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WORLD IN THE BALANCE: CHINA REVS UP

PBS Airdates: April 20, 2004
Go to the companion Web site

Hour 1: The People Paradox
Hour 2: China Revs Up

Welcome to the future. PBS Digital.

NARRATOR: We used to worry that population, too many people, would destroy the environment. Now we understand that there's something even worse: affluence.

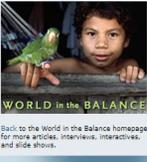
China is the world's biggest country, and as it becomes more and more affluent it will overtake the United States to become the world's worst polluter.

LESTER BROWN (Earth Policy Institute): China uses more steel than the United States. China consumes far more grain than the United States. China, you know, was once a billion poor people, but China's no longer a poor country.

NARRATOR: China may soon be the world's largest economy, with a middle class of 300 million people, all consumers, reaching for the good life: shopping, buying and even driving in record numbers. For many, it's the ultimate dream. But unless China cleans up its act, the dream could become an environmental nightmare, with a poisoned atmosphere, a world of dying forests and disappearing wildlife, flooded and baked by the searing heat of global warming.

China is at a crossroads and decisions made here will affect everyone on the planet.

CHANGHUA WU (The Green Development Institute): As the most populous country in the world, the future of China's environment will play a big role in determining the future of the world environment.



Back to the World in the Balance homepage for more articles, interviews, interactives, and slide shows.

Main thrust of the video “China Rev’s UP! -> CLASSIC “NEO-MALTHUSIAN ARGUMENT”!!

“Global population growth” is a major problem and “high levels of consumption” aggravate the problem,...

Using Ehrlich’s IPAT equation, both rapid population growth (P) and rapid economic growth (increased affluence: A) are dangerous for our long term survival!!

CHINA’s Population is very large, AND it’s level of consumption is also increasing rapidly!!
-> **SHOULD we be concerned & what might be done about it????**

But there's another problem that the U.S. and China share. In America, our love affair with the automobile has helped make the U.S. the world's biggest emitter of carbon dioxide, a greenhouse gas that's produced when anything burns. Many scientists believe that carbon dioxide in the atmosphere is causing the Earth to become overheated, with dangerous and unpredictable storms. And now China is following in America's footsteps. By the year 2030, China could match the U.S. in carbon emissions. If so, the two countries would contribute more to global warming than all other nations combined.

Last week: China Rev's up! (2004)

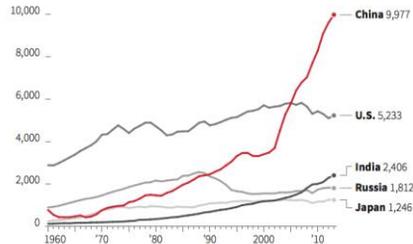
China's population: 1,380,000,000
United States: 325,060,000

Global carbon emissions trend

How the top five emitting countries compare

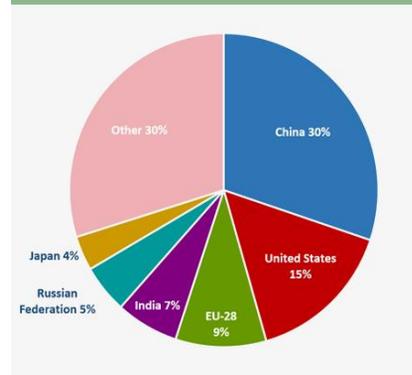
ANNUAL CARBON DIOXIDE EMISSIONS

From fossil fuel and cement production, in millions of tonnes



Source: Global Carbon Project
 © Reuters

2014 Global CO₂ Emissions from Fossil Fuel Combustion and Some Industrial Processes



ECOLOGICAL FOOTPRINT:

is a measure of **human impact on the Earth's ecosystems**. It's typically measured in area of **wilderness** consumed each year by human activities.

A common way of estimating footprint is, the area of wilderness of both land and sea needed to sustain our standard of living; This includes the area of wilderness needed to assimilate human waste (including our "carbon footprint").

Country	Population	Footprint per capita	Total Footprint
Canada	36,000,000	7.01	252,360,000
Japan	130,000,000	4.73	614,900,000
DR Congo	62,000,000	0.75	46,500,000
USA	330,000,000	8.00	2,640,000,000
China	1,300,000,000	2.21	2,873,000,000

Overall footprint

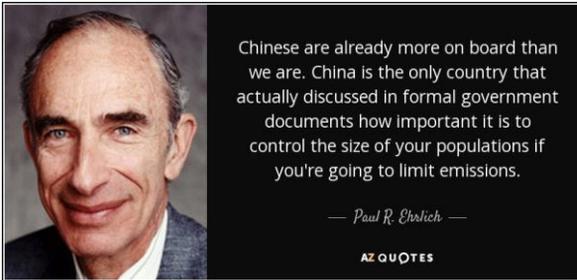


Ehrlich's argument is that:

Both POPULATION AND CONSUMPTION MATTER!!!

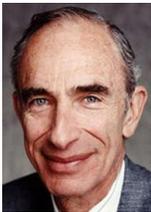
On a per capita basis, we produce more than twice what China produces in terms of CO₂

RETURNING TO CHINA: CURRENTLY IT NOW HAS THE WORLD'S LARGEST ECOLOGICAL FOOTPRINT!!



China instituted a “one child policy” several decades back..

Was this a good idea???



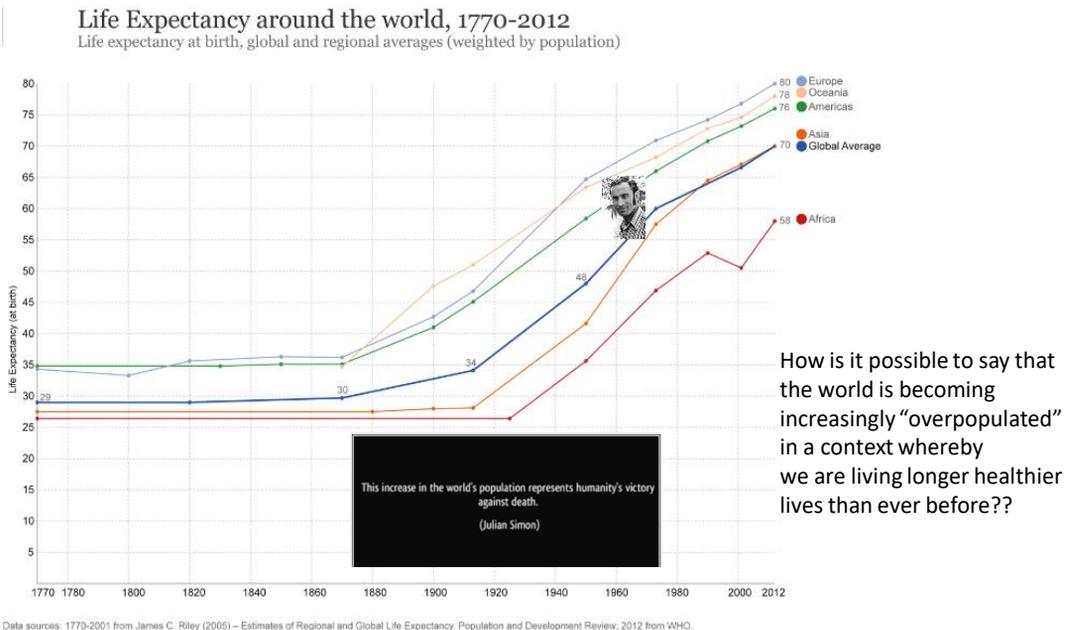
Paul Ehrlich - Smart policy

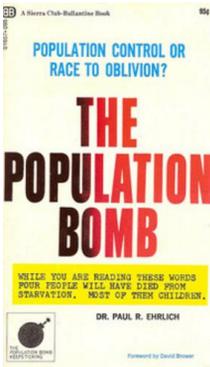


Julian Simon – horrible idea, counterproductive, .. and a violation of basic “human rights”..

Argument based on “economics”
and another, more fundamental argument, based on “human values”..

- Julian Simon 1990s wrote a book “**The Ultimate Resource**”.
- Very optimistic views on lasting economic benefits from natural resources and population growth
- “**Human ingenuity**” dramatically alters the relationship between population and resources (carrying capacity)
- Simon argues that: THE EMPHASIS ON LIMITS TO GROWTH!!!
- and “SCARCITY”..
- have been grossly exaggerated by the “neo-Malthusian” thinkers..
- Simon says “Let’s take a careful look at the empirical evidence.....”





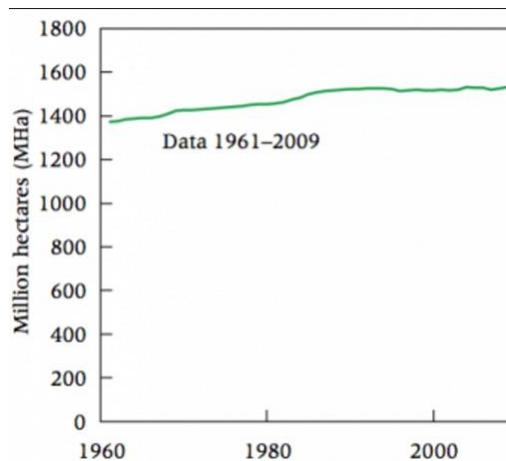
Predicted "in the 1970s and 1980s and 1980 hundreds of millions of people will starve to death", that nothing can be done to avoid mass famine greater than any in the history, and radical action is needed to limit the overpopulation. (a neo-Malthusian position)

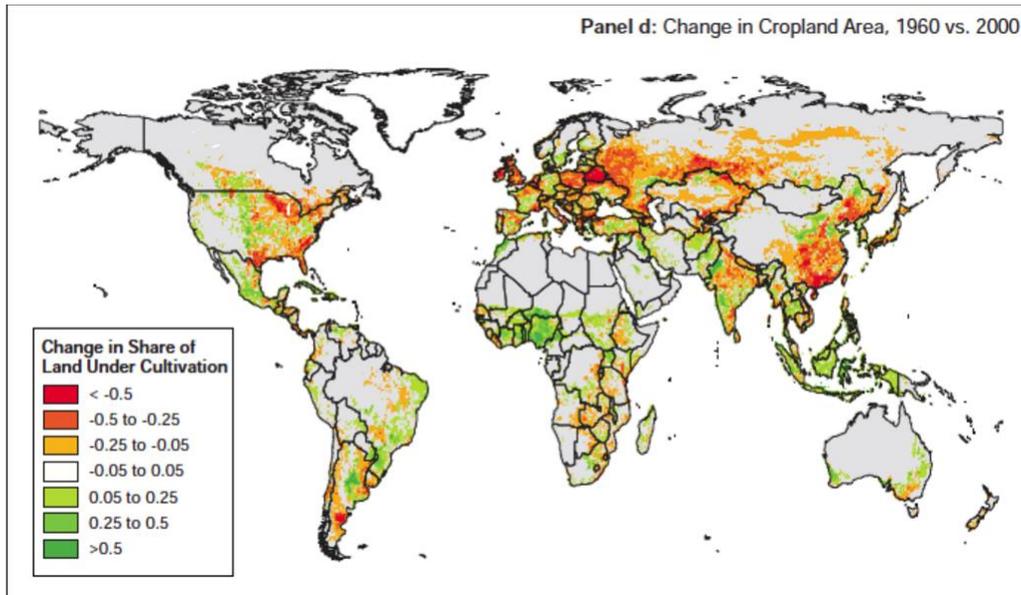
Paul Ehrlich back in the 1960s largely based on the observation that there wasn't that much more "land available" for agriculture at the time ...

WAS HE CORRECT IN HIS FORECAST???

Amount of land under cultivation agriculture (+ 7-8%)

Global population,.. up from about 3 billion to over 7 billion



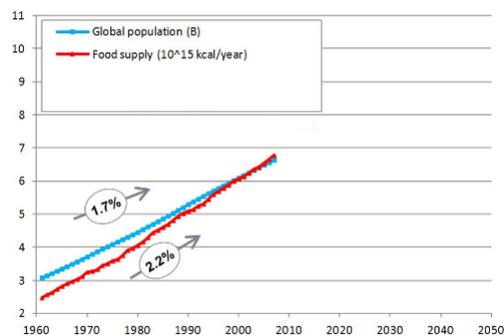


This chart demonstrates how the rate of growth in **Global Food Supply (red)** has outpaced the rate of **Population Growth (blue)** over the last 50 years!

Population grew at an average rate of **1.7%** over the 1960 – 2010 period

Global Food Supply grew at a rate of **2.2%** over the 1960-2010 period

Global population and food supply - 1961 to 2051



Data from UN sources, FAO statistics database

How did this happen??

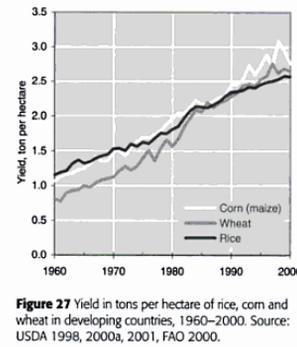
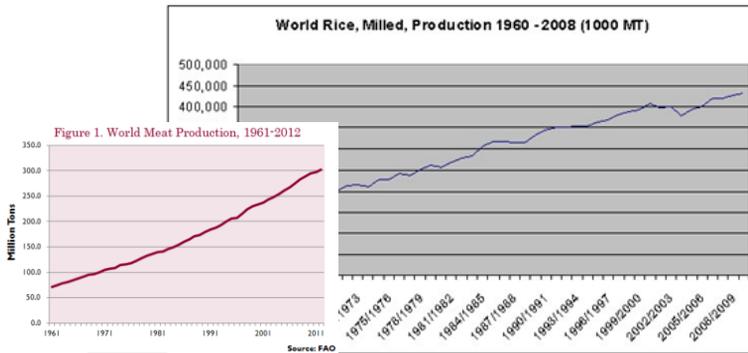
Green Revolution: Selective use of seed (high yield versions); fertilizer; insecticides, increased mechanization, irrigation



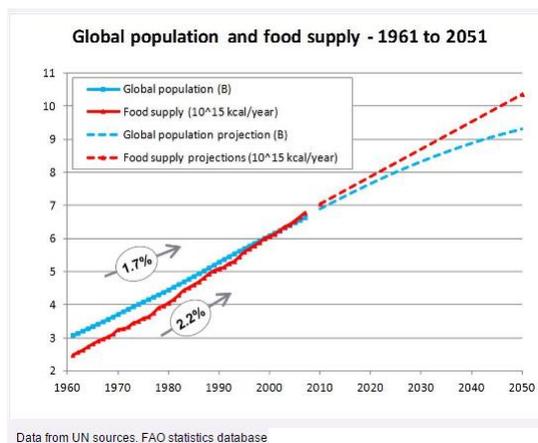
Norman Ernest Borlaug
1960s – Development of High yield grains



“intensification of agriculture”..



Note: The UN is quite optimistic as to our future..



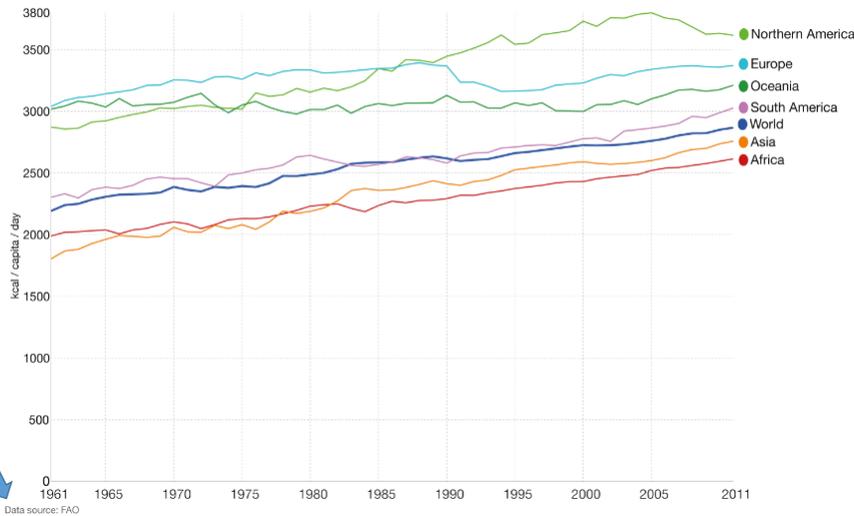
These are projections, assuming the same rate of growth & progress into the future..

Rather optimistic... in terms of food supply, ..

Personal opinion: The “uncertainty” of this forecast on food supply is rather high..

SIMON ARGUES THAT THIS WILL CLEARLY BE OUR FUTURE!!!

Food supply by world region in kilocalories per head per day (1961-2011)



100s of millions are now “obese”...
600 million.. (WHO)

100s of millions continue to
be malnourished..
600-800 million.. (WHO)

**Over recent decades, average caloric intake has climbed across regions,
the % malnourished has declined, but the absolute number of persons malnourished has not declined to the same extent..**

SIMON’s basic argument:

If food becomes “scarce”.. Human beings will find a way to make it “less scarce”!!!

This is my long-run forecast in brief: The material conditions of life will continue to get better for most people, in most countries, most of the time, indefinitely.
Within a century or two, all nations and most of humanity will be at or above today's Western living standards. I also speculate, however, that many people will continue to think and say that the conditions of life are getting worse.

Julian Simon

Population growth -> scarcity -> “innovation”!!! technological progress..

- In the twentieth century, Julian Simon suggested that population growth may be beneficial in providing a stimulus for improving the human condition.

Not only does he reject the idea that “population growth is a problem”..

he actually argues that “population growth” is good for modern societies!!!

What of the “environment”???

Simon actually argues that the best solution for pollution and environmental degradation is socioeconomic development and technological progress that accompanies population growth!!

IN CANADA>>>> DO WE NEED MORE PEOPLE< OR DO WE HAVE TOO MANY???

NOTE: What is the PREDOMINANT VIEWPOINT”?

-> among the Canadian Public,.. ?

-> among business leaders, policy makers..?

A recent editorial in the Globe and Mail:

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CANADA WEST

THE IMMIGRANT ANSWER
What would a Canada of 100 million feel like? More comfortable, better served, better defended

DOUG SAUNDERS
 LONDON — The Globe and Mail
 Published Thursday, May 17, 2012 11:30PM EDT
 Last updated Wednesday, Jun 20, 2012 5:00PM EDT

Whenever Canada's ideal population is studied, the 100-million figure comes up. In 1968, a group of scholars, policy advocates and business leaders formed the Mid-Canada Development Corridor Foundation, which argued that a population of at least 100 million was needed to have a sustainable and independent economy. In 1975, a study by Canada's Department of Manpower found that economies of scale leading to "significant benefits to Canadian industry" would occur only after the population had reached 100 million. And more recently, in 2010, the journal *Global Brief* argued in detail that Canada needs that much population for geostrategic, defence and diplomatic reasons. This population level would give Canada "new domestic structures coupled with growing international impact and prestige," the journal argued, that would turn it into "a serious force to be reckoned with."

What would a Canada of 100 million feel like? Much like today's Canada, but more comfortable, better-served and better defended against ecological and human threats.

POPULATION GROWTH:

- > greater population densities... (economies of scale, i.e. easier to provide services/goods to a larger population at a lower cost).
- > larger population (larger markets which stimulates demand for goods and economic good).
- > larger population: our future lies in "our people" (with "quality immigration" and "investment in education")
The sky's the limit..

THE CONVENTIONAL ARGUMENT: MORE PEOPLE IS GOOD FOR OUR ECONOMY: PROMOTES ECONOMIC GROWTH!!

The overpopulation issue is highly problematic,.. and often very value laden..

The Globe and Mail Inc. [CA] | <https://beta.theglobeandmail.com/news/national/doug-saunders-maximum-canada-population-problem/article36275893/?ref=http://www.theglobeandmail.com&>

THE GLOBE AND MAIL

MAXIMUM CANADA

Canada needs a fuller house to thrive – but population growth isn't enough

In his new book, **Doug Saunders** chronicles how a 'population deficit' threatens Canada's social programs, livable cities and a cleaner environment. As ambitious as it sounds, a goal of 100 million Canadians may be worth aiming for, he writes, but we must start planning now to get it right

For argument sake, consider two countries...

Example:

Nation 1

- Size of Que/Ontario combined
- Pop = 62.2 million
- Pop density:
 - 65 persons per sq mile
- Much arable land
- Many natural resources

Nation 2

- Size of Newfoundland
- Pop = 130 million
- Pop density:
 - 800 persons per sq mile
- Very little arable land
- Very few natural resources

So what results do we expect in terms of standard of living, life expectancy etc.?
& which country is more likely to be “overpopulated”?

It's Complicated...

Democratic Republic of the CONGO



JAPAN



- GDP per capita: \$350 (US)
- Life expectancy: 54

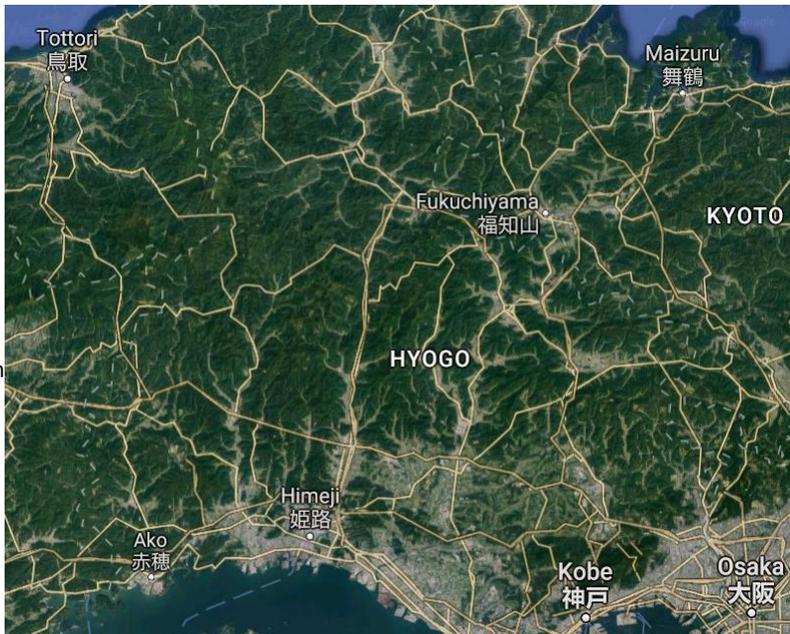
- GDP per capita: \$30 000
- Life expectancy: 83

BTW, the Democratic Republic of Congo currently has one of the HIGHEST RATES OF DEFORESTATION IN SUBSAHARAN AFRICA:



Japan's forests are recovering, with growing forest cover..

Completely
Consistent with
SIMON's
ARGUMENT!



2 points:

1. In speaking of this issue of “overpopulation”, and the impact of populations on the Environment, it does not make sense to think of countries in “isolation”

In a context of globalization, international trade and international flows of people, increasingly we are living in “one world” (think of Japan, with few natural resources)

E.g. Canada has about 0.5% of the global population, but we produce about 30 % of all the world’s “newsprint”.. We supply products to a world market!

2. In considering this issue of “overpopulation” perhaps we might be wise to distinguish between the impact of “population growth” on the economy, as opposed to the impact of population growth on the environment??

It is somewhat complicated, but you be the judge..

- Returning to: Julian Simon The Ultimate Resource (1981)
- Economist -> begins with the “non-quantifiable”
- the potential for “human ingenuity”

- While more people imply
 - > more problems
- -> potential for more solutions..
- via technological and cultural innovation

- Human ingenuity can dramatically alter the relationship between population and resources

- For Simon, the (T) in the IPAT equation can not be downplayed!!

Human beings create more than they destroy.

Julian Simon

This weeks reading: -> “speaks of the social philosophy of Julian Simon”..

-> “His work articulated the elements of a complex alternative social philosophy in which evolution, social exchange and creativity play pivotal roles. Human creativity enables human beings to be different than the rest of the animal world and to create complex orders based on ideas and exchange”.

Simon also criticizes what are debatably the “misanthropic views” of the neo-Malthusian types..

-> “a dislike of human kind”??

E.g. “We can no longer afford merely to treat the symptoms of the cancer of population growth; the cancer itself must be cut out” (Paul Ehrlich, The Population Bomb, 1968).

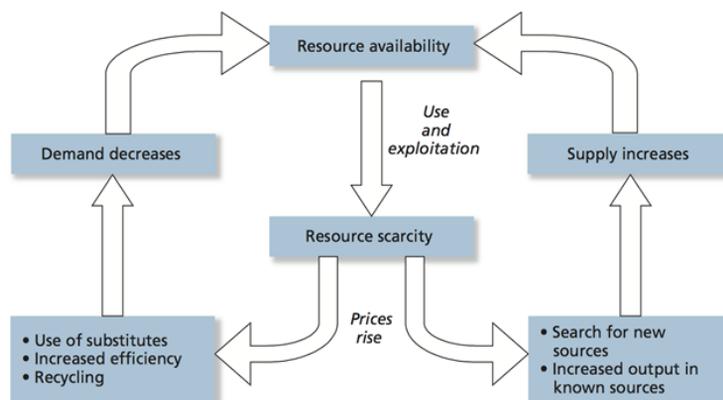
- **The Neo-Malthusian argument emphasizes:**
- -> carrying capacity

- **For Simon,**
- -> misleading emphasis
- -> the resources available to us are continuously being expanded as we develop technologically

- **UNDERLYING SIMON’S THINKING IS THE “MARKET RESPONSE MODEL”...**
- **Typical sequence of events:**
- -> use of resources leads to “scarcity”
- -> “scarcity” is the mother of “innovation”
- -> how do markets respond to “scarcity”?
- -> price increase; what does this lead to?
- -> incentive to find more, no? or substitute
- -> innovation and technological change
- -> alters the way in which our economies use resources
- -> either use available resources more efficiently or shift to other resources

- Example:
- energy use 17th century -> 21st century
- Prior to industrialization:
- primarily wood/ charcoal (converting wood using ancient techniques);
- -> deforestation (scarcity)
- -> prices increase..
- -> substitute: coal (improvement over charcoal)
- reserves of high grade coal quickly depleted (scarcity)
- refined technologies to use lower grade coal / oil
- rapid industrialization -> coal, oil, natural gas
- demand increases dramatically > climbing scarcity..
- more recently -> tar sands, offshore, nuclear power
- Using Simon's argument:
- once current reserves become depleted
- -> develop more energy efficient technologies
- -> solar, wind, fusion (or something not yet conceived of)
- In other word, "energy" supply has always expanded

Figure 3.2: The market response model



SIMON ARGUES< THAT THIS ALSO APPLIES TO THE ENVIRONMENT!!!

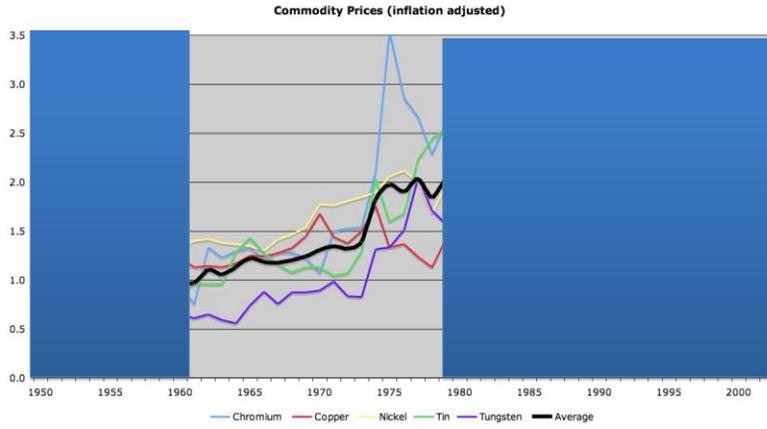
THE ECONOMIC THEORY OF POLLUTION

The economic theory of resources, introduced in chapter 1, therefore applies to pollution as well. If the resource in question - pure air - seems to be getting scarcer, that's a sign that society has been using the resource to get richer. And rich societies have more options (as well as more knowledge) for cleaning the air than poor societies. They can install scrubbers in smokestacks, switch to alternative sources of energy, hire researchers to improve technology, and so on. In short, the perceived scarcity of this resource - pure air - generates a public clamor and then economic activity that creates more of the resource than was originally "used up."

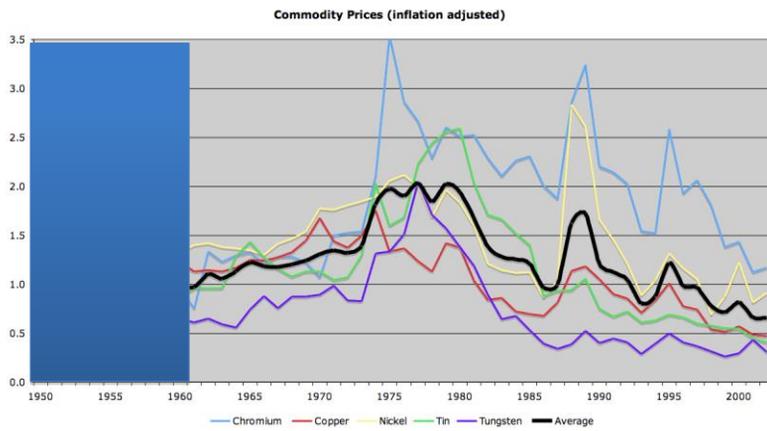
From Julian Simon, The Ultimate Resource 1980

- This debate between cornucopian and "neo-Malthusians" viewpoints
- -> famous "Simon-Ehrlich" wager...
- Context:
- Neo-Malthusian argument ->"lot of press" (1970s and 1980s)
- "real limits" -> economic disaster
- Our current rate of economic/population growth -> run out of basic resources.. (economic collapse)
- Simon (with John Holdren, current advisor to President Obama on Science and Technology):
- Proposed that this emphasis on "fixed limits" was misplaced:
- BET: -> select any 5 commodities on the world market and select any time frame..
- -> if inflation-adjusted price increases, Simon loses
- -> if inflation-adjusted price decreases, Ehrlich loses
- Why?
- Price is a direct indicator of scarcity (supply vs demand)
- If prices fall, the product becomes less scarce on world markets (economy prospers; Simon's forecast)..
- If prices rise, the product becomes "more" scarce on world markets (trouble!! running out!! Ehrlich's forecast)
- Ehrlich suggested 10 years as his time horizon -> 1980s

Ehrlich extrapolated from past trends on prices, selecting 5 metals



Who won



- Ehrlich lost the bet.. prices fell.. What does this imply?
- Ehrlich expected:
 - As populations increase, so does the demand more metals to meet the needs of expanding communications networks and construction infrastructure.
 - But technological changes mitigated much of this demand
 - e.g. fiber optics replaced copper wire networks and various plastics replaced copper in many industries (consider plastic pipes in construction), etc
- Ehrlich failed to appreciate substitution and the dynamic influence of technology on commodity prices.
- But!!!, is there an obvious flaw in using commodity prices as the best way to understand biophysical limits of the planet?

Paul Sabin: "The Bet: Our Gamble for Earth's Future"
Historian, Yale University

<https://www.youtube.com/watch?v=p9JG02YRtOc>

Start at the 7:30 minute mark..

Two extremes: Simon and Ehrlich,..

Problems in Ehrlich's argument:

- > failure to full appreciate the power of human adaptability and creativity!!
- > the problem with "past exaggerations" -> unintentionally weakened the environmental movement
e.g. increased skepticism & reduced the their credibility

Problems in Simon's argument:

- > past success is no guarantee of future success
- > his optimism has lead many to ignore major problems.. (ironically, optimism may be an optical to "innovation")
Note: If the market place does not see the "problem", how can it potentially respond to deal with it???
- > how can the market place respond to "global warming"

Paul Sabin ends with what is basically an "ethical question"..
What type of planet do we want to live in?

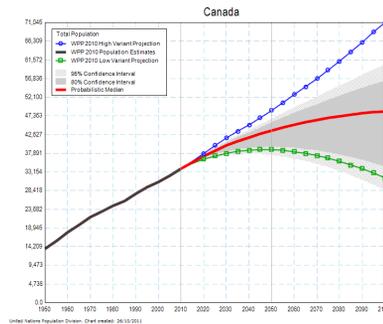
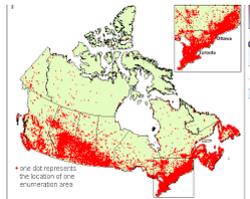
Can we have economic success while at the same time creating a world that is much less biologically diverse??

RETURNING TO THIS CONCEPT OF “overpopulation”:

Definition: this occurs when population size surpasses carrying capacity of its Environment..

Thinking of this definition: Does Canada have a problem with “overpopulation”?

Is our “population” too large to allow for “sustainable” development?



<http://www.poodwaddle.com/worldclock/population/>

2016 current estimate: 36,058,200
2016 Global estimate: 7,370,432,615

0.5% of global total, or about 1 in every 200 persons on this planet..