

Climate Justice: Challenges and Opportunities to the Climate Science Community

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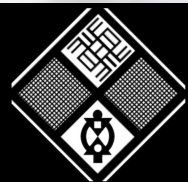
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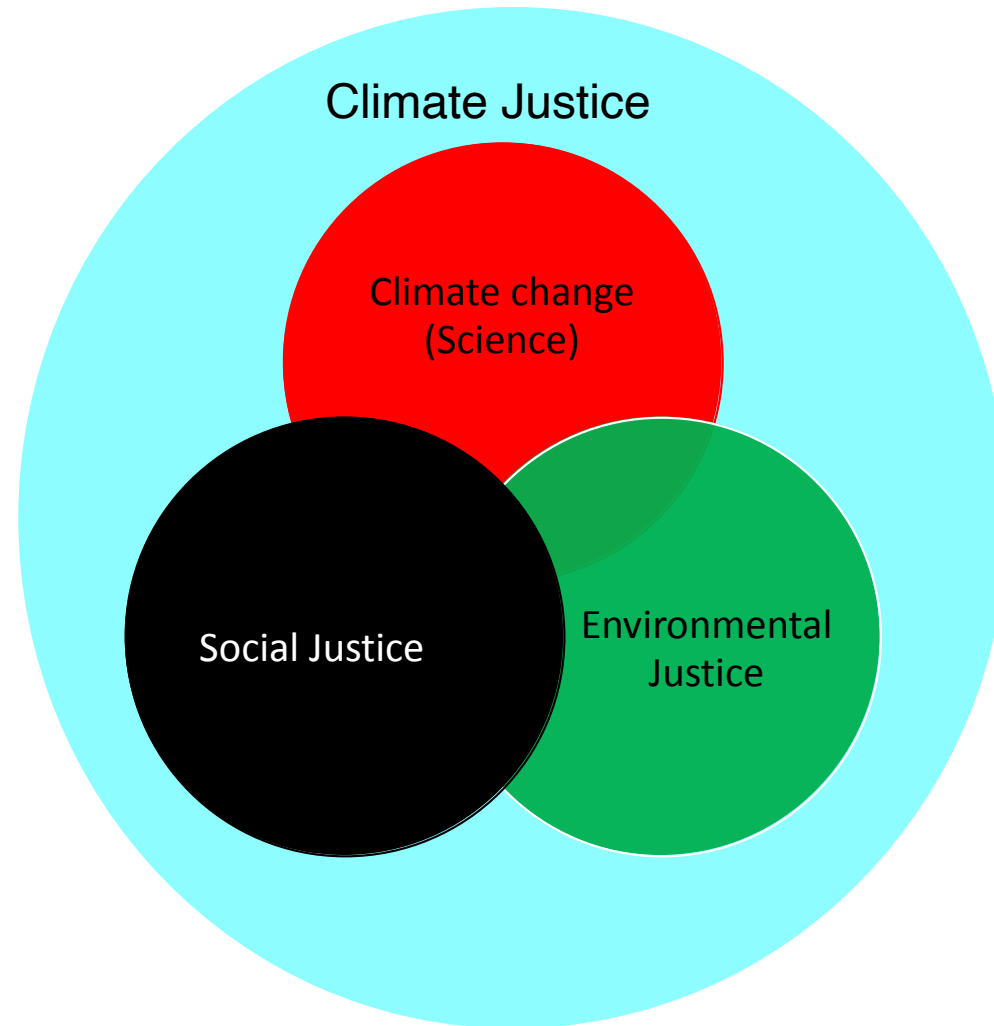
PennState



Key Take-way points

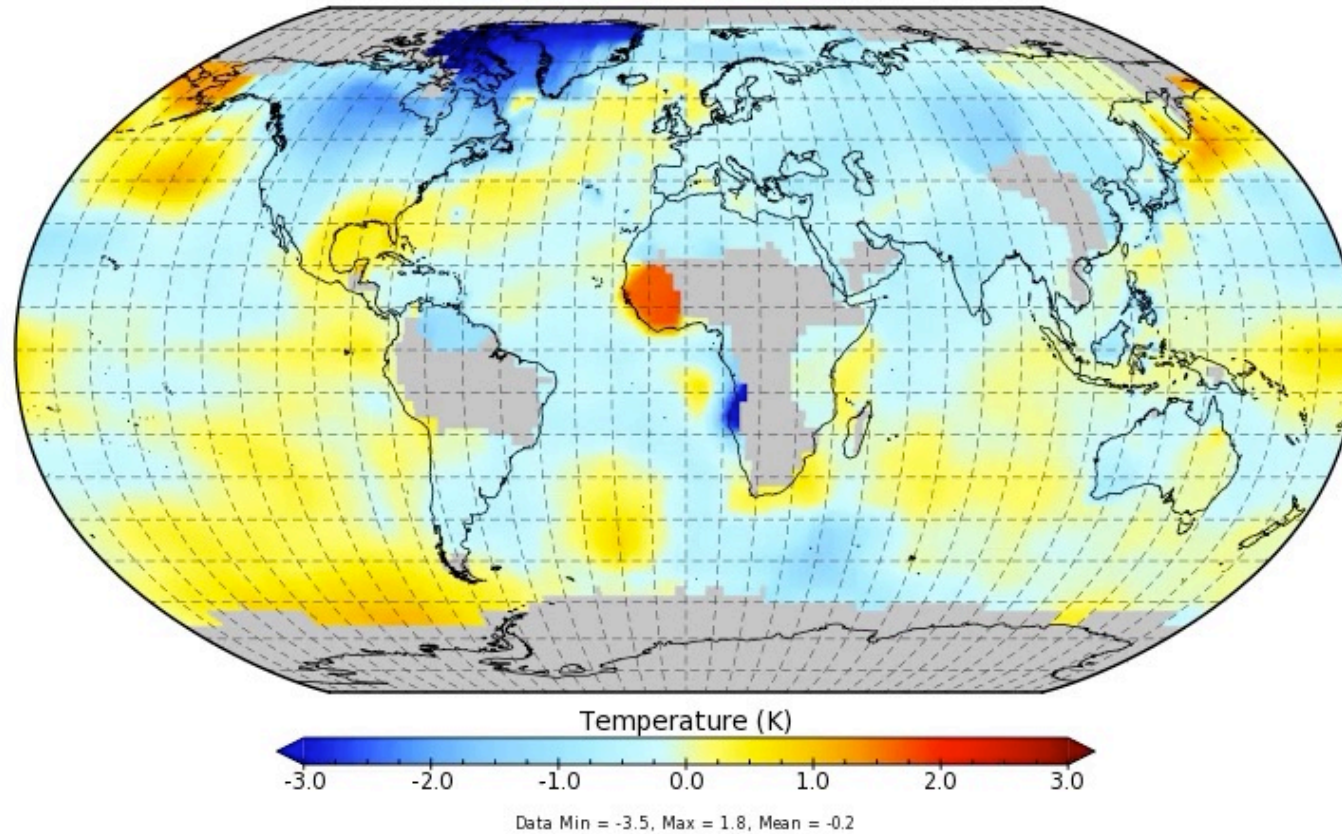
- Increase Insights
- Increase Awareness
- Go beyond your zone of comfort
- Climate Science community must step up to nation's effort around Climate Justice → actionable science → CJ solutions

Climate Justice Defined



Our Warming Planet with disaster lurking

Annual Surface Temperature Anomaly base 1951-1980
1880-1884



Environmental Justice



- Movement began in the 1970s around toxic dumping in poor communities of color (LULU, PIBBY).
- Addressing air, water and soil pollution and those impacts on BIPOC communities
- Relevant to COVID-19 Highest mortality in the US in Black, Hispanic and Native American communities;
- COVID-19 severity higher in BIPOC communities where particulate matter concentrations are higher (Historical EJ Issue);

<https://www.youtube.com/watch?v=EL1FTRPU08>

Warren North Carolina (1982) event – Start of the movement – but we could substitute 2020 for 1982



<https://www.youtube.com/watch?v=1iCvh0BYjgI>

Social Justice

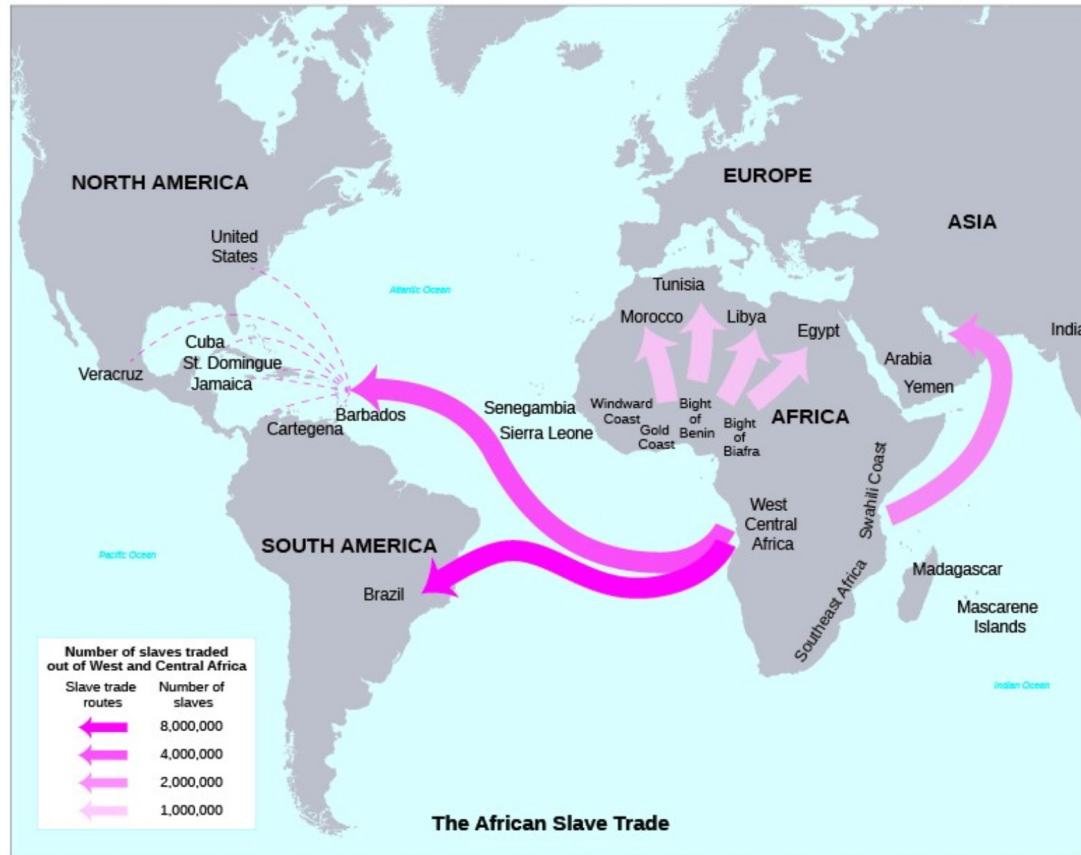


Police brutality, mass incarceration, poverty, food insecurity, enslavement, sharecropping, Jim Crow terrorism, lynching, Voting disenfranchisement, poor water quality, health inequity, education inequity, redlining, gentrification, climate gentrification)

Africa as we have known it today

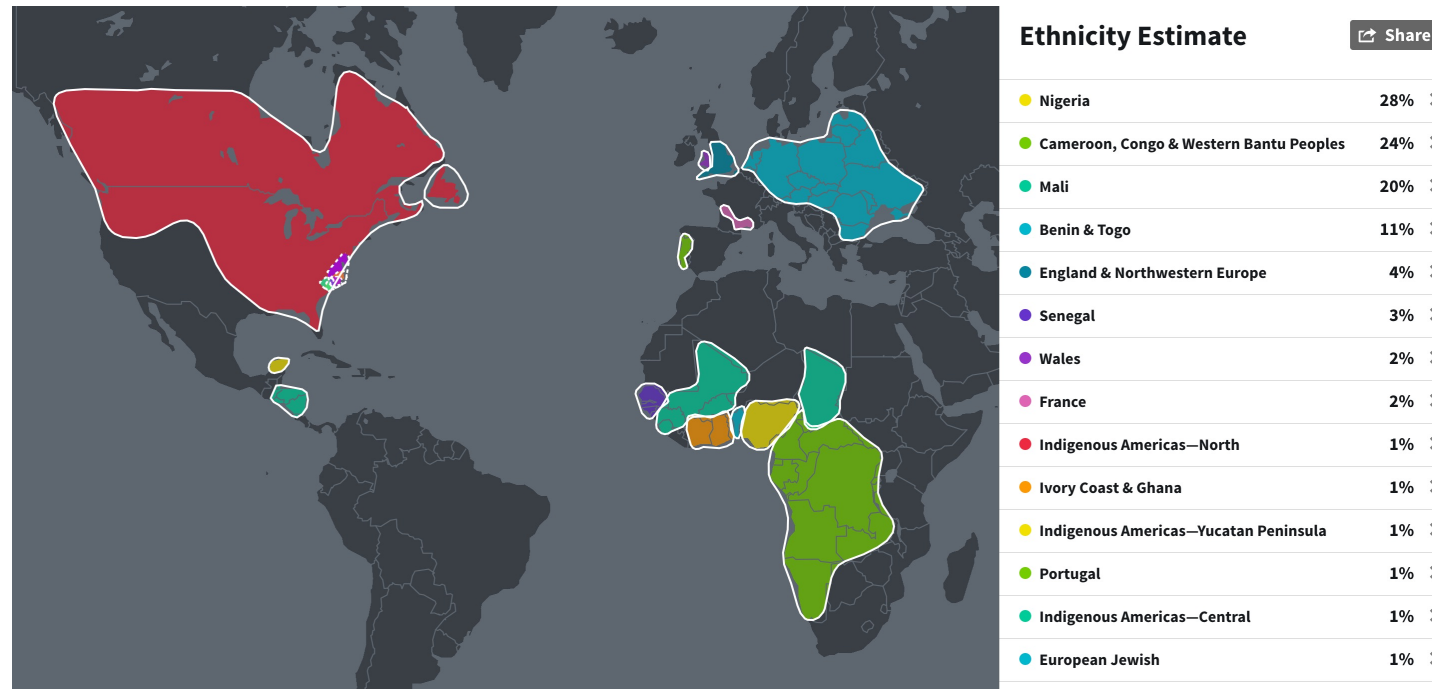


Africa and its Diaspora



- http://www.slate.com/articles/life/the_history_of_american_slavery/2015/06/animated_interactive_of_the_history_of_the_atlantic_slave_trade.html

(G. Jenkins) and millions of black people in the African diaspora don't know their African origins.



Enslaved and Enslavers are likely from this map

The coast
belongs to our
Ancestors
“Beyonce”



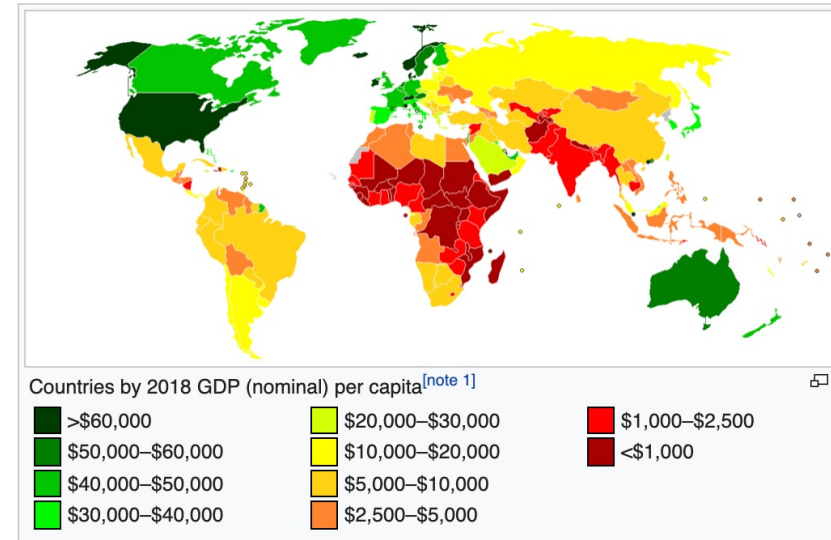
Cotton Production, land and enslaved Africans to drive the Industrial revolution

Year	Cotton (lbs)	Worldwide cotton (lbs)	US share worldwide (%)	US share of all cotton imported to Britain
1791	2,000,000	469,000,000	1	1
1801	40,000,000	531,000,000	8	34
1811	67,000,000	556,000,000	12	42
1821	150,000,000	630,000,000	24	63
1831	322,000,000	820,000,000	39	73
1841	559,000,000	1,044,000,000	54	69
1851	1,120,000,000	1,482,000,000	76	99
1860	1,536,000,000	2,500,000,000	61	88

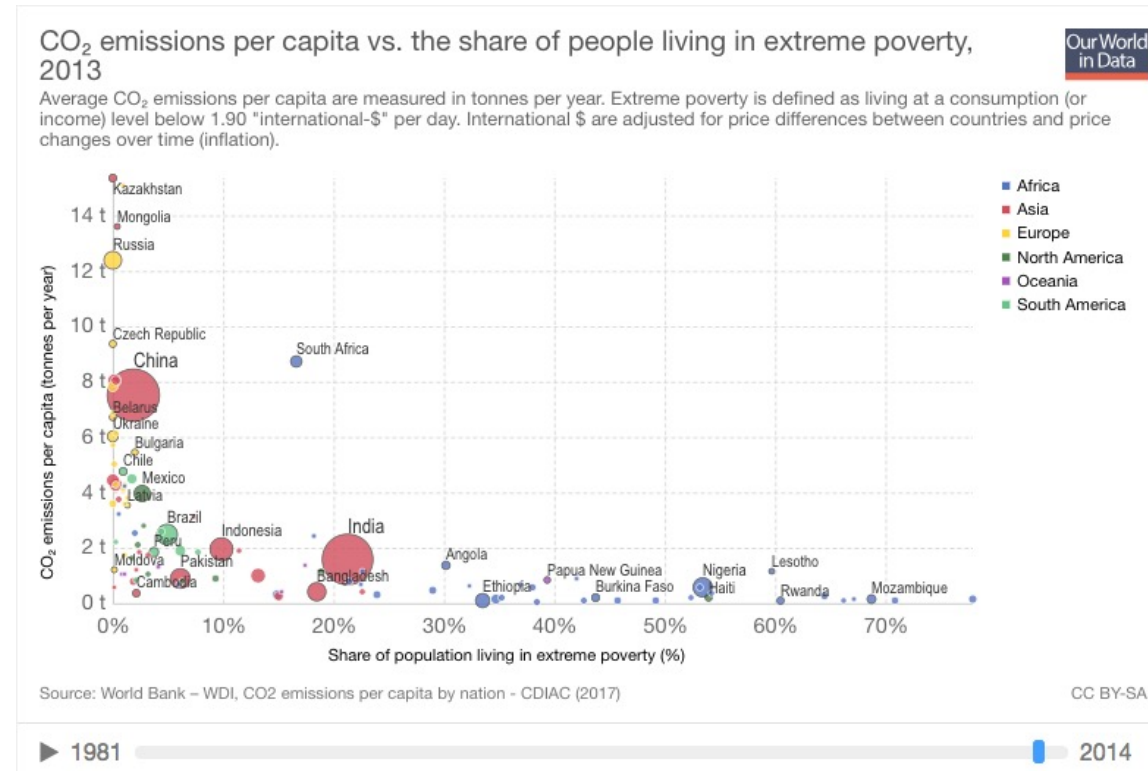
Source: Edward E. Baptist, 2014

The use of slavery and colonialism to drive the Industrial Revolution

- United States --- The production of cotton to drive the industrial revolution on slave labor, violence and torture.
- Africa – The production of products for the machinery of the industrial revolution on African labor, land, resources and taxes.
- 18th, 19th and 20th centuries
 - Peanuts for peanut oil (France)
 - Palm Oil (UK)
 - Rubber
 - Mineral (gold, diamonds, cobalt, uranium.)
 - Coal and oil
 - Sugar
 - Hershey's Chocolate (Ghana-coco)



The paradox for Africa: Low CO₂ emissions and greater the extreme poverty (<1.90 Per day)



Africa deemed the most vulnerable and least adaptable to climate change - IPCC

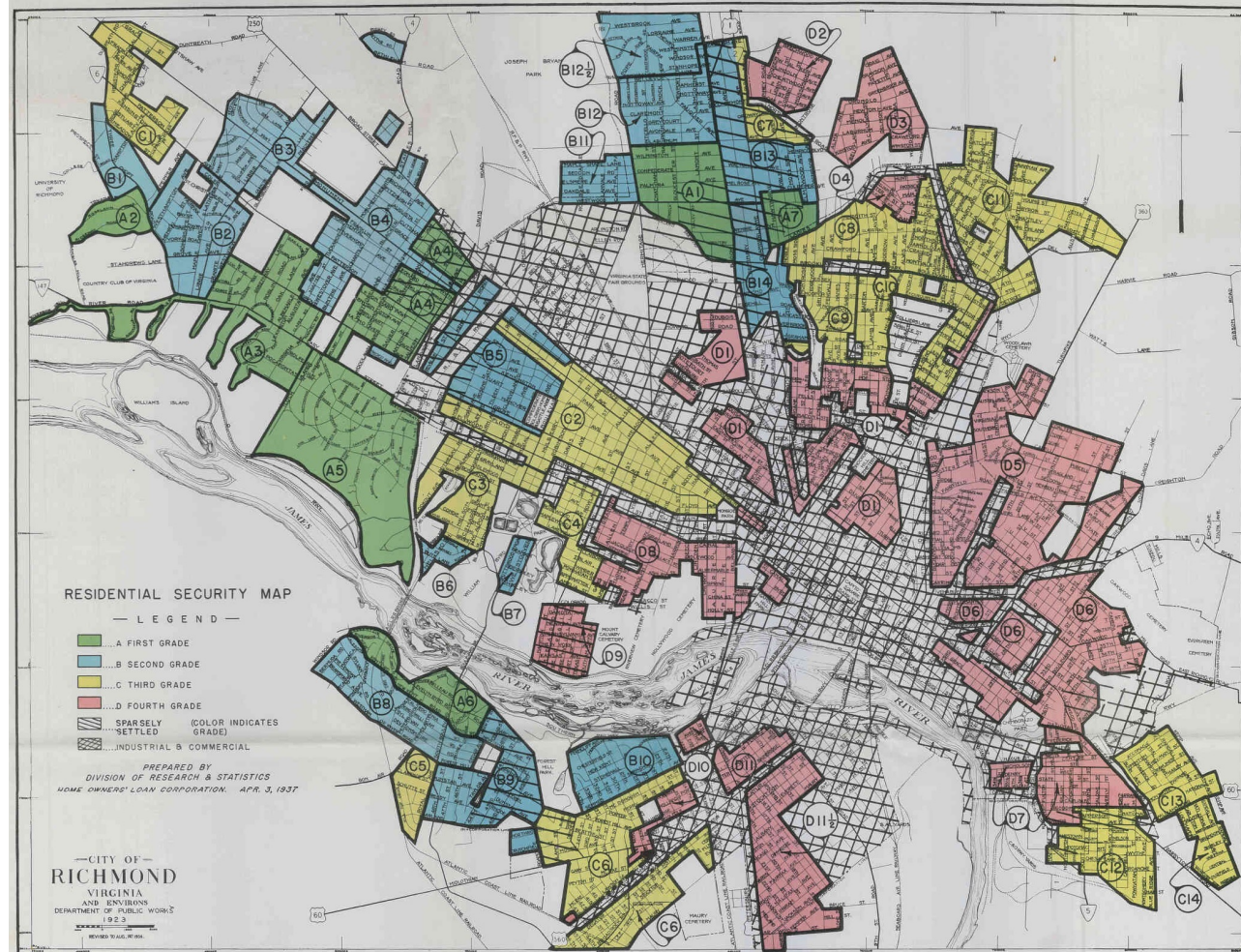
Will a new wave of injustice emerge from EVs?



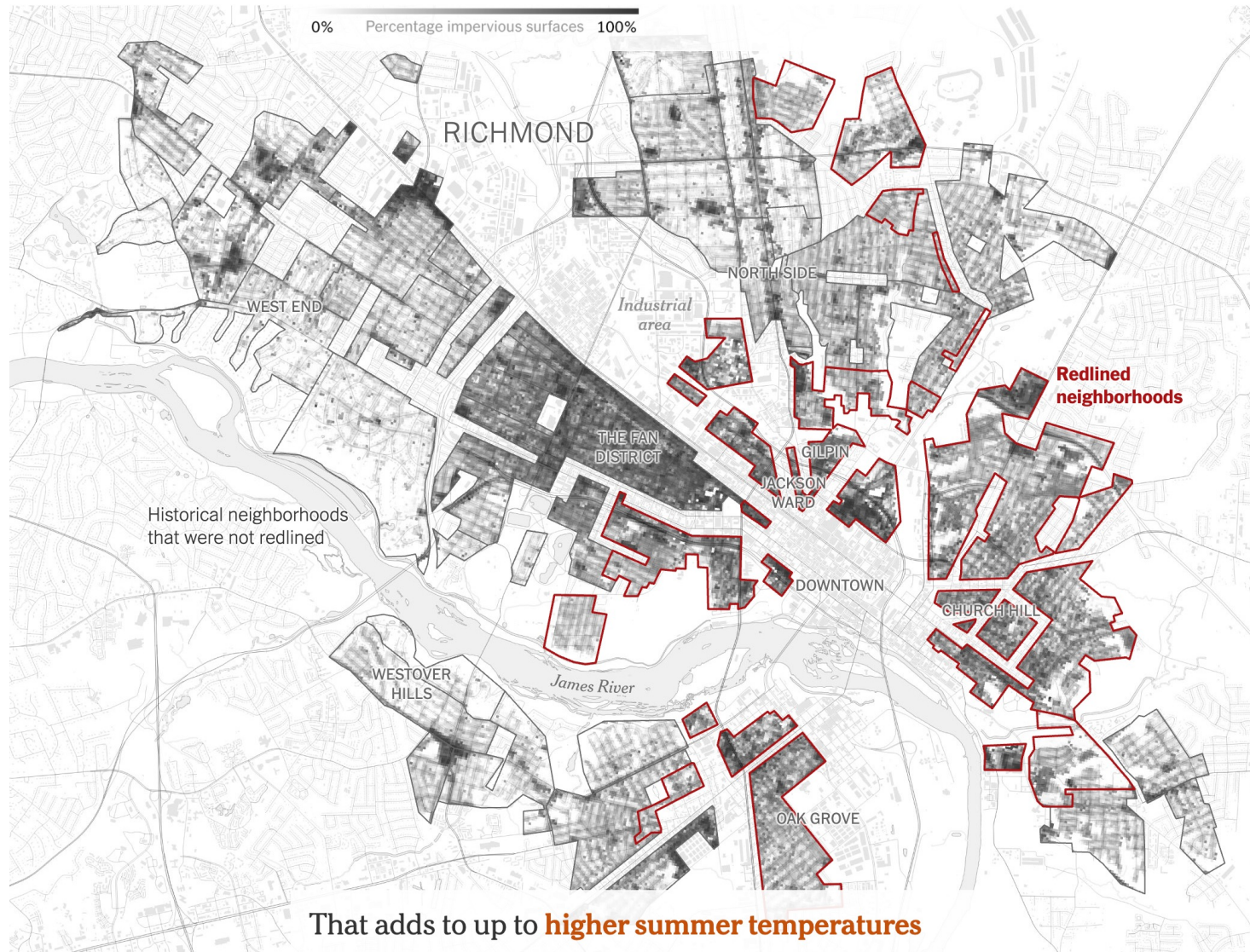
<https://www.theguardian.com/global-development/2019/dec/16/apple-and-google-named-in-us-lawsuit-over-congolese-child-cobalt-mining-deaths>

<https://www.raconteur.net/corporate-social-responsibility/cobalt-mining-human-rights/>

Climate Injustice at work: Historical Redlining by the federal government in Richmond VA in the 1930s (CC+ EJ+ SJ)

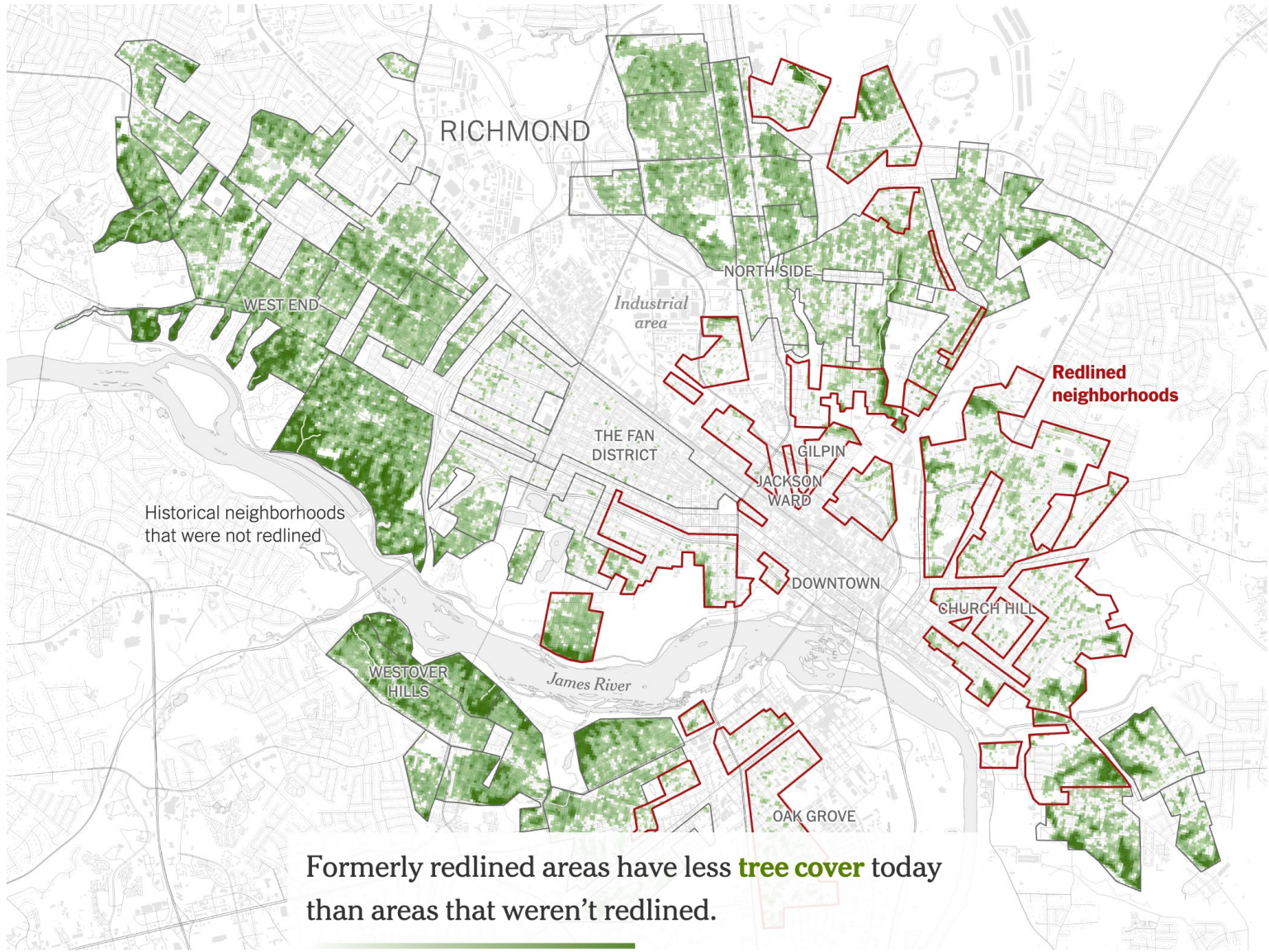


Government redlining
In the 1930
Source: NY times (Aug,
2020)



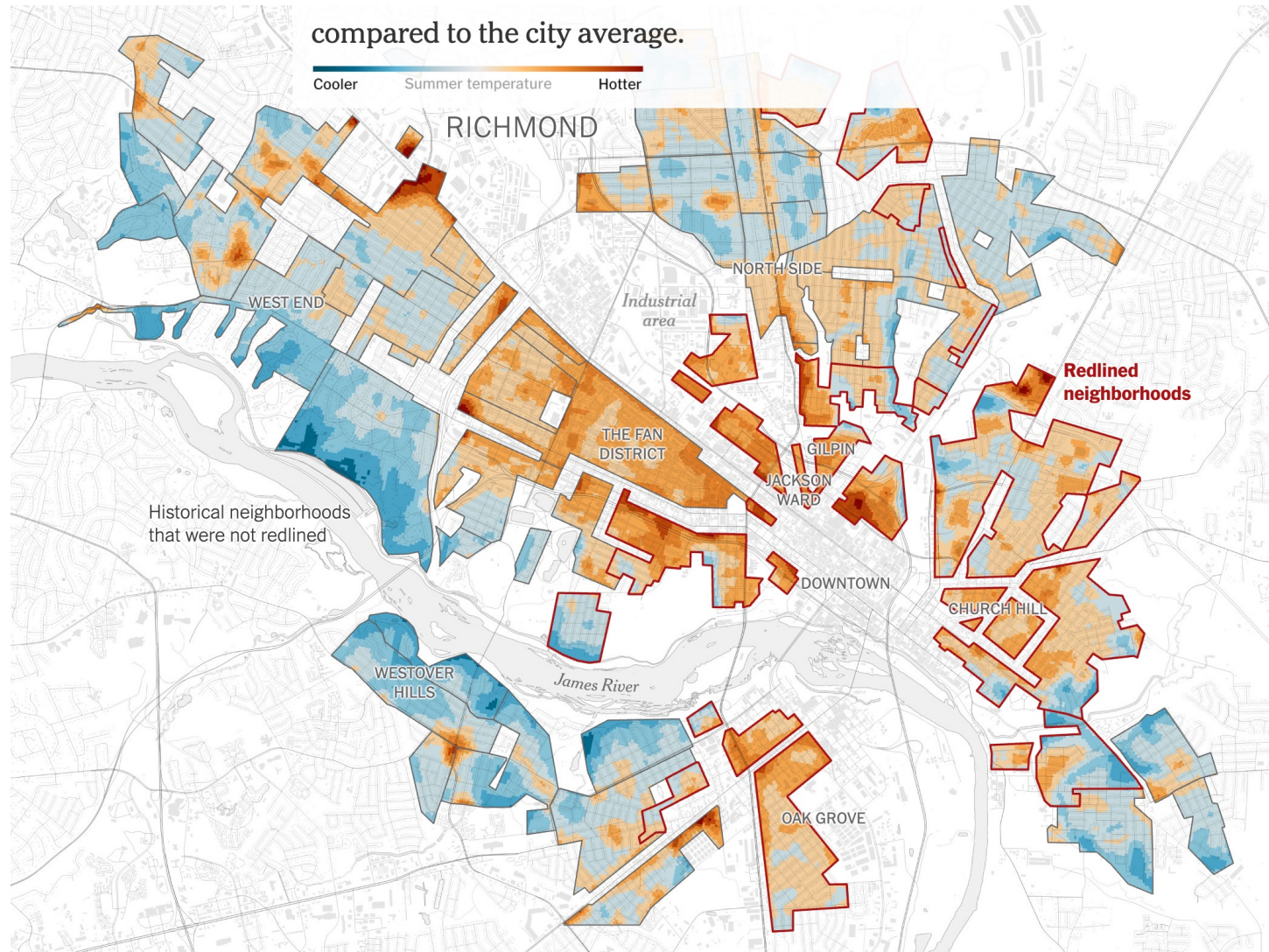
Redlined districts
Have more paved
surfaces

That adds up to **higher summer temperatures**
compared to the city average.



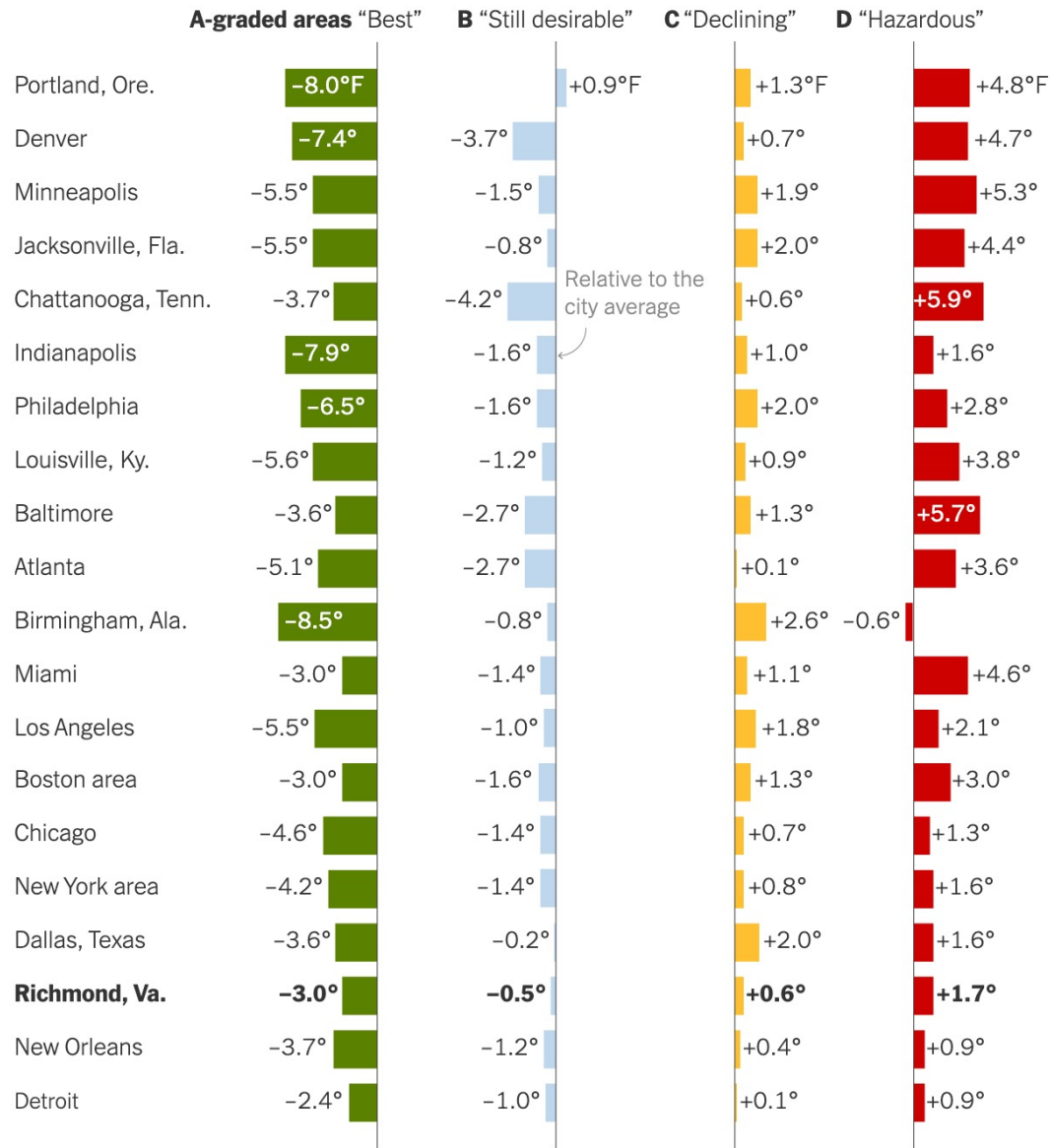
Formerly redlined areas have less **tree cover** today than areas that weren't redlined.

Redlining means less
Tree cover in Richmond
Source: NY times



Redlining means
Warmer temperatures
In Richmond Va
Source: NY times

← Ordered by size of heat gap on a hot summer day →

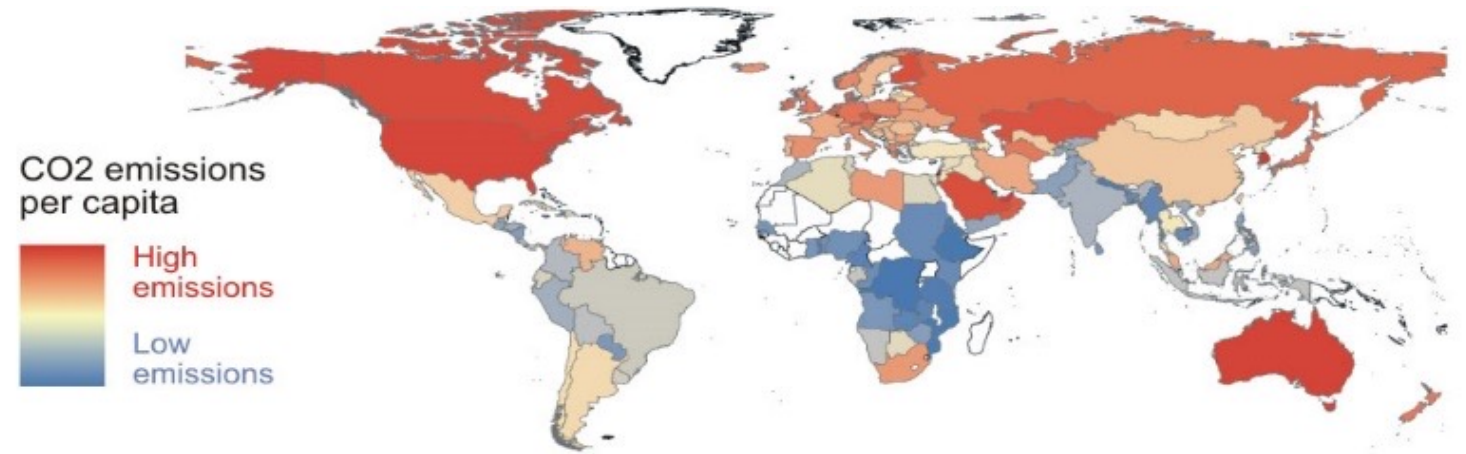


The impacts of Redlining and Temperatures NYtimes (Aug 2020)

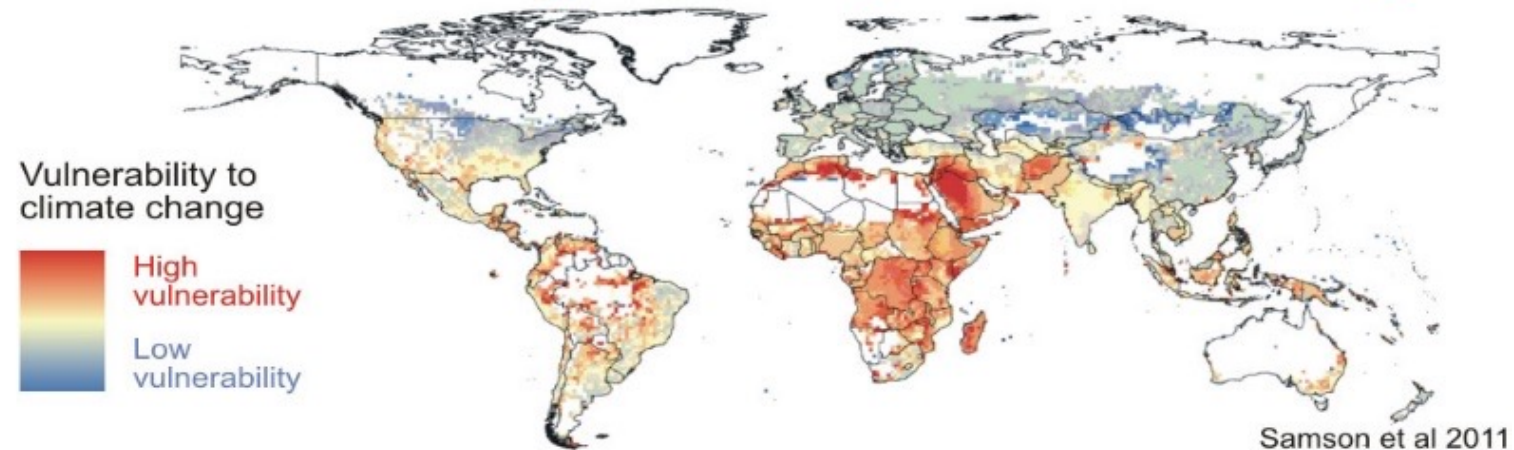
Areas where Black and Brown Communities are Located due to Redlining are Warmer today

Those who cause climate change experience fewer impacts

- Climate impacts reflect a broader pattern of **environmental injustice**, affecting women, low income communities, people of color, and developing countries the most, although they are the least responsible for causing it.



Those who contribute the least greenhouse gases will be most impacted by climate change



Climate Sciences Challenges

- Research and R2O focus and limited R2SN, R2P;
- Communication of CC threats and impacts on society and vulnerable communities are not clear; - normal citizens elect policy makers
- Reward system needs realignment when facing global threats.

Climate Sciences Opportunities

- Addressing science priorities (rates of change, intensity, scale, seasonal/subseasonal impacts) – urban environments, food security (ocean and land), Sea level rise/Antarctic ice sheet collapse/coastal communities, air quality and impacts on BIPOC communities and poor,
- Shift to an advisory role to society and policymakers using wisdom from the science – not just IPCC reports.

Climate Sciences Challenges

- Low BIPOC Capacity in the Geosciences (less than 3% PhD to AA, no presence in national labs, universities, funding agencies);
- Meritocracy not addressing equity or injustices;
- Work environment may not support recruitment or retention of BIPOC climate scientists;
- Societal injustices towards BIPOC communities and associated trauma remain significant.

Climate Sciences Opportunities

- Increase BIPOC involvement in climate sciences- admissions policies, hiring policies, make an inclusive, diverse and anti-racist environment;
- Mentor BIPOC students with the removal of a white superiority framework;
- Help communities that are impacted by climate change through interactions– nonprofit groups, farmers, coastal residents.

Mentoring: It takes a village to raise a climate scientist.

