



# Demographic and Contraceptive Research, Technology, and Education to Support Sustainable Population Dynamics

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**14 April 2026**



Near Chautara, Nepal . . .



# U.S. Fertility Rates Drop to Another Record Low

The fertility rate has been falling since 2007, in large part because of a plunge among teenagers.

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CDC National Vital Statistics Surveillance Report: *General fertility rate*, defined as births per year per 1,000 females age 15-44. Rate: 53.1/1,000 in 2025, down 1% from 2024. Unreported in the release: The numbers indicate a *total fertility rate* of 1.57 live births per woman, a 1.57% decrease from 2024.



## Vital Statistics Rapid Release

Report No. 43 ■ April 2026

### Births: Provisional Data for 2025

Brady E. Hamilton, Ph.D., Michelle J.K. Osterman, M.H.S., and Elizabeth C.W. Gregory, M.P.H.

#### Abstract

*Objectives*—This report presents provisional 2025 data on U.S. births. Data on births, the general fertility rate, the fertility rate for teenagers,

#### Introduction

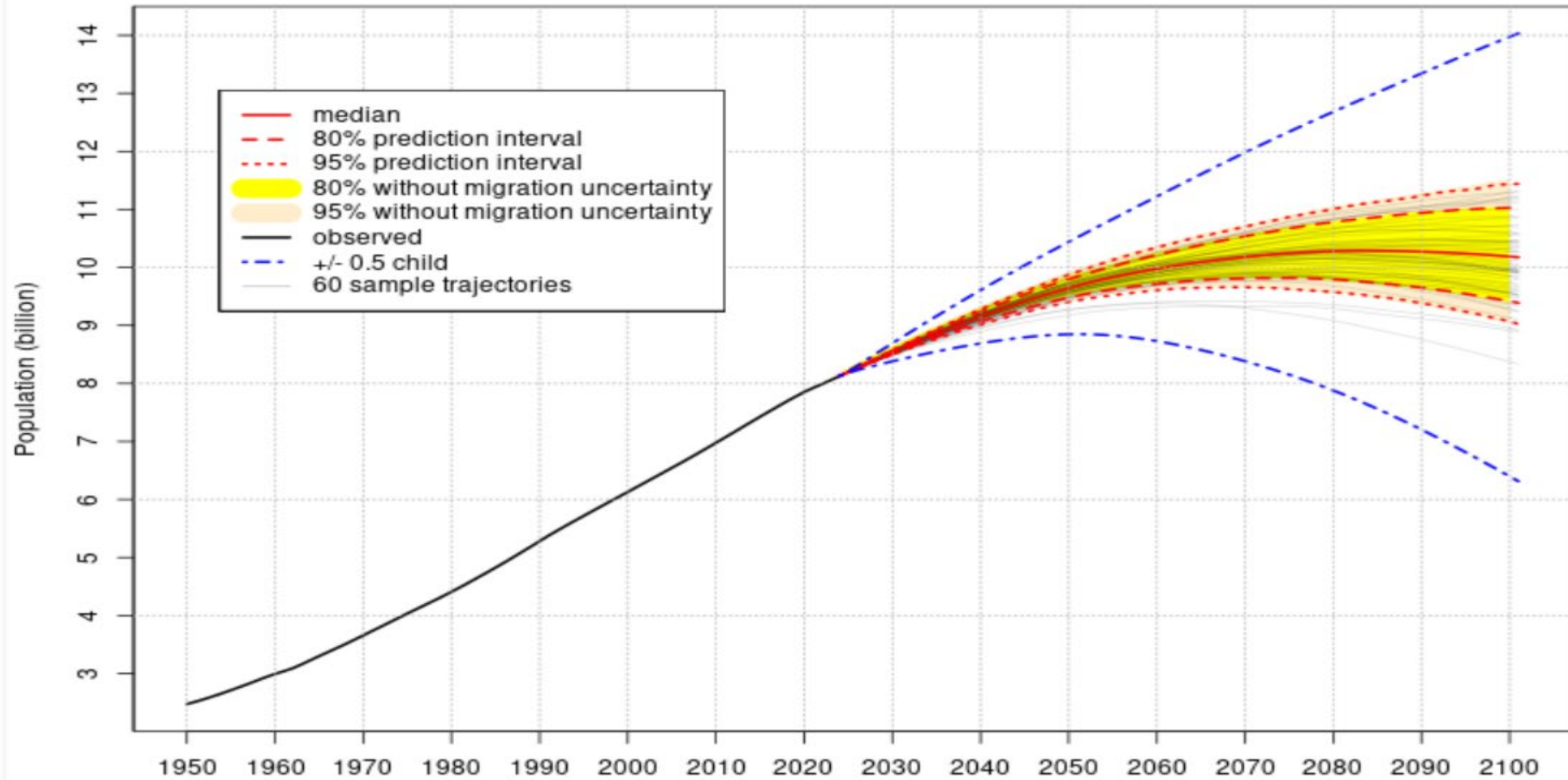
This report from the National Center for Health Statistics (NCHS) is part of the National Vital Statistics System (NVSS) Rapid Release Quarterly

included topics remain available in CDC WONDER and the Quarterly Provisional Estimates for 2025 (1,2). Information on these topics, as well as prenatal care, low birthweight, and other measures of healthcare use and maternal and infant

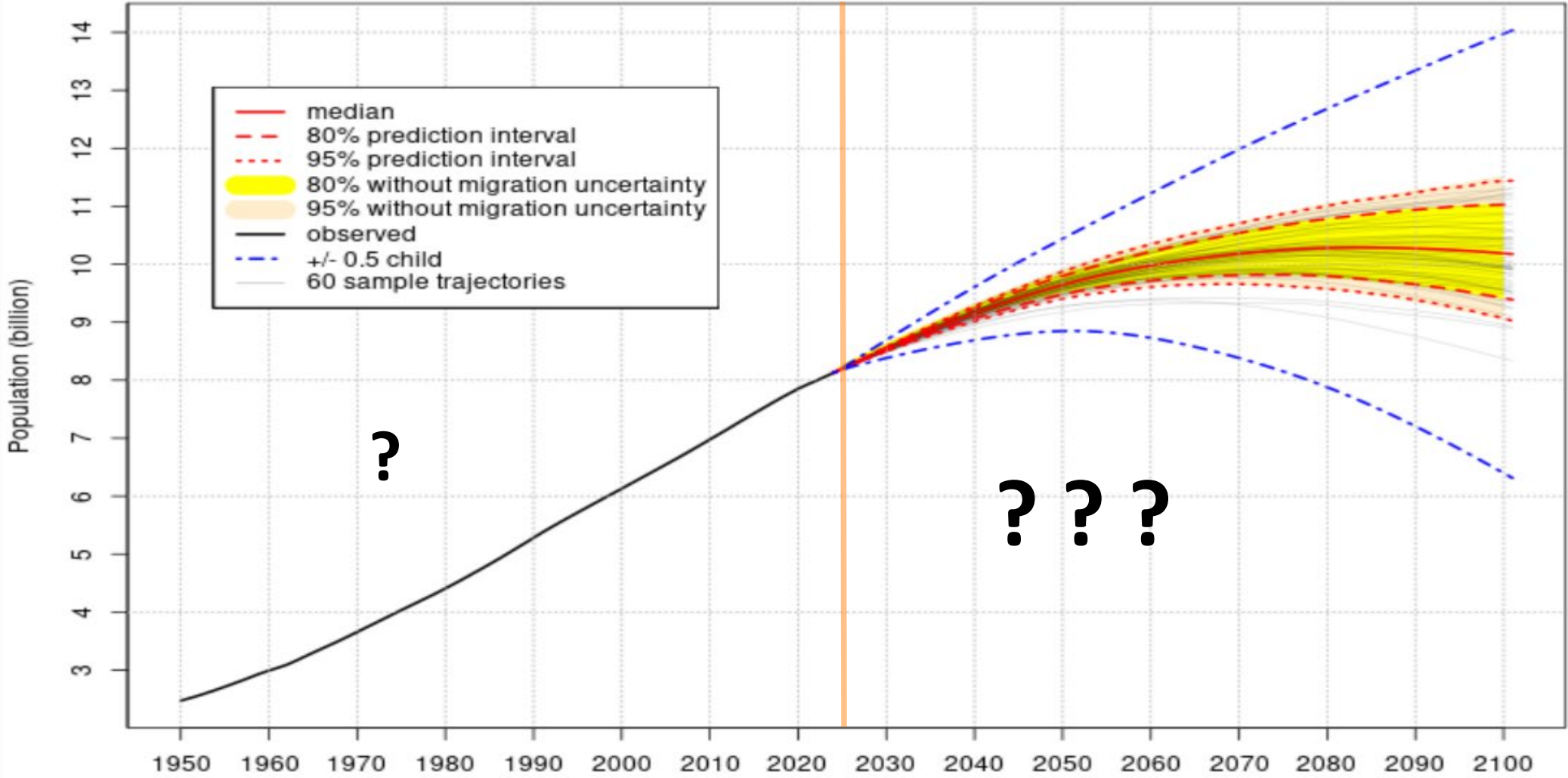
# Key points about population and projections

- World population is not declining, or likely to any time soon.
- Replacement fertility does not mean stable population.
- Demographers' statements about future population are not *estimates*, but *projections*. Big difference.
- While these projections have a good track record in recent decades, they are based on *surprise-free futures*, and the future *can surprise* (e.g., European immigration in 2015, Covid-19, birth declines).
- All projections assume continuing life-expectancy improvements, despite current vulnerabilities based on environment (e.g., climate change, water scarcity), conflict, emerging diseases, pandemics, etc.

## World: Total Population

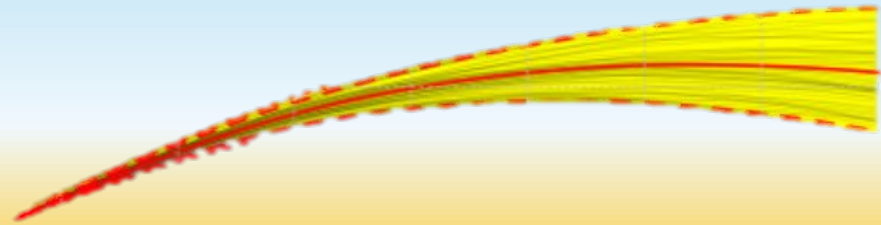


# World: Total Population

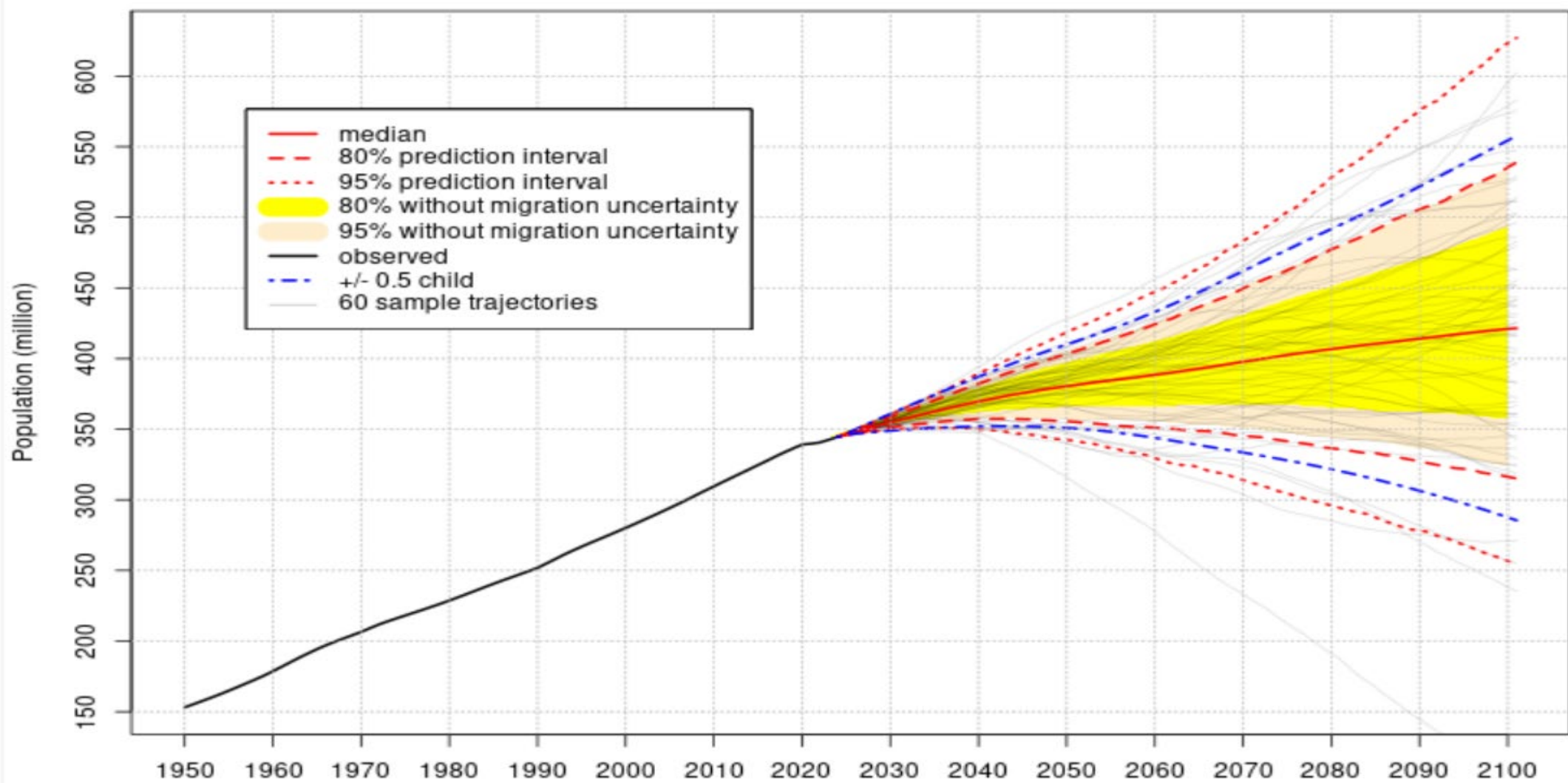


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United Nations, DESA, Population Division. *World Population Prospects 2024*. <http://population.un.org/wpp/>

# The Uncertainty Wedge: Wide enough? And how objective?



## United States of America: Total Population



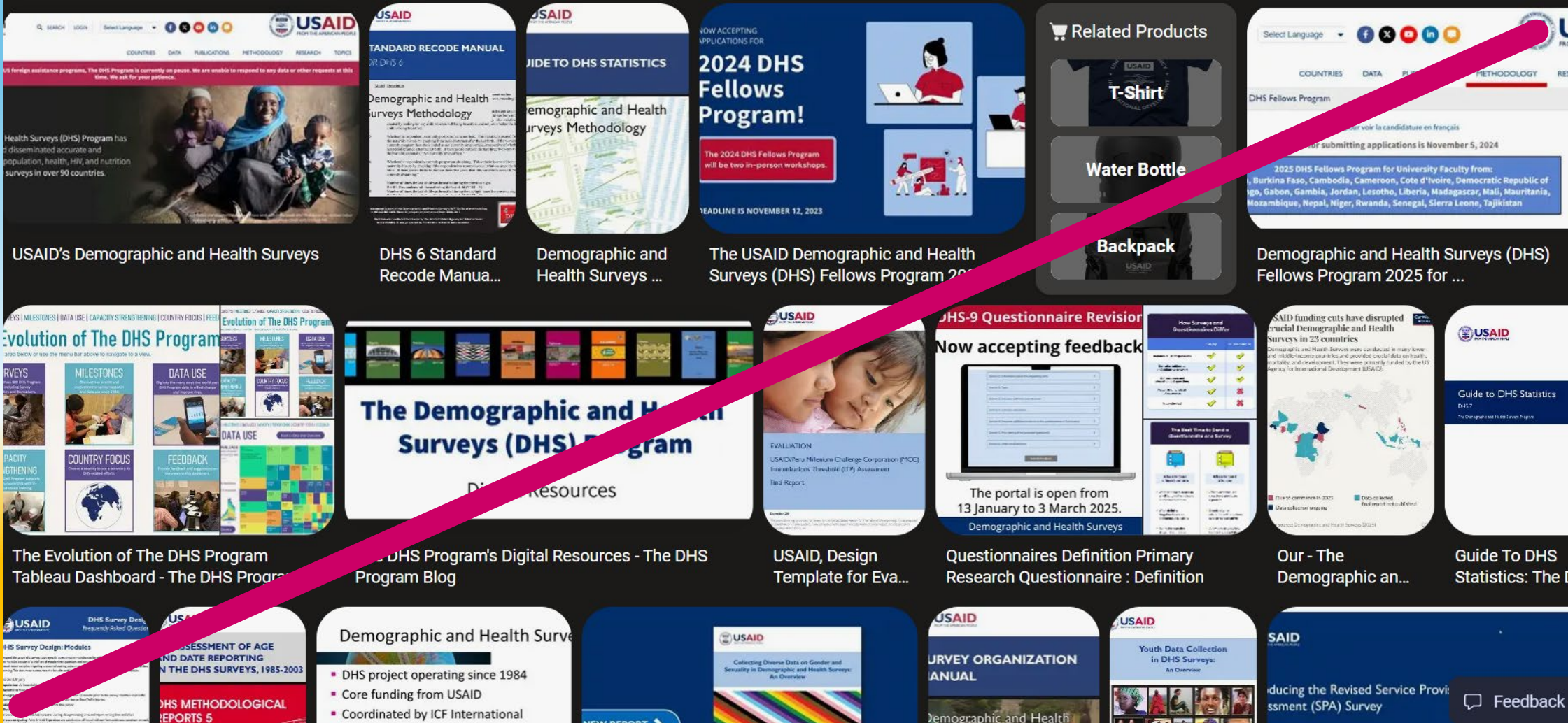


# Population datasets, estimates, projections:

- United Nations *World Population Prospects*, (mid-2024, next expected mid-2027): Most authoritative, based on national censuses, surveys, national vital statistics registration, etc. Multiple alternate scenarios of future growth based on past trends and different assumptions about the future. (~9.7 billion in 2050, medium)
- Wittgenstein Centre: Own projections, with *WPP* input, stressing assumptions about global progress in education. Projects ~9.25 billion, lower than UN.
- Institute for Health Metrics and Evaluation: Improved health and socio-economic progress drive very low future fertility. (~9.0-9.2 billion.)
- Population Reference Bureau annual datasheet: One scenario, based mostly on UN *WPP* numbers, similar projection to UN medium variant.
- World Bank: Relies on UN *WPP* numbers, one projection only, similar to UN.

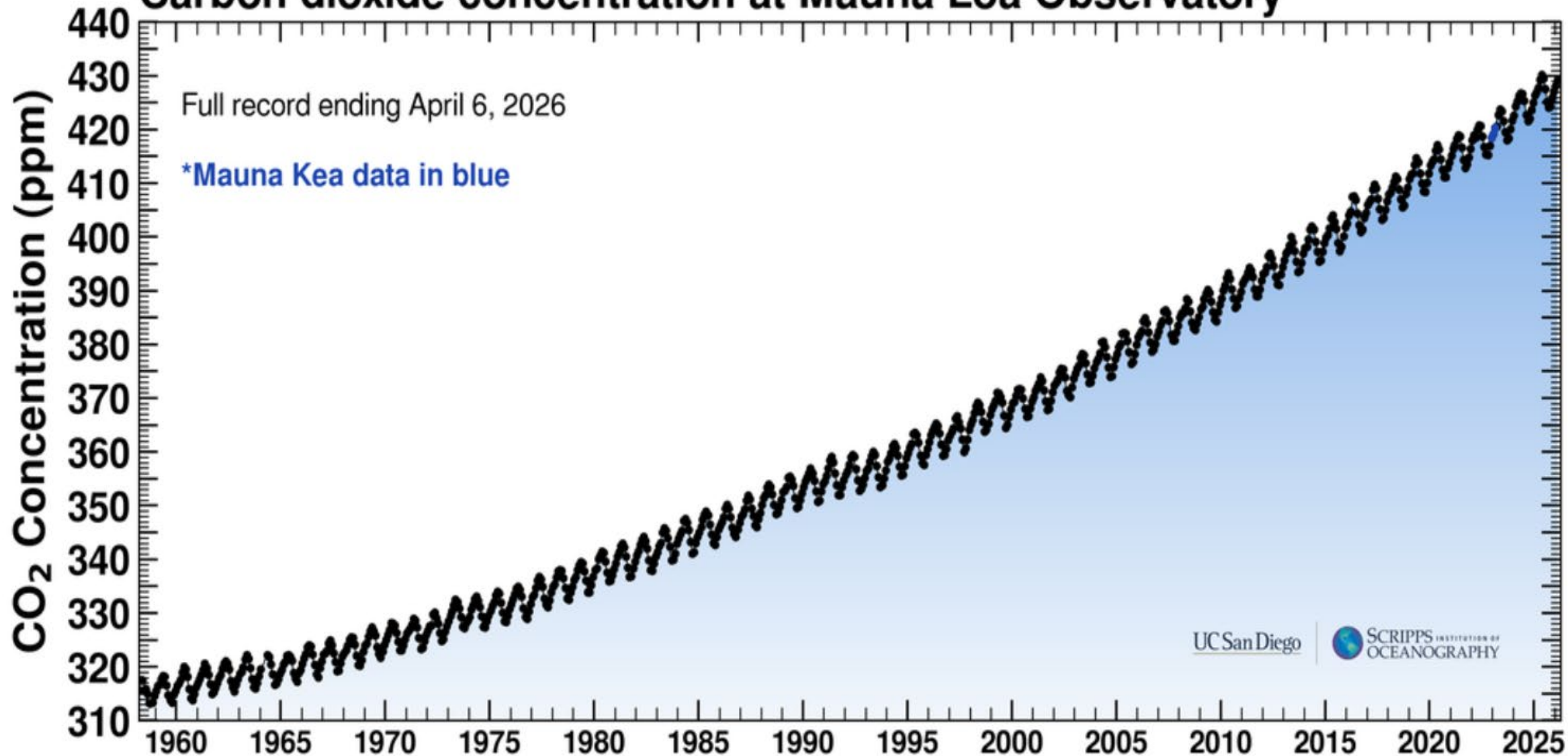
## **Problem: Census data, the backbone of population estimates and projections, are spotty, and may be getting spottier**

- Only about a quarter of the world's roughly 200 countries have conducted a census since covid-19 pandemic began in 2020.
- India, world's most populous country: Last census was 2011 (now beginning a new one).
- Nigeria, Africa's most populous country: Last census was 2006-2007. Planned 2023 census postponed twice. Announced 2025 census never happened.
- Major obstacles: Lack of capacity, political resistance. (E.g., Nigeria.)
- Other data are available for estimates and projections, but more sparse and lower quality.

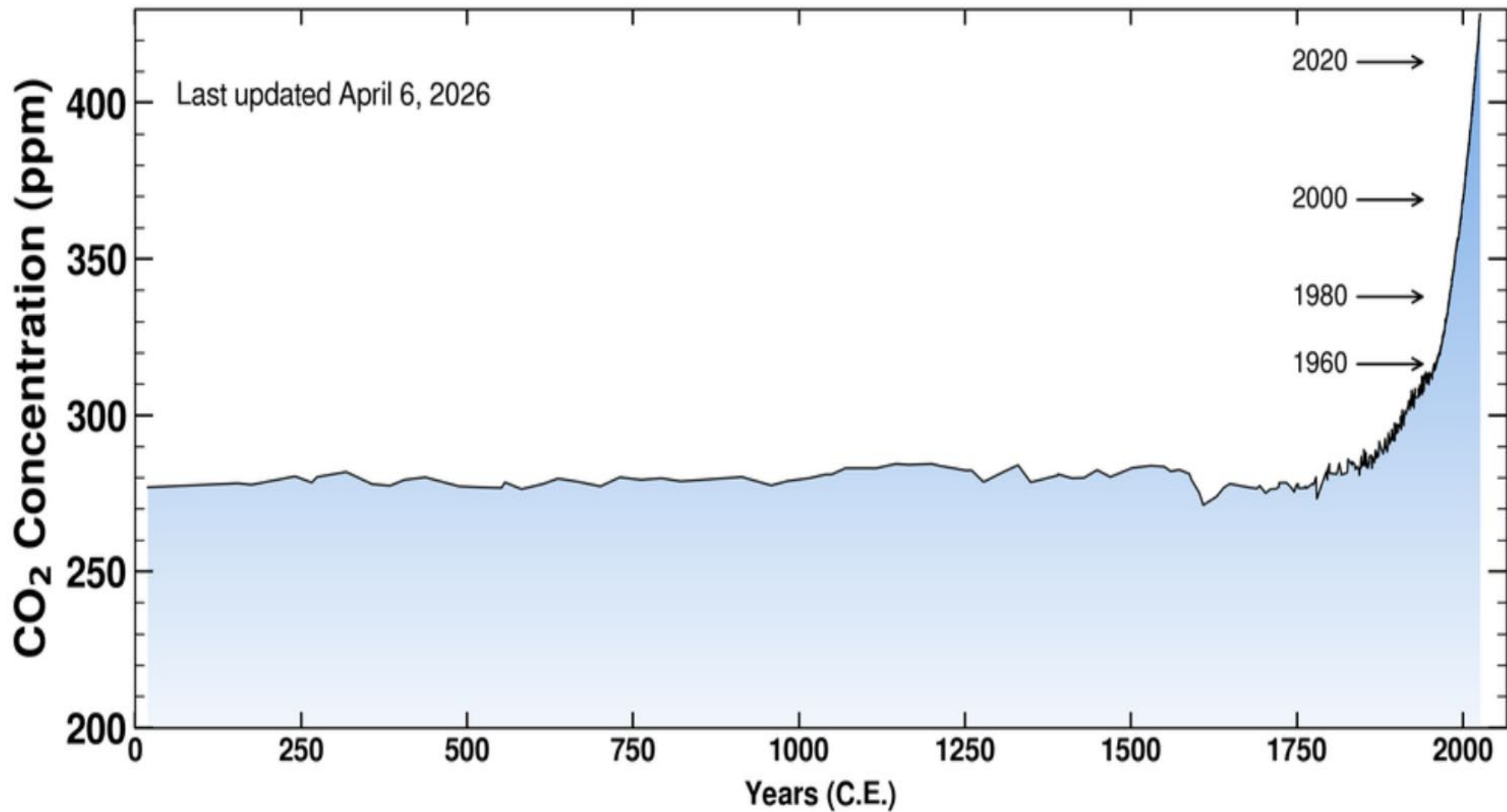


**After 40 years of support and a continuous record of detailed and high-quality survey data, the U.S. government cut off all support for these surveys in 2025, leaving its continuity in doubt. The Gates Foundation has stepped in for modest interim support.**

# Carbon dioxide concentration at Mauna Loa Observatory\*



\*Mauna Loa Observatory data from the most recent month is preliminary



# World's Longest Climate Record at Risk as US Plans to Defund Mauna Loa Observatory



VIVEK SAINI / JULY 10, 2025 / CLIMATE CHANGE, NEWS / 383 COMMENTS

Local News

## Maunaloa research station, vital to global CO2 data, could close due to NOAA cuts

Hawai'i Public Radio | By [Savannah Harriman-Pote](#)

Published August 13, 2025 at 11:10 AM HST



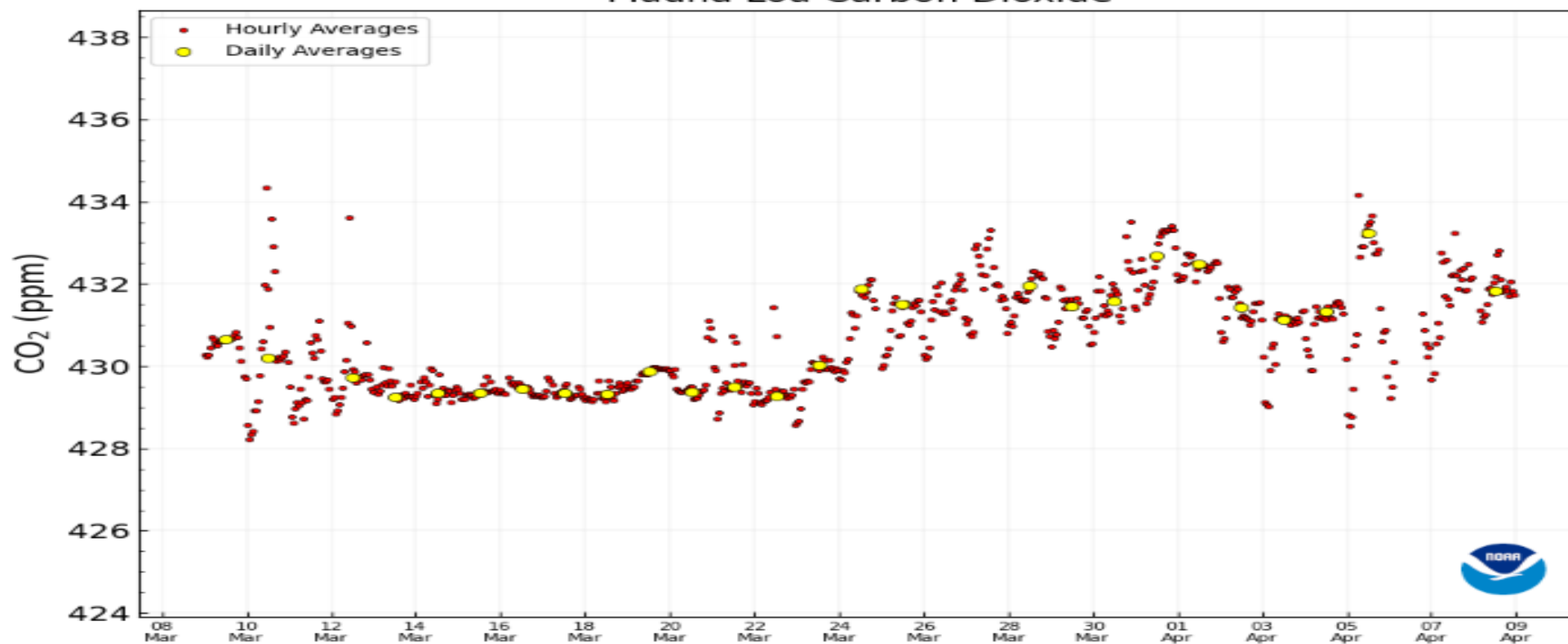
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## Recent Daily Average Mauna Loa CO<sub>2</sub>

**April 08: 431.83 ppm**  
**April 07: Unavailable**  
**April 06: Unavailable**  
**April 05: 433.24 ppm**  
**April 04: 431.33 ppm**

*Last Updated: April 9, 2026*

### Mauna Loa Carbon Dioxide



*Hourly (red circles) and Daily (yellow circles) averaged CO<sub>2</sub> values from Mauna Loa, Hawaii for the last 31 days.*

# World enters era of 'global water bankruptcy'





# Agriculture: The Biggest Thirst on the Planet



# Trump threatens to destroy Iran's desalination plants. Here's what that could mean for the Mideast



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## Iranian attack damages Kuwait power and desalination plant, kills worker





*Kuwaiti authorities say Indian worker killed in attack that also caused 'significant material damage' to building.*

This time, the danger isn't financial engineering. It's that **our financial system has attached itself to the vulnerabilities of our physical world** — power grids, water, land, supply chains — and created hazards that markets have no framework to analyze. Our models for detecting risk look at prices, volatility and correlations. They have no instruments for reading a grid failure, a drought or a severed supply chain. By the time warning signs show up in market data, the damage will already have been done.

The physical risks of Iran, Taiwan and the A.I. boom are supplanting the types of financial risks that preceded 2008. I'd take financial risk any day. **Financial risk moves prices. Physical risk moves the world.**

**-- Richard Bookstaber, "I Predicted the 2008 Financial Crisis. What Is Coming May Be Worse," *The New York Times*, March 22, 2026**

# Will technology save us? Will it make population growth more sustainable?

- Long dance of population and technology: population growth scarcity  innovation  population growth (with side effects) 
- Cornucopians: More people  more innovation.
- Sample technologies: Industrial Revolution, Green Revolution, Information Revolution.
- AI (??? – Help with data, research. But deception and dumbing down? Massive electricity consumption. And will robots perform household census visits and survey parents on their family's health, their childbearing aspirations and contraceptive preferences?)
- Contraception

# The future of contraceptive research

- Today's contraceptive methods already comparatively safe (e.g., side effects of hormonal methods diminishing with time) and effective. Existing problems relate to more availability, cost, inconvenience, barriers to access, misinformation.
- More, better methods – especially male methods, reversible, non-hormonal – could address these problems and increase use and use effectiveness.
- Exciting innovations on the horizon and in the pipeline.
  - Reversible non-hormonal methods.
  - Longer-acting IUDS and implants, easier to insert and remove.
  - Combination contraceptives and STI prevention.

# Contraceptive research futures, 2

- Male contraceptives get less attention, but some new approaches
  - Injectable hydrogel on the vas deferens to block sperm transport
  - Hormonal male pills or injections (side effects and acceptability hurdles)
  - Non-hormonal pills – animal and very early human studies.
- New “gleams in the eye” ideas: Sperm-targeting agents, ovulation and implantation blockers, smart-delivery systems (long-acting injectables, patches, self-administered devices),
- **Problems:** Low funding, regulatory and liability risks, pharmaceutical industry caution. No mention of contraceptive research in Trump administration 2027 NICHD budget proposal, suggesting low or no support. Federal funding has been a backbone but could stagnate or go away.
- **Needed:** Big menu of long-acting, non-hormonal, reversible methods for all genders. **Needs** \$\$\$ and political will, major new interest from private sources.







***“Trust us, you look amazing. You look beautiful. . . . You have this oasis, this beautiful place that we get to exist together. . . . This is an opportunity for us to remember where we are, who we are, and that we are the same thing, and that we’ve gotta get through this together.” – Victor Glover, Artemis II pilot***



***“Ultimately, we will always choose Earth. We will always choose each other.” – Christina Koch, Artemis II mission specialist***