

The Population Bomb: Is Overpopulation a Legitimate Concern?

Bad Science Review: Michael Van Den Top

Do you want children to starve?!?!?!?!?

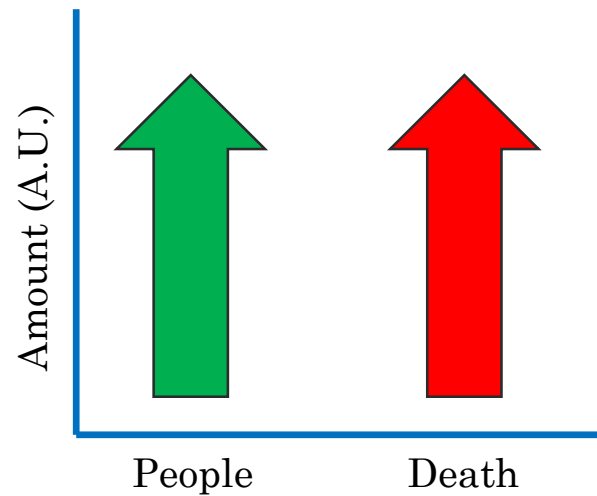
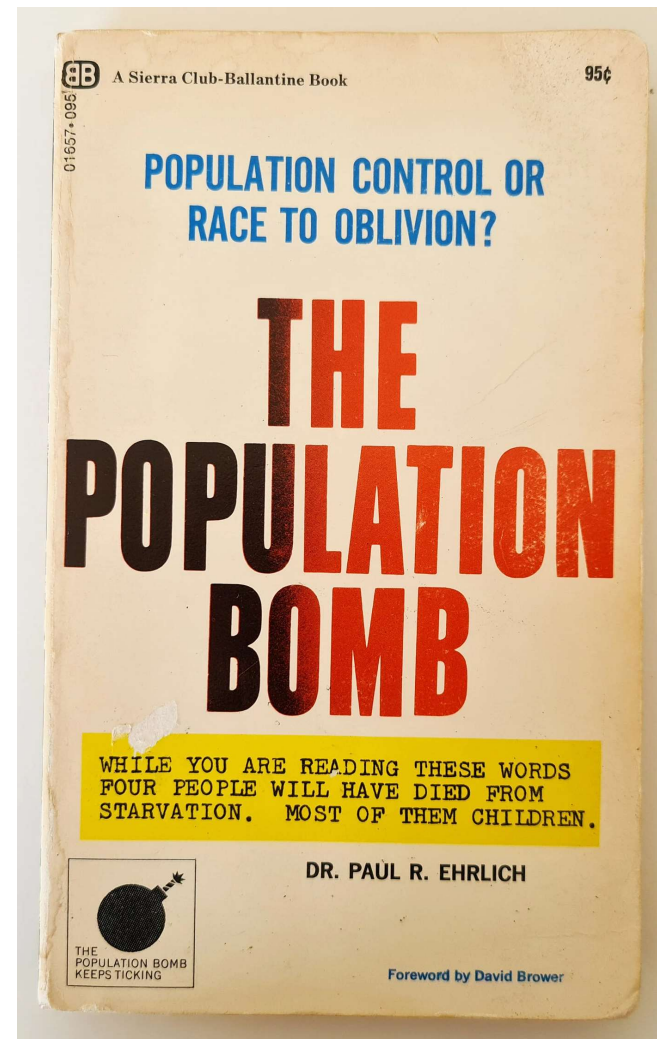


Figure 1. Relation of people existing (green) plotted alongside people dying (red) with Arbitrary Units



“The battle to feed all of humanity is over. In the 1970s and 1980s, hundreds of millions of people will starve to death in spite of any crash programs embarked upon now. At this late date, nothing can prevent a substantial increase in the world death rate”



What is Overpopulation?

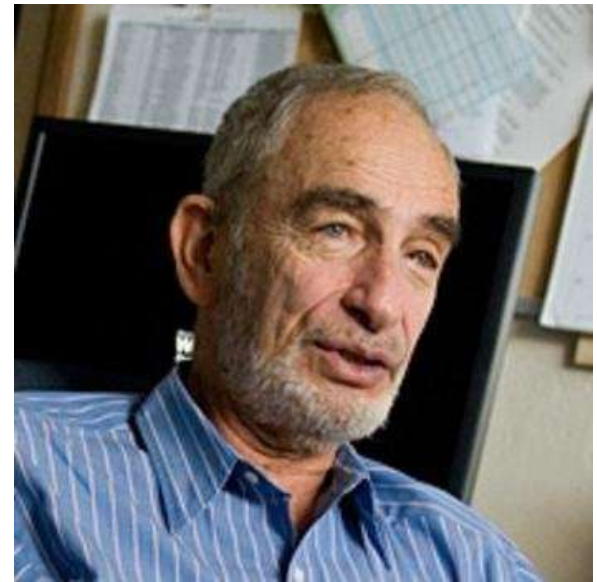
- The earth has limited resources
- People need resources to live
- As the population increases, people will need resources beyond the earth's limits
- People will starve/die/etc

Dr. Paul Ehrlich

- American Biologist
 - Professor Emeritus of Population Studies in the Department of Biology at Stanford University
 - Strong background in studying butterflies
 - Popularized the term “Coevolution”
 - President of the Center of Conservation Biology at Stanford University
 - Fellow of...
 - American Association for the Advancement of Science
 - United States National Academy of Sciences
 - American Academy of Arts and Sciences
 - American Philosophical Society

***Prominent figure in science**

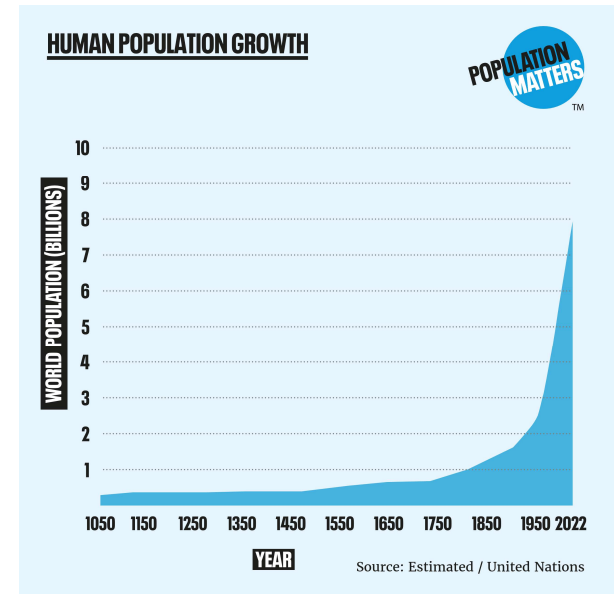
Mostly known as the author of *The Population Bomb*



The Population Bomb (1968)

- We've had a huge boom in population
- A huge food crash was going to occur SOON and QUICKLY
- Bleak descriptions of the state of the environment
- Bad food security
 - As population increases, we cannot expect a sufficient change in food production
- Malthusian thought
 - Population tends to increase at a faster rate than its means of subsistence

<https://populationmatters.org/the-facts-numbers/>



Exponential populations



*You cannot expect **food production** to be exponential like **population**

Possible Solutions Suggested for the Problem of Overpopulation

Two possible checks on humanity's high population...

Preventative Checks

- Factors decreasing human population due to lowering birth rates
- Typically effects enacted by a government
- Example: Sterilization

Positive Checks

- Not very positive...
- Factors decreasing human population by increasing death rates
- Typically effects enacted by a lack of resources
- Example: disease

Possible Solutions: Government-enacted Preventative Checks

- Temporary sterilants added to water supply/foods



- Financial incentives
 - Luxury taxes on childcare goods



- Forced sterilization



- Contraceptives



Possible Solutions: Positive Checks (Big yikes)

- Denying food aid to countries with high populations
 - Paul Paddock's *Famine 1975!*
 - Categorizing countries by how much food they should receive

Haiti	Can't-be-saved
Egypt	Can't be saved
The Gambia	Walking wounded
Tunisia	Should receive food
Libya	Walking wounded
India	Can't-be-saved
Pakistan	Should receive food

- “I don't see how India could possibly feed 2 hundred million more people by 1980”

Dr. Julian Simon – “The Doomslayer”

- Professor of Business Administration at the University of Maryland
- Economics
 - Population, natural resources, immigration

“False bad news about population growth, natural resources, and the environment is published widely in the face of contradictory evidence.”

– From “Resources, Population, Environment: An Oversupply of False Bad News.”

- Not very popular guy...no one really cared about him at the time ☹️



Agriculture, food availability, and the price of food

- Price of wheat steeply dropped from 1800s to 1980, despite population increasing by 4500%
- Arable land increased by 1% each year from 1950 to 1960

Table 1. Land use, 1950 and 1960. [Data from (6, p. 107)]

Region	Arable as % of total		Cultivated as % of arable		Cultivated as % of total		Arable plus pasture as % of total	
	1950	1960	1950	1960	1950	1960	1950	1960
Africa	14.27	15.30	36.21	42.72	5.2	6.5	46.50	49.02
Middle East	12.87	13.91	52.11	57.88	6.7	8.1	13.06	17.34
Asia	19.03	20.78	82.06	86.17	15.6	17.9	46.35	49.60
Frontier countries (North and South America, U.S.S.R., Australia, New Zealand)	6.88	7.75	82.85	82.96	5.7	6.4	34.27	38.59
Europe	30.79	30.98	89.02	90.06	27.4	27.9	45.63	46.10
All Regions	10.73	11.73	82.74	83.99	8.9	9.9	37.35	41.07

Agriculture continued

- More food was being produced with less people involved (per capita food production)
- Decrease in food production typically due to war or political instability
- Ehrlich's prediction about India removed from book...(Green Revolution)
 - Rate of malnutrition and poverty declined from 90% to 40% from 1947 to 2010...despite **TRIPLING** in population

Table. 2. Per capita food production in the world, 1948 to 1976. [Data from (40)]

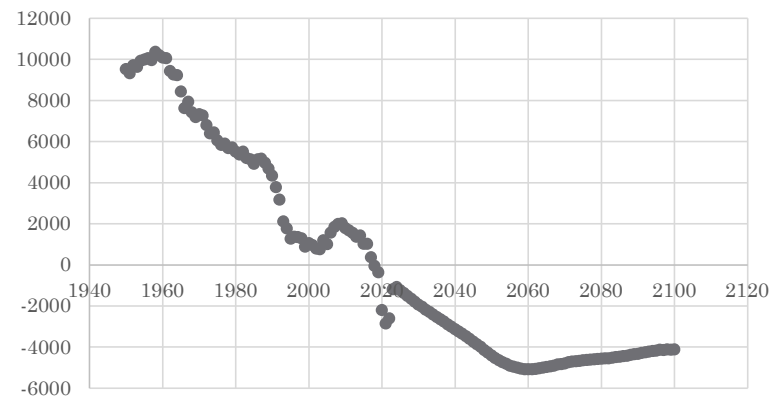
Year	Ex-cluding main-land China (1952-56 = 100)	In-cluding main-land China (1961-65 = 100)	Com-bined index (1948-52 = 100)
1948-50	93		100
1952	97		104
1953	100		108
1954	99		106
1955	101		109
1956	103		111
1957	102		110
1958	106		114
1959	106		114
1960	107		115
1961	106		114
1962	108		116
1963	108		116
1964	109	102	118
1965	108	100	116
1966	111	103	119
1967	113	105	121
1968		106	123
1969		105	119
1970		106	123
1971		107	125
1972		104	120
1973		108	126
1974		107	125
1975		108	126
1976		110	128

Population trends after The Population Bomb

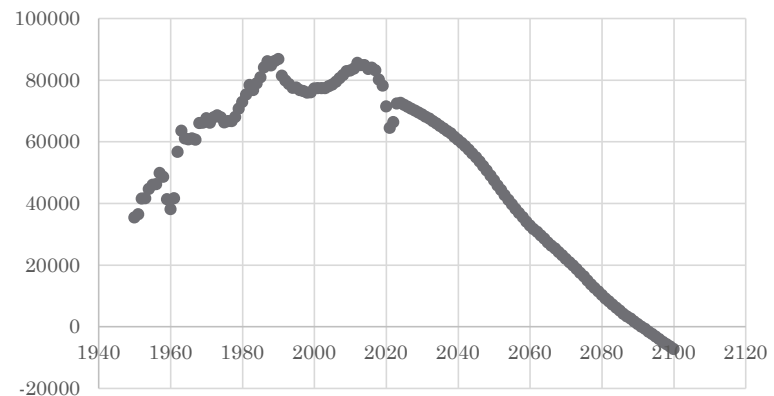
- Replacement rate: Rate of births minus the rate of deaths
- As of now...developed countries actually have a negative replacement rate
- Developing countries are beginning to decrease at a sharp rate
- Most babies born ever in 1 year was back in 2012...

***Population cannot be predicted mathematically!**

Replacement Rate: Developed Countries



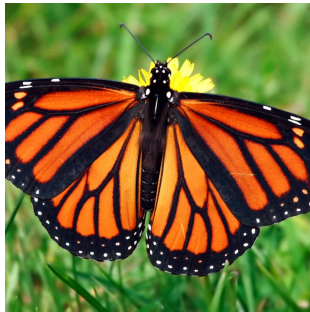
Natural Change: Developing Countries



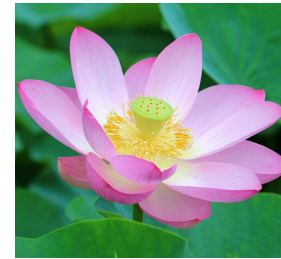
People are not butterflies

- Ehrlich spent a lot of time studying animal populations

Species



Resource



Innovative!
Substitution!
Adaptivity!



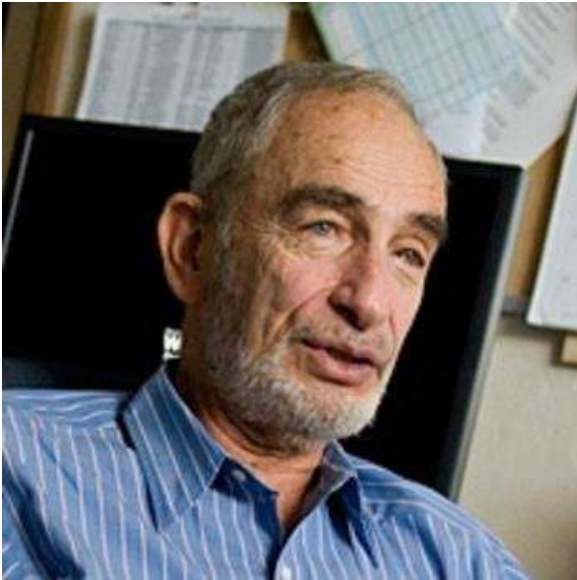
People love bad news

- Ehrlich's ideas popularized by media because that is what people want to consume
- Johnny Carson show 20 times, interviews lasting over 1 hour
- Gripping language and statistics: "While you are reading this, 4 people will have died from starvation. Most of them children."

“Incendiary” (Apocalyptic) Language

- Roger Revelle of Harvard’s Center of Population Studies highlights Dr. Ehrlich’s word choice in one of his books:
- Staggering, sobering, disaster (three times), enormously, catastrophic, dramatically, tremendous, highly lethal, extremely dangerous (twice), especially virulent, more severe, extremely fortunate, extremely vulnerable, almost total, high potential, renewed spectre, not gruesome enough, colossal hazard, biological doomsday, superlethal, disastrously effective
- Words used in 4 pages of a 300+ page book...

The Bet



VS



1) (37) *The Real Life Thanos - YouTube.*

https://www.youtube.com/watch?v=srJBL08GR5g&t=136s&ab_channel=Vsauce2
(accessed 2023-11-27).

(2) Julian Simon. *Wikipedia*; 2023.

(3) Paul R. Ehrlich. *Wikipedia*; 2023.

(4) Simon, J. L. Resources, Population, Environment: An Oversupply of False Bad News. *Science* **1980**, 208 (4451), 1431–1437.
<https://doi.org/10.1126/science.7384784>.

(5) *The Population Bomb. Wikipedia*; 2023.

(6) *World Population Prospects - Population Division - United Nations.*

<https://population.un.org/wpp/Download/Standard/MostUsed/> (accessed 2023-11-27).