Humanity

There are too many people and everyone wants what the other has — The Lunchbox (2013)

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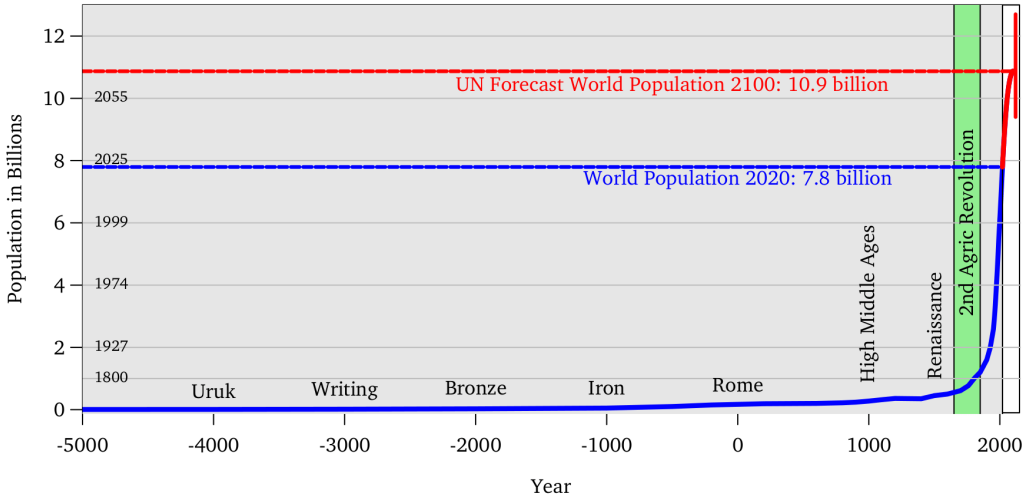
Primary Cause Of Global Warming

- Luxury?
- Consumerism?
- Modernism?
- Selfishness?
- Industry?
- Capitalism?

(PS: What can be changed? Go back to farming?)

Primary Cause = Us

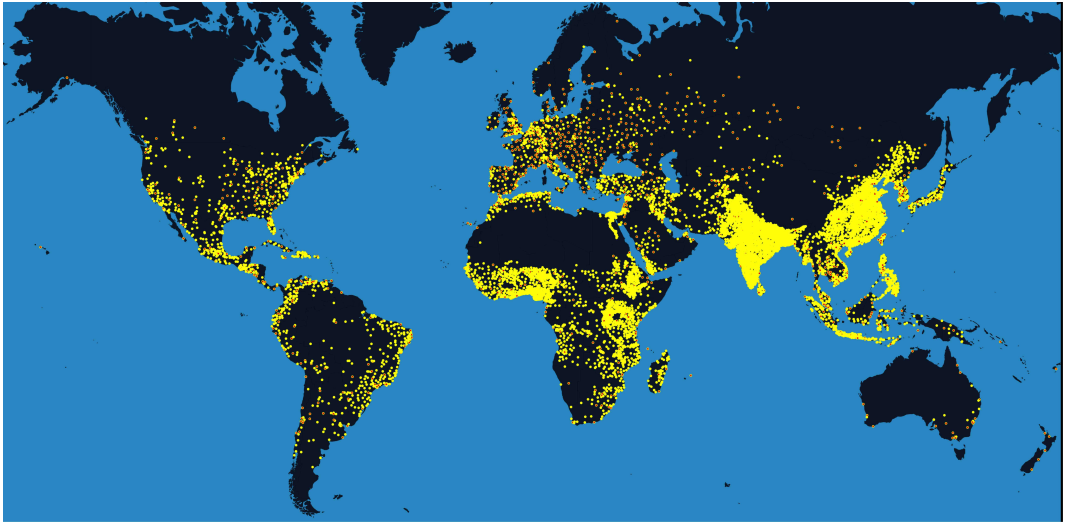


Primary Cause Is Us

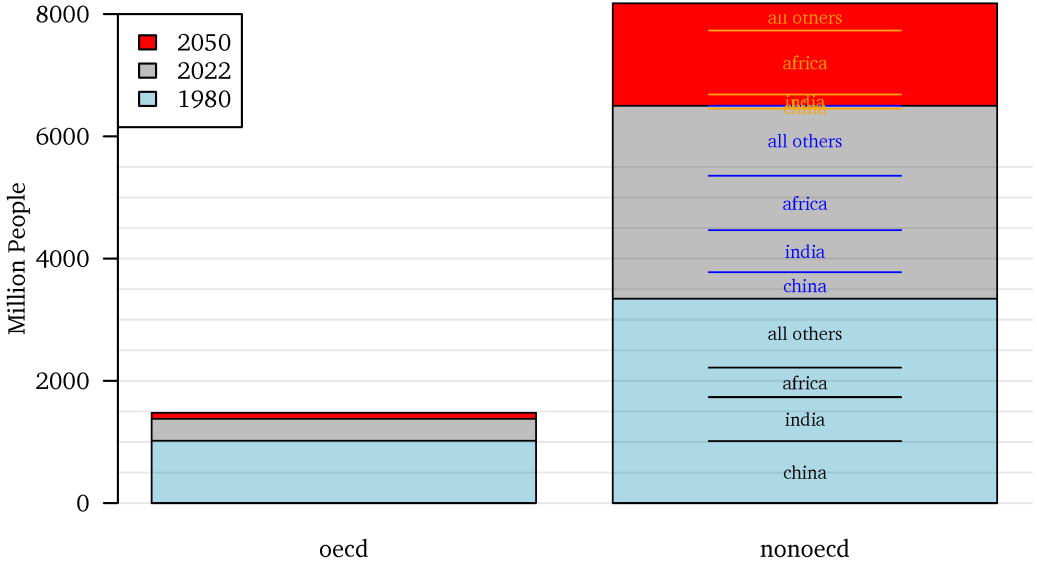
- Humanity cannot turn back.
- These 8 bn people are already here.
  - They want to live 21st century lives,
  - which will require food and energy.
- The human population is *still* growing.
  - Could we curb the growth?
- Whether you like it or not.

Where are all these people?

Where Are All These People?



Where Will They Be?



- OECD done growing, except for some immigration.
- Asia
  - China is already shrinking, though surrounding countries compensate
  - India+ will grow for one generation and then maybe shrink back to today.
- Latin America is stable.
- Only (Sub-Saharan) Africa is growing in leaps and bounds.
  - 200 m in 1960
  - 1,300 m 2020
  - 4,300 m in 2100

Kaya Component Growth

- Emissions = Population * Income/Person * Inefficiency
- CO_2 = N * GDP/N * CO_2/GDP
  - CO_2 is in $GtCO_2$
  - Population is in (million)
  - Income/Person is in 1,000-$
  - Inefficiency is in gCO_2/$
- Multiplicative: Any of these zero, and they all go away.
- Matter only together.

Identity Co_2 = N * Gdp/N * Co_2/Gdp

Year	Emissions	Population	Inc/P	Inefficiency
ca 1850	0.2	1,200	1	120
ca 1900	2.0	1,600	2	570
ca 1950	6.0	2,560	4	640
ca 2000	25.2	6,143	10	400
ca 2015	35.5	7,380	15	320
ca 2022	36.3	7,882	17	270

Per-Annum Average Growth

Year	Emissions	Population	Inc/P	Inefficiency
1850-2020	+3.2%	+1.1%	+1.7%	+0.5%
2020-2050e	+0.7%	+0.7%	+2.1%	−2.0%

Preview

Fighting Climate Change

- Donate to Greenpeace?
- Demonstrate at UN COP Conf?
- Use paper straws to *reduce your carbon footprint*?
- Shame your neighbors?
- Drown your sorrows and anxieties?

Which of these will meaningfully reduce the world's population, reduce the world's energy consumption, reduce the world's CO_2 emissions, and reduce the accumulating CO_2 stock in the atmosphere?

If Everybody Did It…

- Would be *great*!
- But this will not be *your* doing or decision margin.
- If they would, they would; regardless of what *you* do.

Like It Or Not

- Be realistic!
- You are not divine.
- You are not even globally important..
- The world's people won't do what *you* tell them to do.
  - Even religious leaders have stark limits.
    - The pope can maybe get 10 million people to truly change behavior. What about the other 7.99 billion?
  - Even politicians have stark limits.
    - Even Trump and Modi are riding the tiger.

Economics 101

- *In large numbers*, humans act selfishly.
  - Ex-post self-rationalization is even built into our brains!

How Many Can *You* Tackle?

Realistic Atmospheric CO_2 Reduction Plans:

- Stop 0.00003 billion UCLA students?
  - still tens of thousand of students. could you?
- Stop 0.0003 billion UC affiliates?
- Stop 0.003 billion Angelinos?
- Stop 0.03 billion Californians?
- Stop 0.3 billion Americans?

How many can *you* reasonably influence?

0.0001% of world is far more than 100% of your city.

American Success?!

- Assume *you* succeed on 0.3 billion Americans.
- *You* have been so influential that you have brought Americans to their tears *and* to their knees.
- They will immediately stop emitting and, if need be, even go back to the stone age.

- What about the **7-9 billion** others?
  - Will the rest of world follow *because* of the US example?
  - Or will they act roughly independently?
  - It not, then you won't have done enough.
- Who could shame China, India, or Nigeria?
  - Or can you get each then-stone-age Americans to pay for 5–20 other foreigners, too?
  - (depends on cost?)