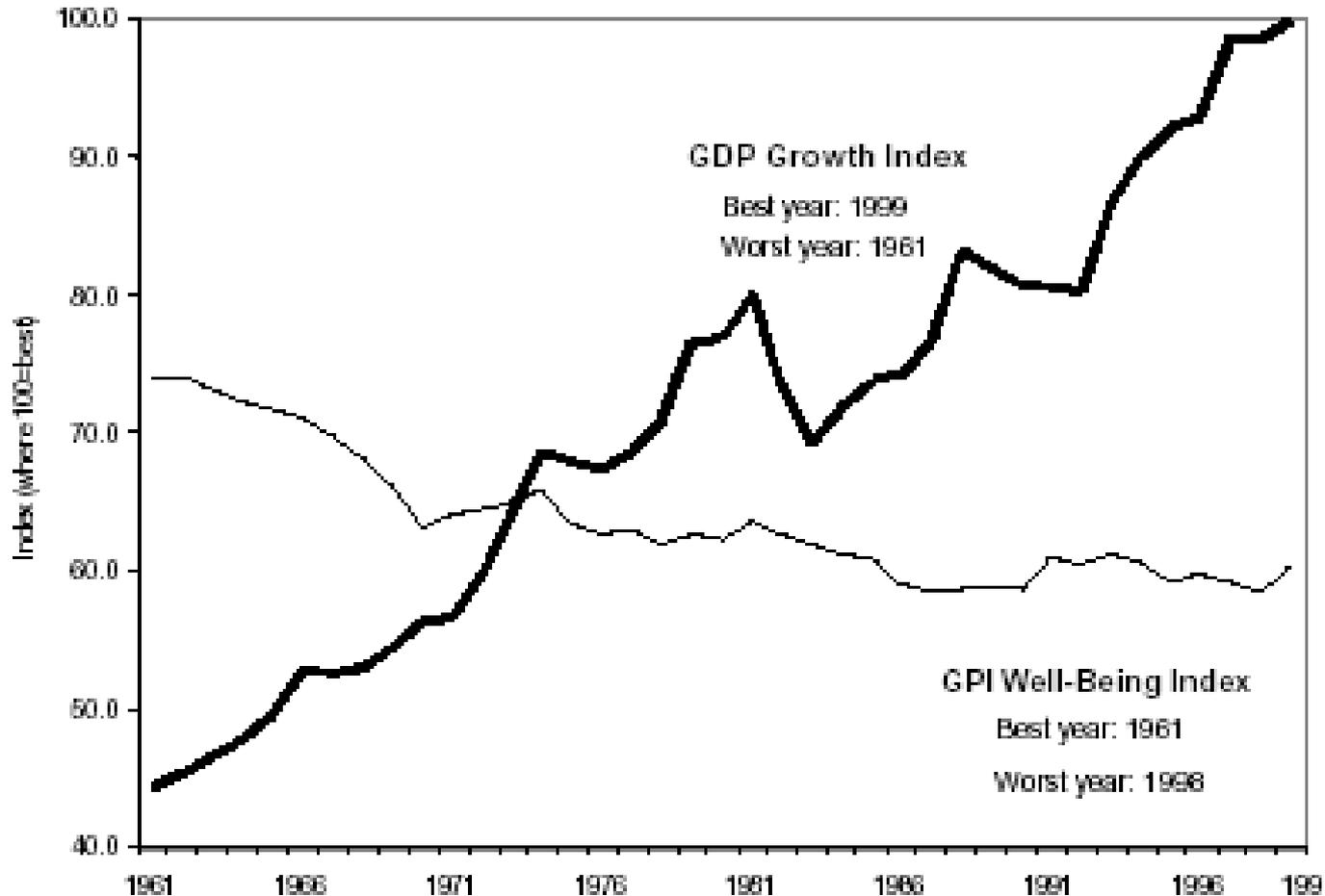
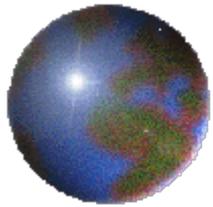
The Alberta GPI Indicators for Economic, Personal-Societal and Environmental Well-being - *Redefining Progress*, San Francisco; Mark Anielski, Edmonton



Economic	Personal-Societal	Environmental
<ul style="list-style-type: none"> • Economic growth • Economic diversity • Trade • Disposable income • Weekly wage rate • Personal expenditures • Transportation expenditures • Taxes • Savings rate • Household debt • Public infrastructure • Household infrastructure 	<ul style="list-style-type: none"> • Poverty • Income distribution • Unemployment • Underemployment • Paid work time • Household work • Parenting and eldercare • Free time • Volunteerism • Commuting time • Life expectancy • Premature mortality • Infant mortality • Obesity • Suicide • Drug use (youth) • Auto crashes • Divorce (family breakdown) • Crime • Problem gambling • Voter participation • Educational attainment 	<ul style="list-style-type: none"> • Oil and gas reserve life • Oilsands reserve life • Energy use intensity • Agricultural sustainability • Timber sustainability • Forest fragmentation • Parks and wilderness • Fish and wildlife • Wetlands • Peatlands • Water quality • Air quality-related emissions • Greenhouse gas emissions • Carbon budget deficit • Hazardous waste • Landfill waste • Ecological footprint



The Alberta GPI Well-being Index versus Alberta GDP Index, 1961 to 1999

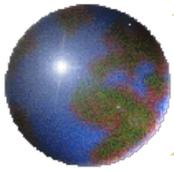


Source: Alberta GPI Accounts 1961-1999



**New Orleans
after Hurricane Katrina**





Arctic
 Dramatic warming over most of the Arctic
 Modest cooling of far east Arctic
 25% increase precipitation
 Loss of permafrost, up to 2m
 Wildlife range shift 150km N
 Warming
 N. hemisphere sea-ice decreasing
 Antarctic ice no change
 40% decrease in Arctic ice thickness in late summer 1976 and mid 1990's.

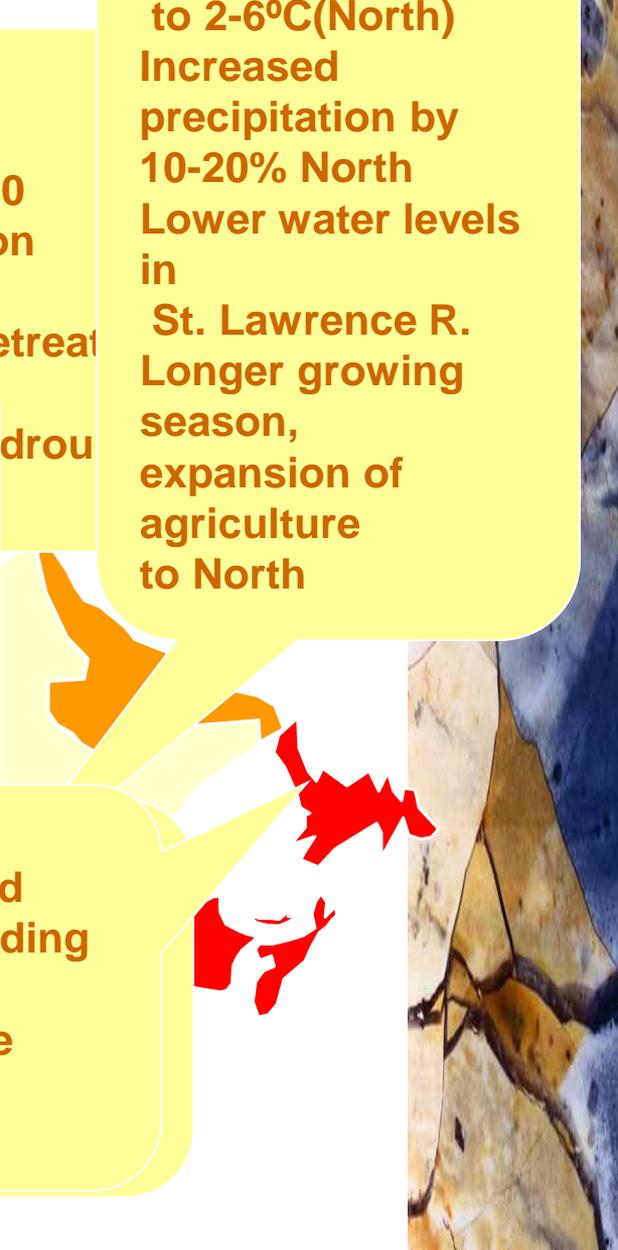
BC/Yukon
 Sea level rise- 30-50cm by 2050
 Coastal flooding, sedimentation
 Increased snow

Ontario
 3-8°C avg warming - increased heat stress, air pollution
 Fewer weeks of snow
 Longer growing season
 Increased severity and length of drought
 Increased risk of forest fires

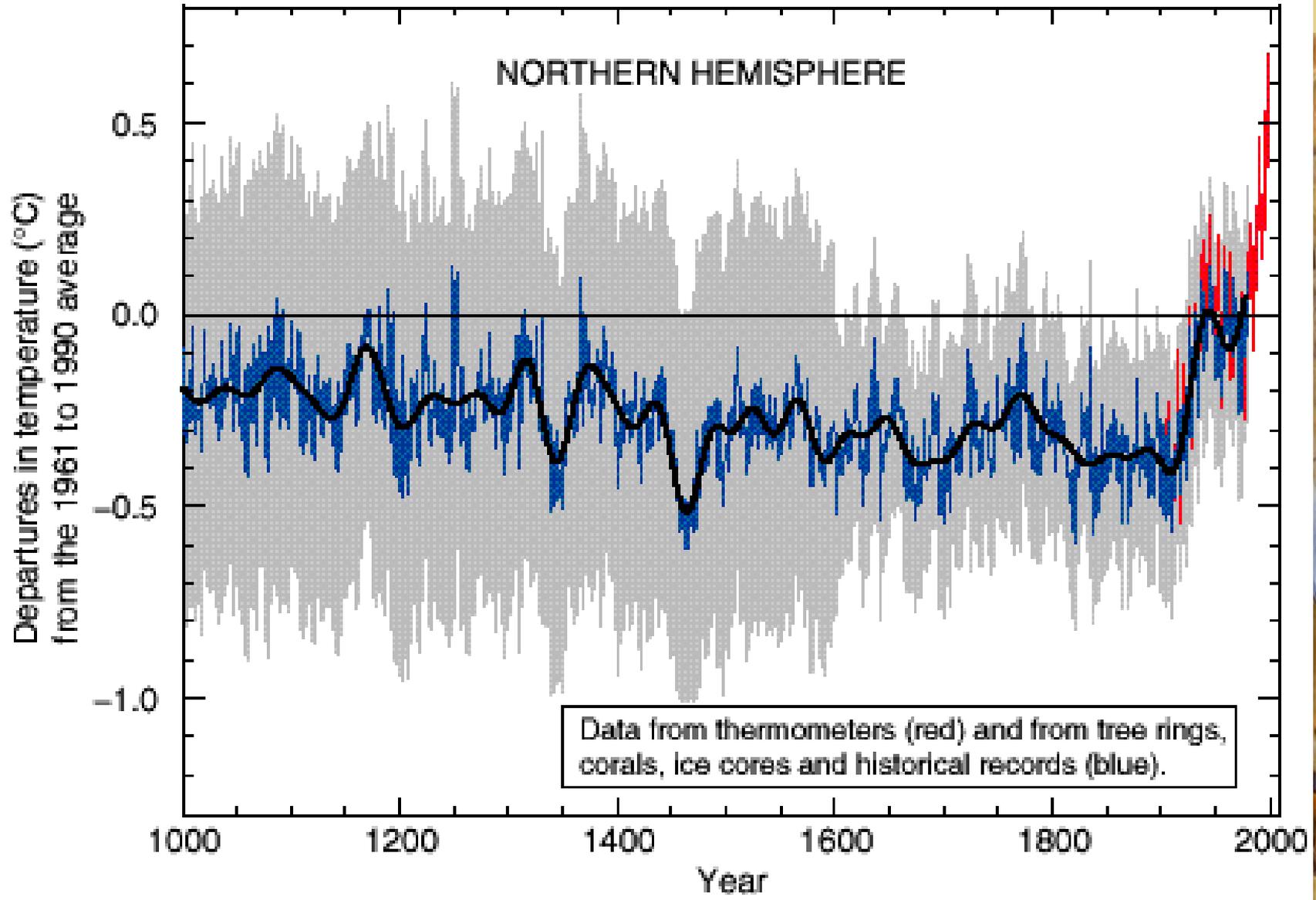
Pr. Decline
 Hotter, drier
 Increased snow
 Decreased ice
 Increased n
 Loss of wet

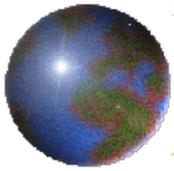
Atlantic
 Slight COOLING trend
 Rising sea-level, flooding and erosion
 Reduced sea/river ice
 Changed fish ranges

Quebec
 Warming by 1-4°C (South) to 2-6°C (North)
 Increased precipitation by 10-20% North
 Lower water levels in St. Lawrence R.
 Longer growing season, expansion of agriculture to North



7





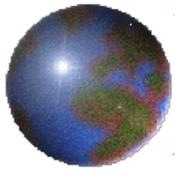
The principle of SOLIDARITY

- ⊕ **What goes around, comes around in our world that, environmentally, is a seamless web**

- ⊕ ***"Made in Canada", "Made in Alberta" and "Voluntary compliance" are counter to this principle***

- ⊕ **Too much self-interest ...**
 - ⊞ **The fox guarding the hen house ...**



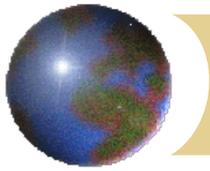


*The **FUNDAMENTAL PRINCIPLES** of **BIOETHICS** include (under Justice and Non-maleficence):*

✚ THE SEVENTH GENERATION PRINCIPLE

- ✚ Consider consequences seven generations hence**

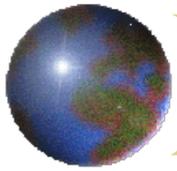




✚ Why should epidemiologists and public health researchers and practitioners be concerned with matters of a global nature?

→ The Right to Life for both present and future generations

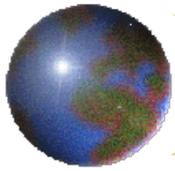




In whose interests?

- ✦ **Only Canada as a nation?**
- ✦ **Only the USA as a nation?**
- ✦ **Only North America as a region?**
- ✦ **Only the present wealthy?**
- ✦ **Only the present generation?**
- ✦ **Future generations – locally/globally?**



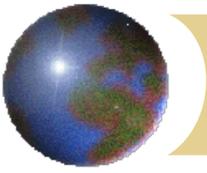


Being able to discern fact from fiction

- ✦ **Hone your “bullshit” detection skills**
 - ✦ *Or, said differently:*
- ✦ **Hone your “crap” detection skills**

- ✦ **From any vested interest, conspiracy theorist, and even scientist whose findings you should be poised to refute**





Questions/Discussion?

