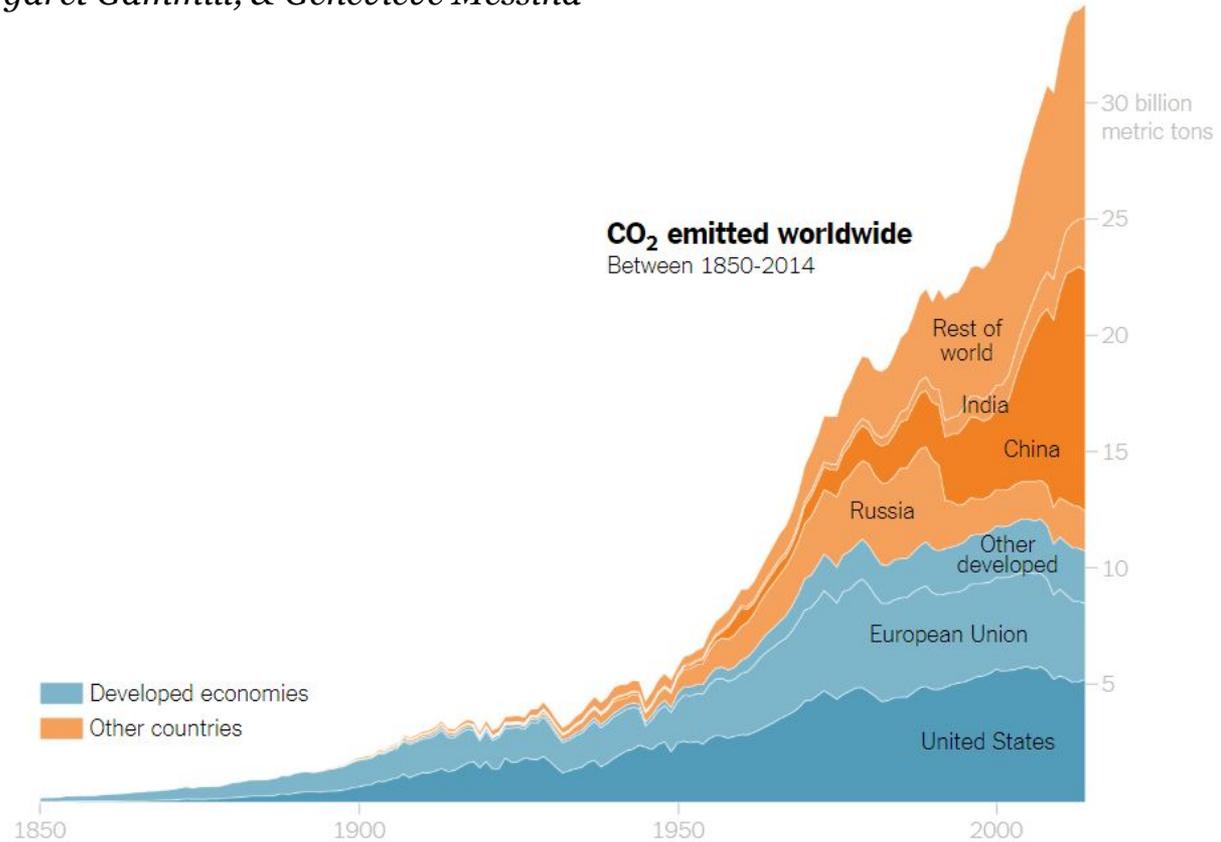


# Designing for Climate Change & Under Prioritized Groups

*Emma Hyson, Alexandra Haslett, Margaret Gammill, & Genevieve Messina*



“At the moment, architecture is in a state of paralysis. It thought that it had gotten to this penultimate moment of environmental stewardship and sustainability, only to realize that it was fairly self-serving and that there are much bigger questions about density, affordability, accessibility, all of these other collateral social issues. You can have an entire suburb of sustainable homes, but it’s still a suburb. We’re running out of time. Everybody has to do everything. It has to be the AIA, the profession, the state licensing boards, and the schools of architecture and design.”

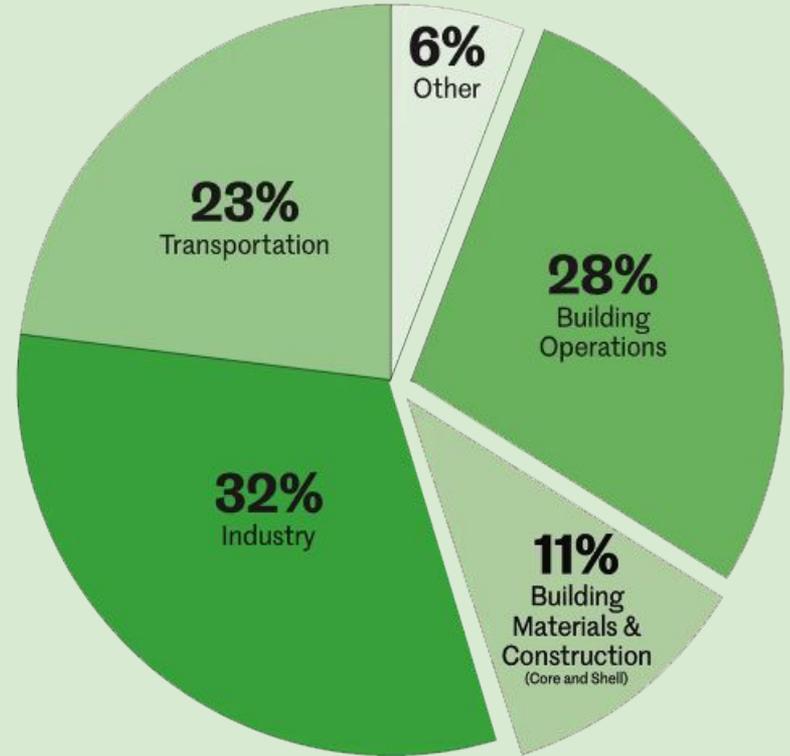
Jesse Keenan, Ph.D., lecturer at Harvard University’s Graduate School of Design 1970

# Architecture Infrastructure in the realm of Climate Change

36%

39%

82%



# Embodied Carbon and Construction in the realm of Climate Change

55%

8%

2.2 billion

400%



# Cities and Extreme Weather in the realm of Climate Change

2005:



2021:



90 : 670

\$8 billion

Alstead, NH

# The \$\$ of Climate Change: 100 year storms

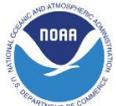
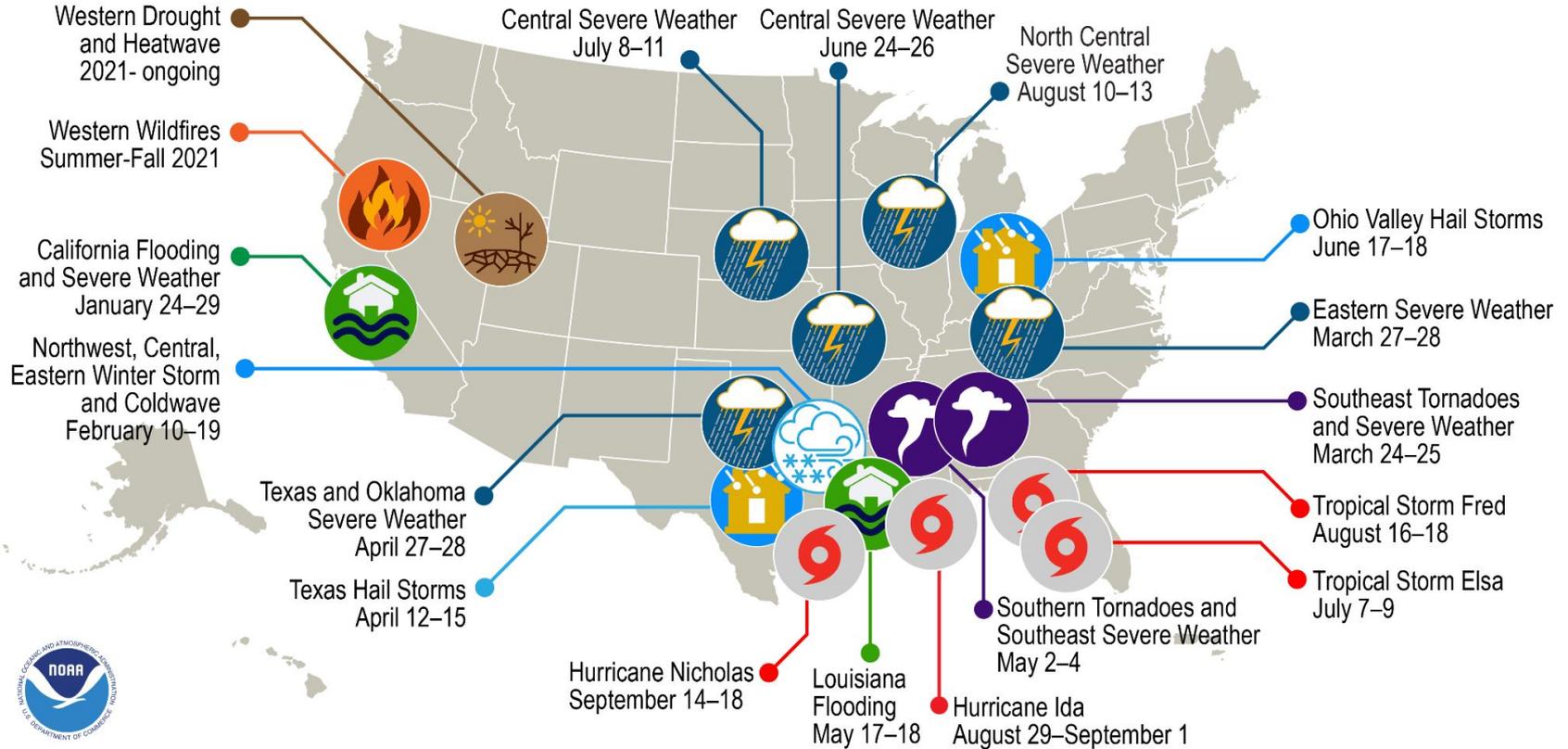
The U.S. has sustained 308 weather and climate disasters since 1980 where overall damages/costs reached or exceeded \$1 billion (including CPI adjustment to 2021)

These events per year averaged:

- 2.9 events per year 1980-1989
- 5.3 events per year 1990-1999
- 6.3 events per year 2000-2009
- 12.3 events per year 2010-2019
- 16.7 events per year 2018-2021

# Over \$2 Trillion

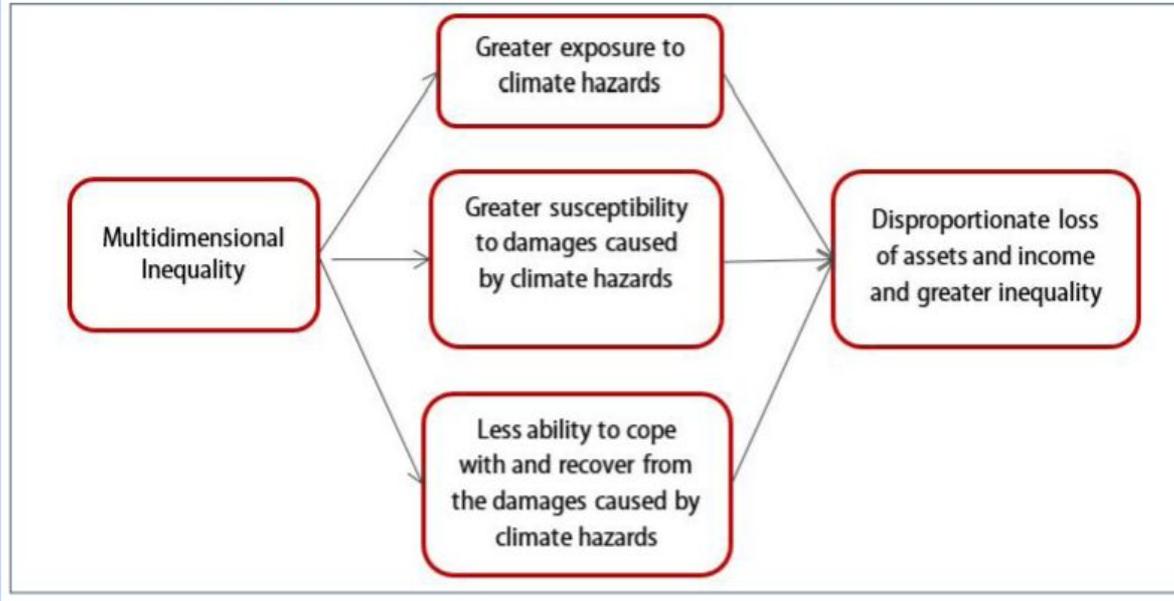
# U.S. 2021 Billion-Dollar Weather and Climate Disasters



*This map denotes the approximate location for each of the 18 separate billion-dollar weather and climate disasters that impacted the United States January-September 2021.*

# Climate Change and Social Inequality

## Three effects of inequality on disadvantaged groups



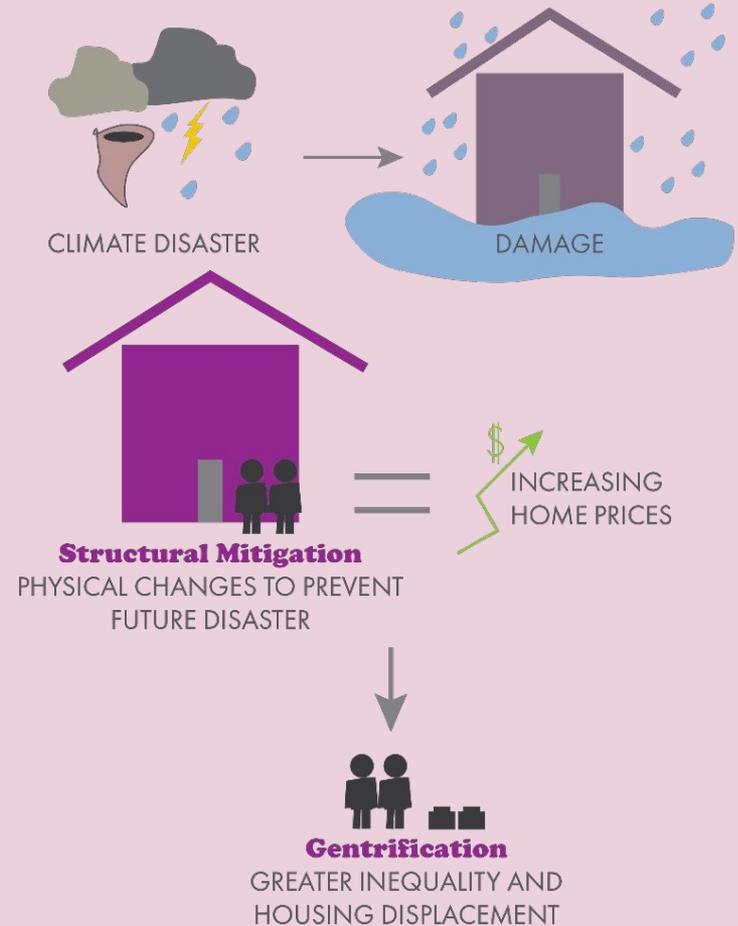
# Case Study: Rebuilding After Hurricane Irma (2017)

“Disaster prevention and post disaster recovery exacerbates inequality.”



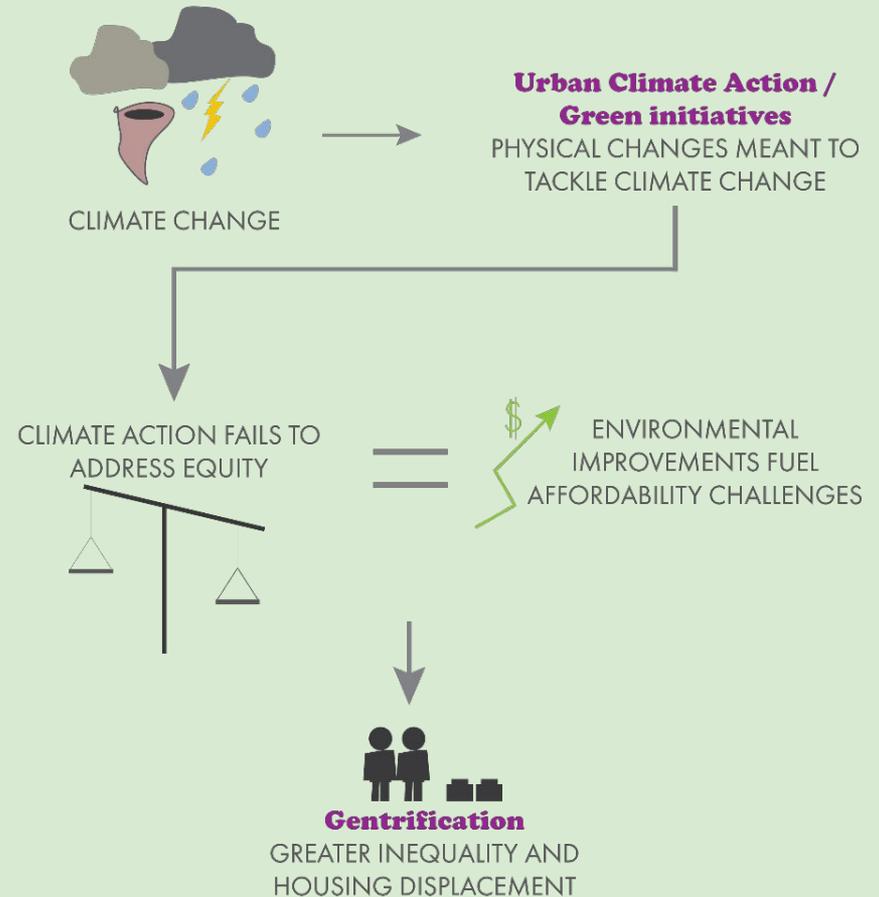
# Resilience Gentrification

The most common reaction to climate disaster is structural mitigation. How does structural mitigation lead to resilience gentrification?



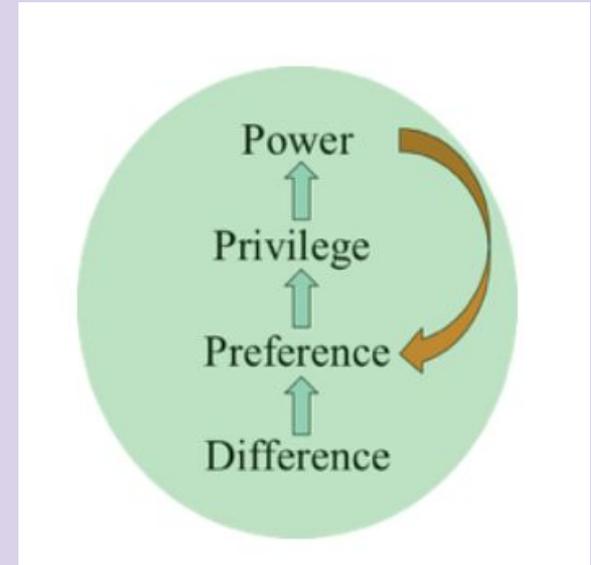
# Green Gentrification

The process of greening urban areas, while positive in an environmental sense, has had the consequence of exacerbating environmental inequality.



# ADDRESSING PRIVILEGE WITHIN ECO SUSTAINABLE FRAMEWORKS

”...What becomes even more problematic is when this lens of looking and implementing sustainability strategies are integrated into sustainability education programs and courses which fail to include analyses of power relations, privilege and cultural competency...”



The negative feedback loop shows power intersecting with preference and privilege and, where differences are minimised and oppressed, and privilege is unrecognized. ([Kolan and Sullivan 2014](#))

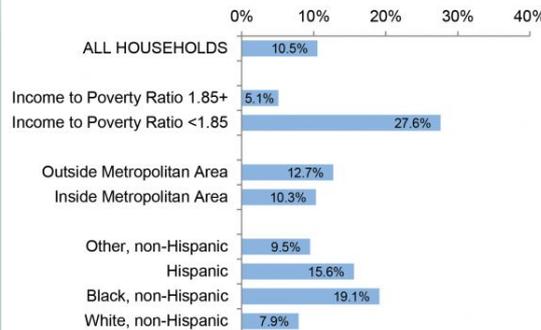
# ENVIRONMENTAL JUSTICE + RACIAL INEQUITY

Climate change is already disproportionately affecting BIPOC\* communities

\*BIPOC: Black, Indigenous, and People of Color



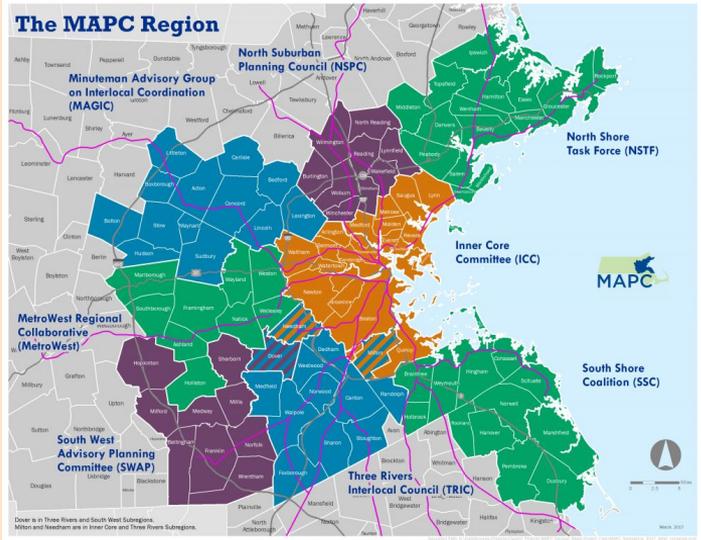
It's not just Flint: Poverty is bad for your health in Michigan, study finds



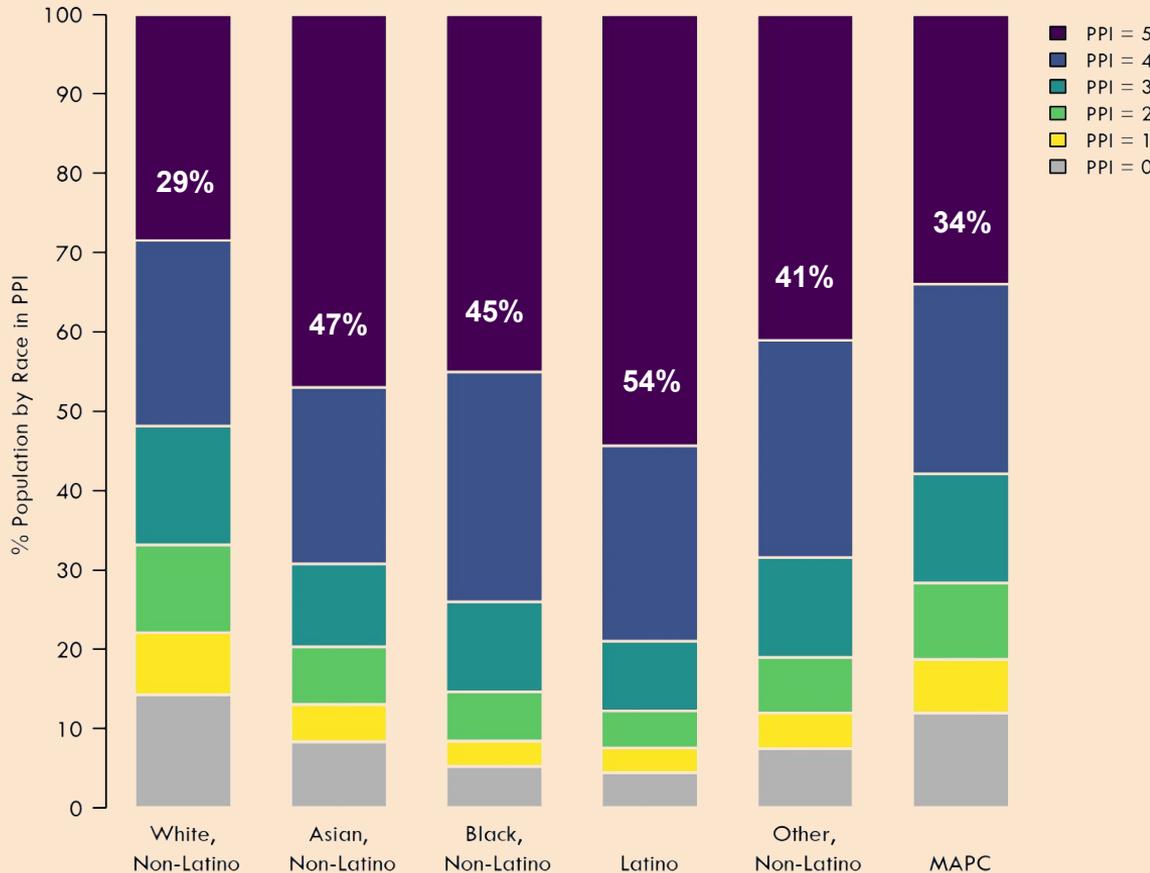
- Likelihood of living near hazardous waste facilities
- Air quality
- Access to clean drinking water
- Access to food
- Access to power
- Access to communication (internet, language)
- Access to healthcare
- Access to shelter, temperature control

# PROXIMITY TO POLLUTION in the MAPC REGION

MAPC = Metropolitan Area Planning Council



PPI = Pollution Proximity Index

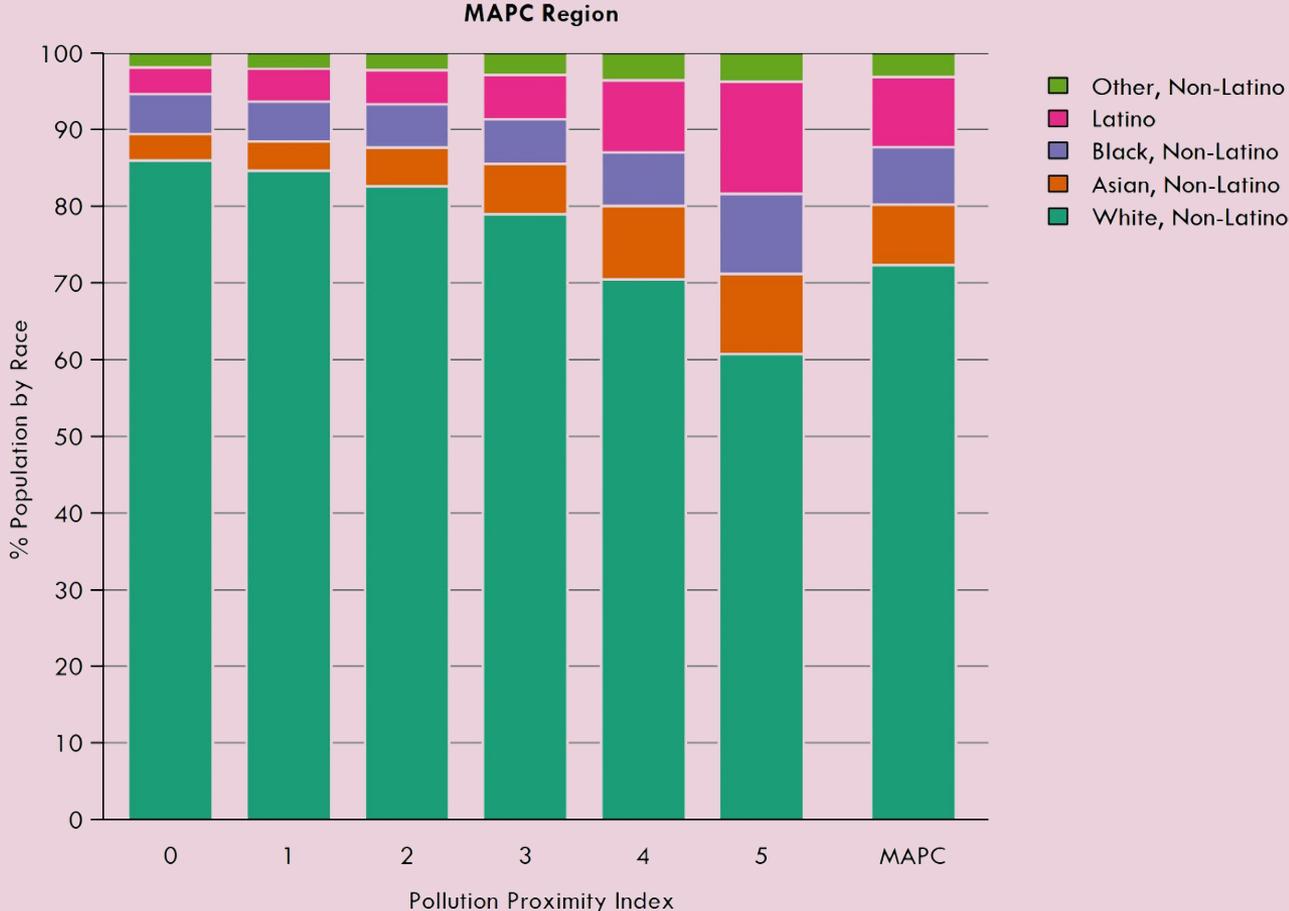


# PROXIMITY TO POLLUTION in the MAPC REGION

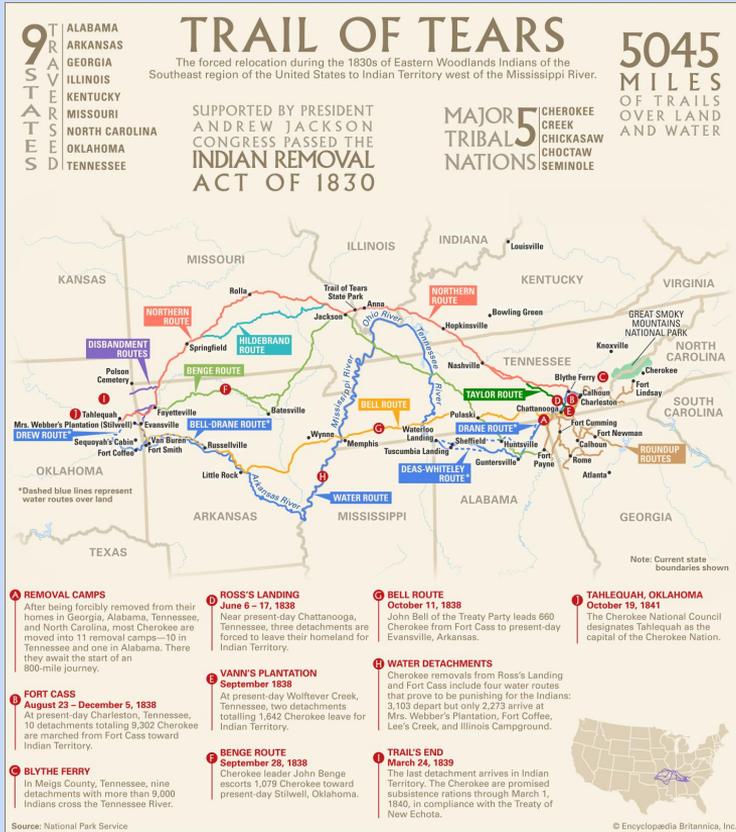
MAPC = Metropolitan Area Planning Council

“When we look at how the relative populations of residents by race changes as we move from the low PPI to the high PPI areas, we see a clear trend: **the share of residents of color increases with increasing PPI. In the top PPI group, the percent of Black and Asian residents is 30-40% higher than their share of regional population, and the percent of Latin[x] residents is 60% higher.**”

PPI = Pollution Proximity Index



# ROOTED IN SYSTEMS OF OPPRESSION



# DYING FOR THE HERE AND NOW



“You Only Live Once”



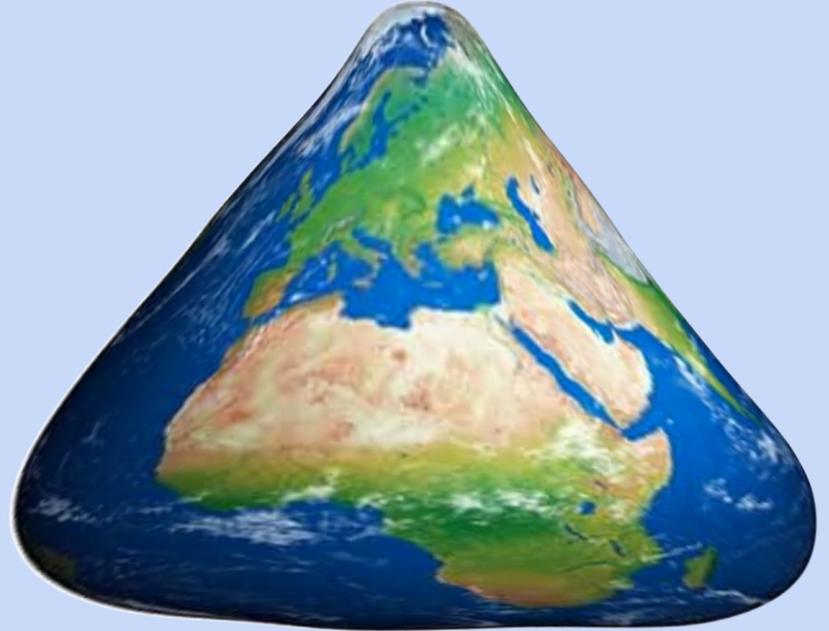
# INDISPENSABLE TO EXPLOITATION

“So, is racism the root cause of climate change?”

No, but its pervasive presence in society is indispensable to the persistence of an extractive, exploitative and inequitable economic system.

**And that system is inherently incompatible with the ecological and egalitarian model we need to achieve a just transition to a fair, clean energy economy.”**

- Frederick Hewett



# A CALL TO DISRUPT

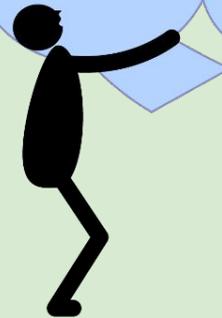
Addressing climate change in a meaningful way requires that we **change** the way we currently operate



STATUS

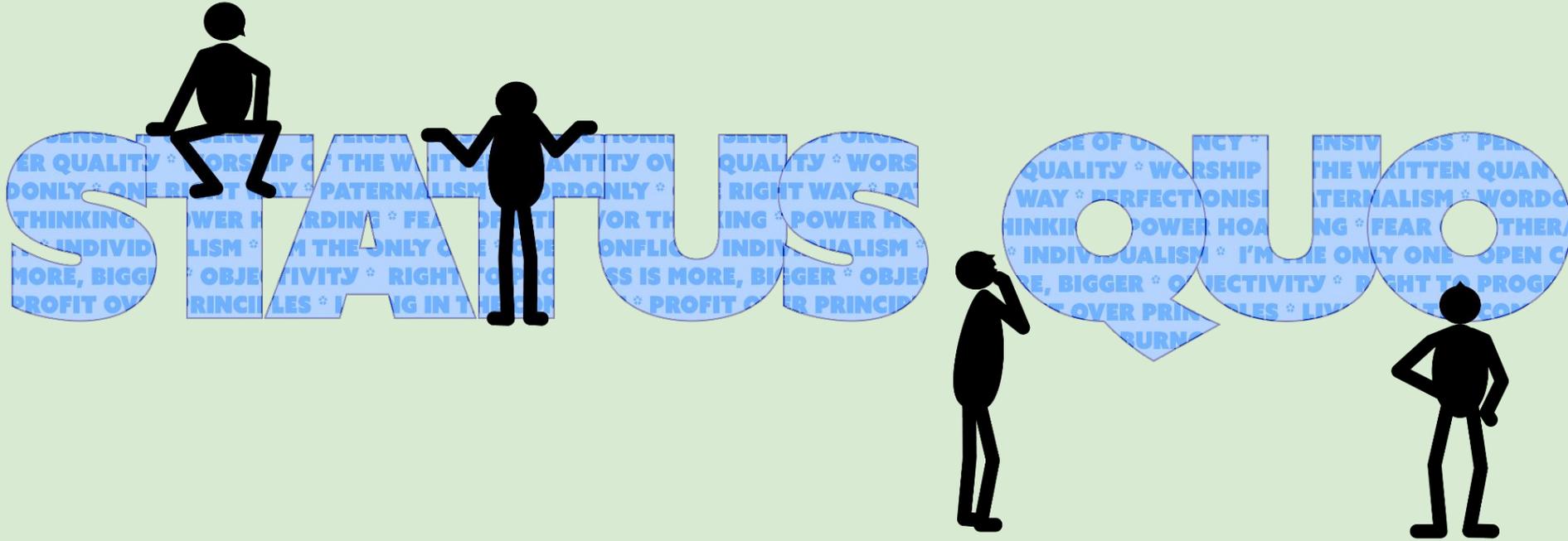


QUO



# A NEED TO EXAMINE

**recognizing • questioning • challenging** the systems that are currently upholding the status quo

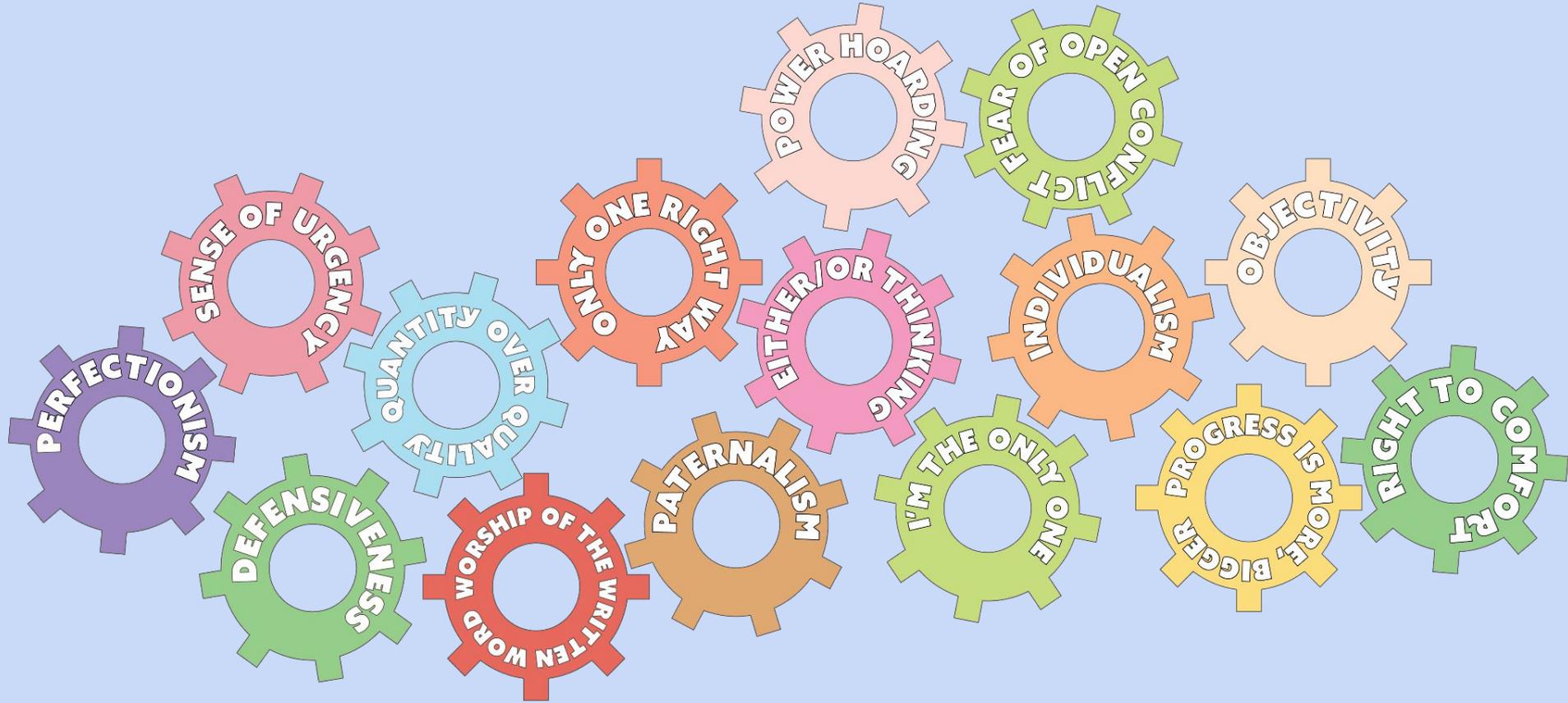


# THE ROLE WE PLAY

Examining the way these systems' values show up in our industry and ourselves



# THE ISSUE THROUGH THE LENS OF WHITE SUPREMACY CULTURE

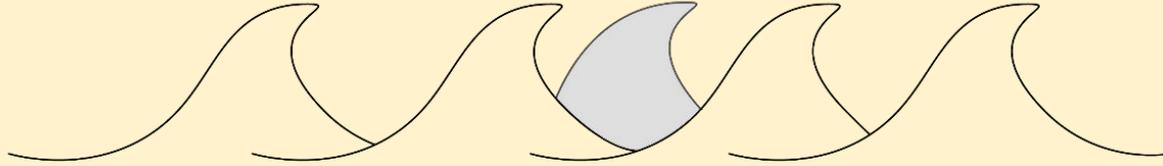


# THE ISSUE THROUGH THE LENS OF WHITE SUPREMACY CULTURE

*“Culture is powerful precisely because it is so present and at the same time so very difficult to name or identify. The characteristics [of White Supremacy Culture] are damaging because they are used as norms and standards without being proactively named or chosen by the group. They are damaging because they promote white supremacy thinking. Because we all live in a white supremacy culture, these characteristics show up in the attitudes and behaviors of all of us – people of color and white people. Therefore, these attitudes and behaviors can show up in any group or organization, whether it is white-led or predominantly white or people of color-led or predominantly people of color.” – Tema Okun*

# A TOOL FOR AWARENESS + COLLECTIVE ACCOUNTABILITY

The WSC Framework is a tool, not a weapon

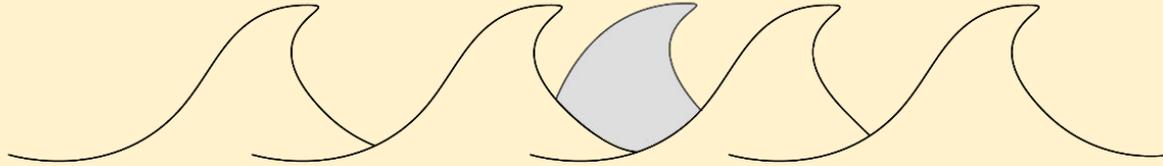


**REMEMBER: WHITE SUPREMACY IS NOT A SHARK;  
IT IS THE WATER.**

**-GUANTE**

# A TOOL FOR AWARENESS + COLLECTIVE ACCOUNTABILITY

The WSC Framework is a tool, not a weapon



**REMEMBER: WHITE SUPREMACY IS NOT A SHARK;  
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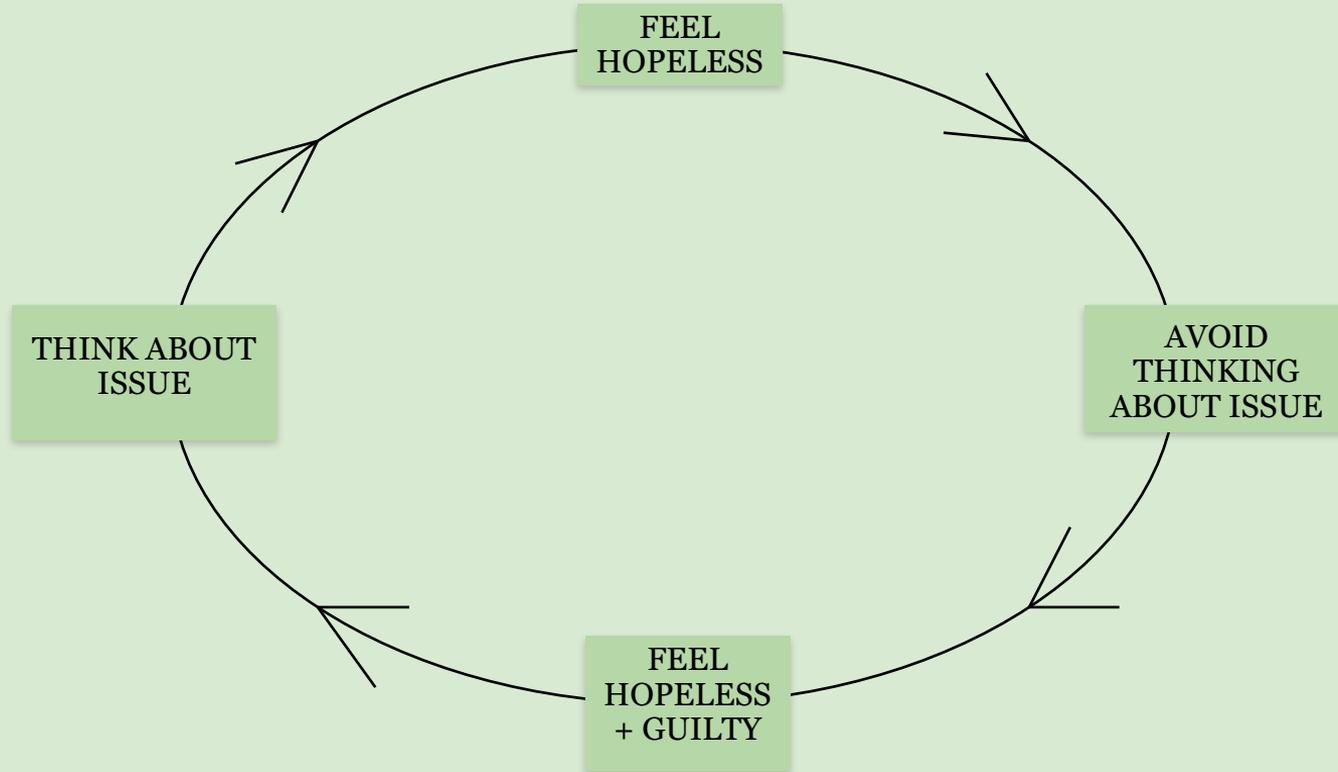
**-GUANTE**

*“The intention is to help us understand the water in which we are all swimming so that we can collaboratively work together to build and sustain cultures that help us thrive as communities and individuals. Cultures that are not based on abuse of power and accumulation of profit. Cultures that are based on interdependence, justice, and respect for each other and the earth and wind and sun and stars. Cultures that embody the belief that we all do better when we **all** do better.”*

– Tema Okun

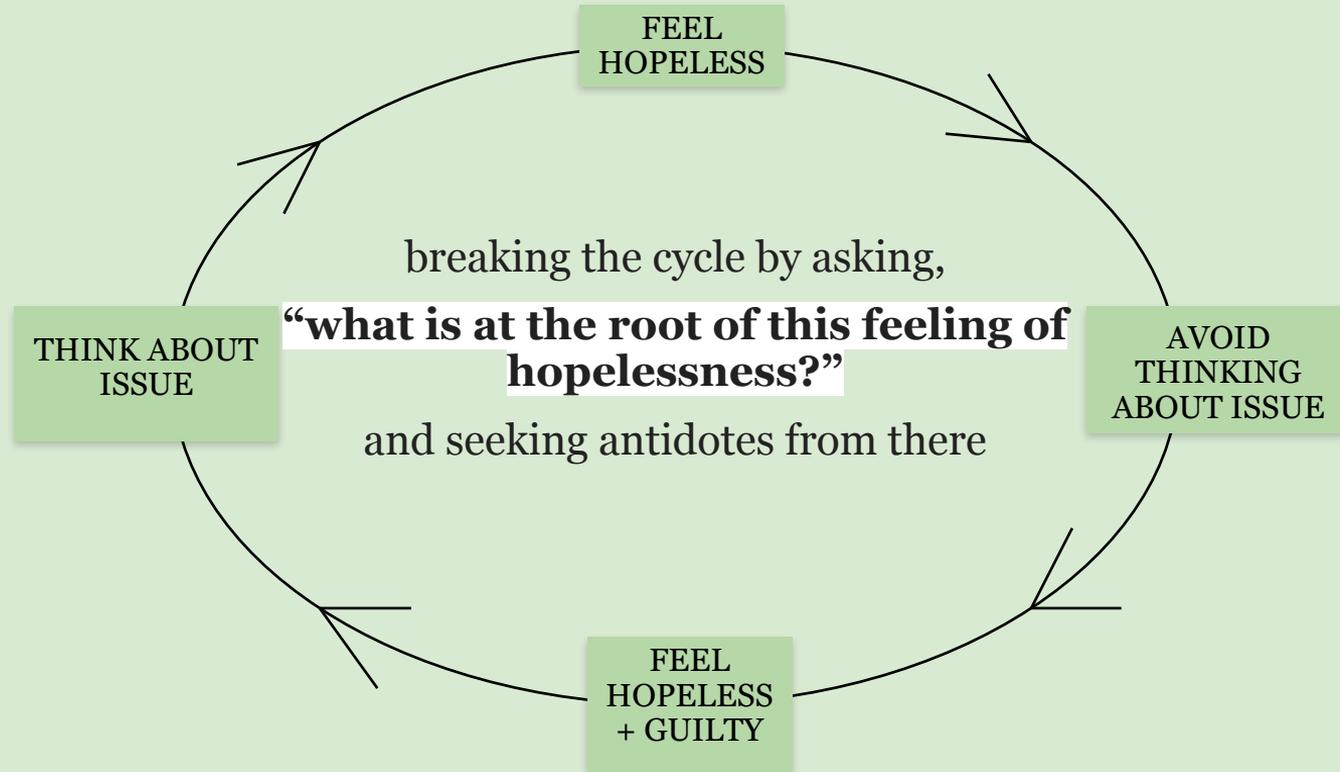
# TOOLSET FOR NAVIGATING COMPLICATED ISSUES

The Characteristics of WSC as a framework for continued engagement with an overwhelming topic



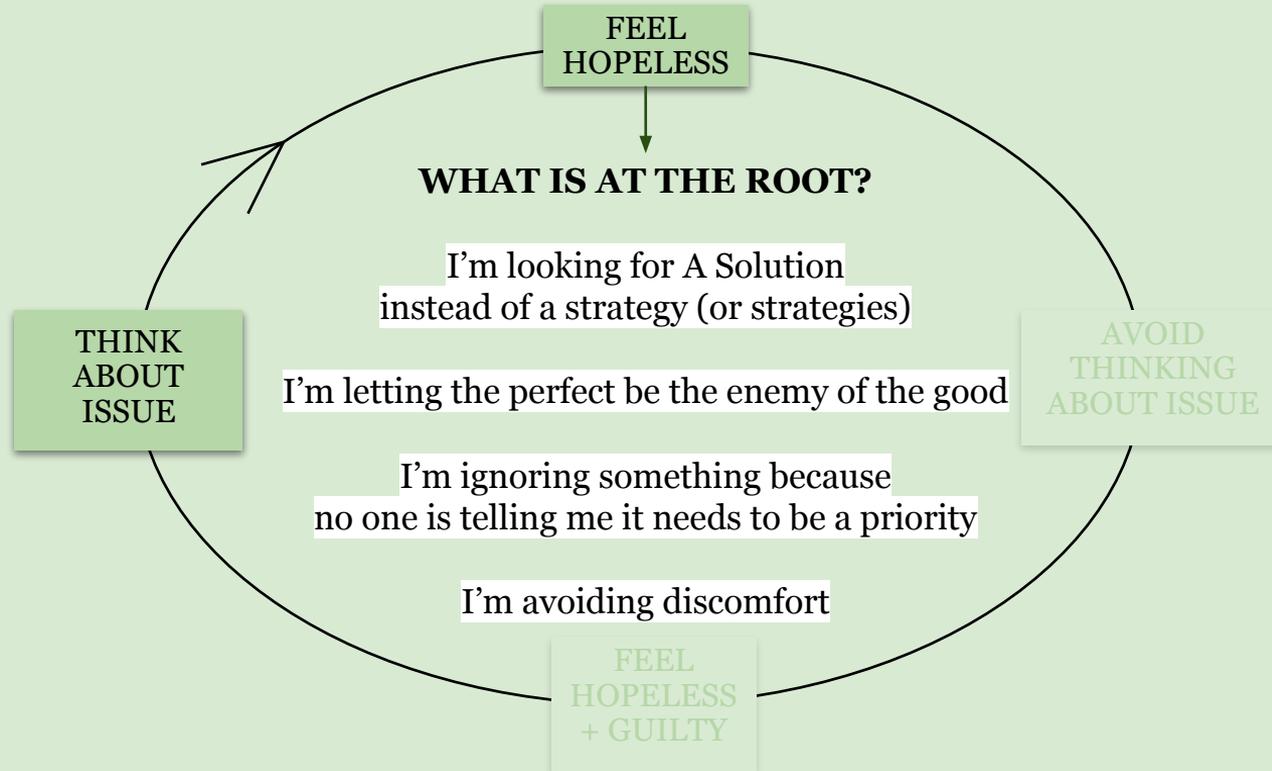
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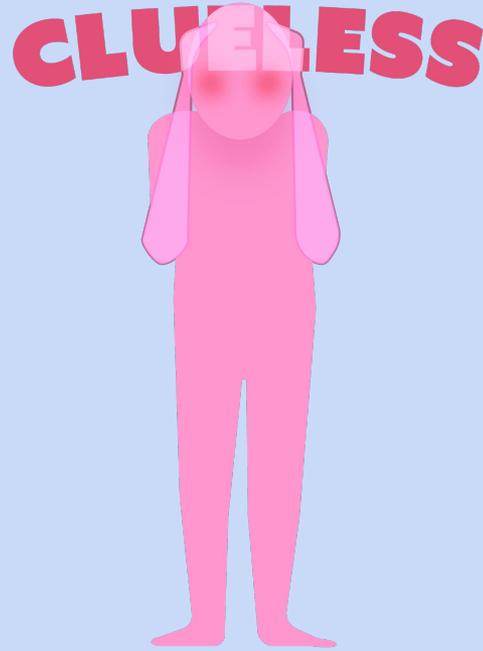
# TOOLSET FOR NAVIGATING COMPLICATED ISSUES

The Characteristics of WSC as a framework for continued engagement with an overwhelming topic



# FACTS FROM FEELINGS

Digging into the roots of 3 Common “Roadblock” Emotional Responses



# **CHARACTERISTICS OF WHITE SUPREMACY CULTURE**

# CHARACTERISTICS OF WHITE SUPREMACY CULTURE



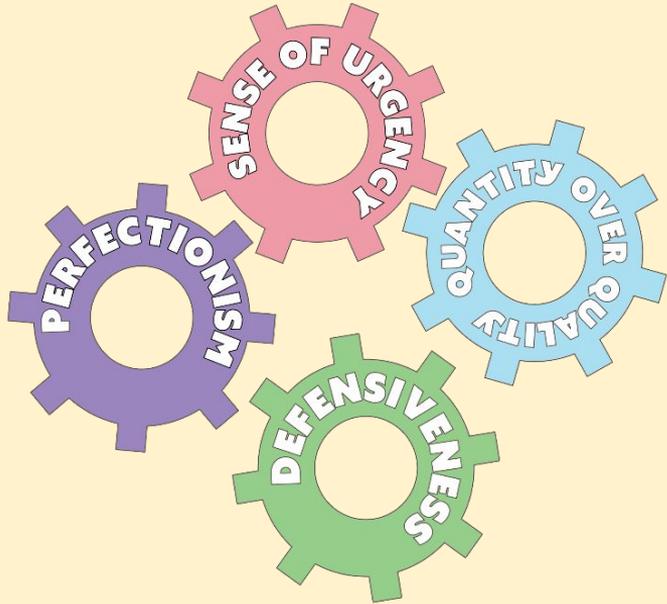
# CHARACTERISTICS OF WHITE SUPREMACY CULTURE



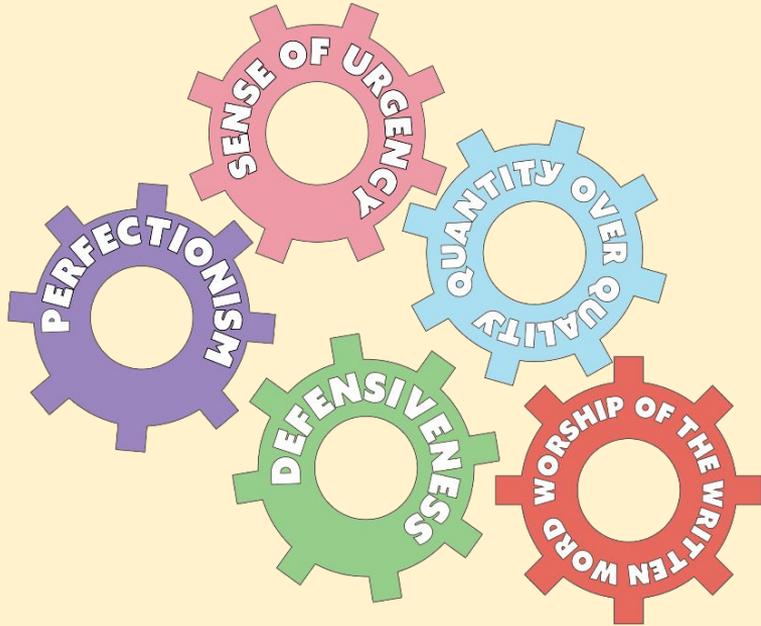
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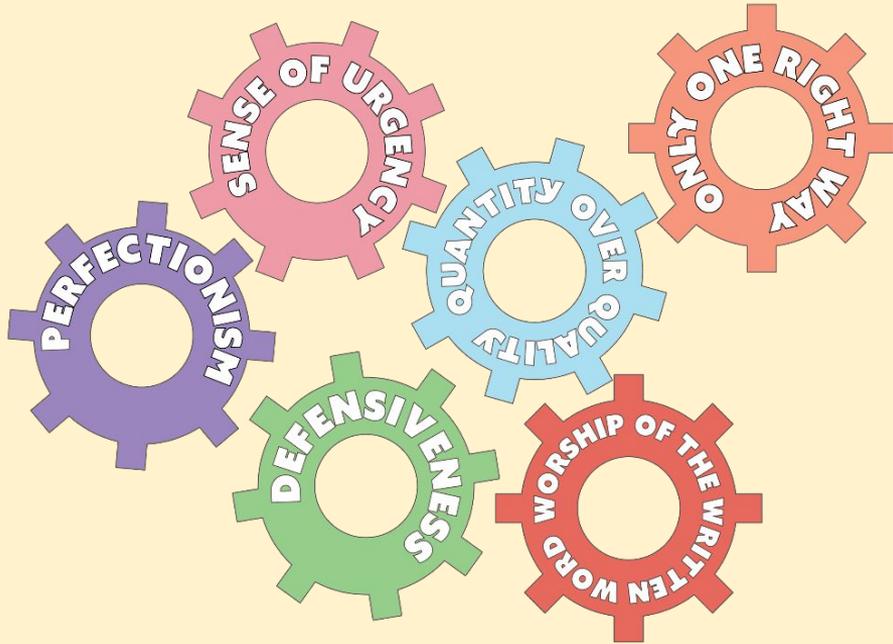
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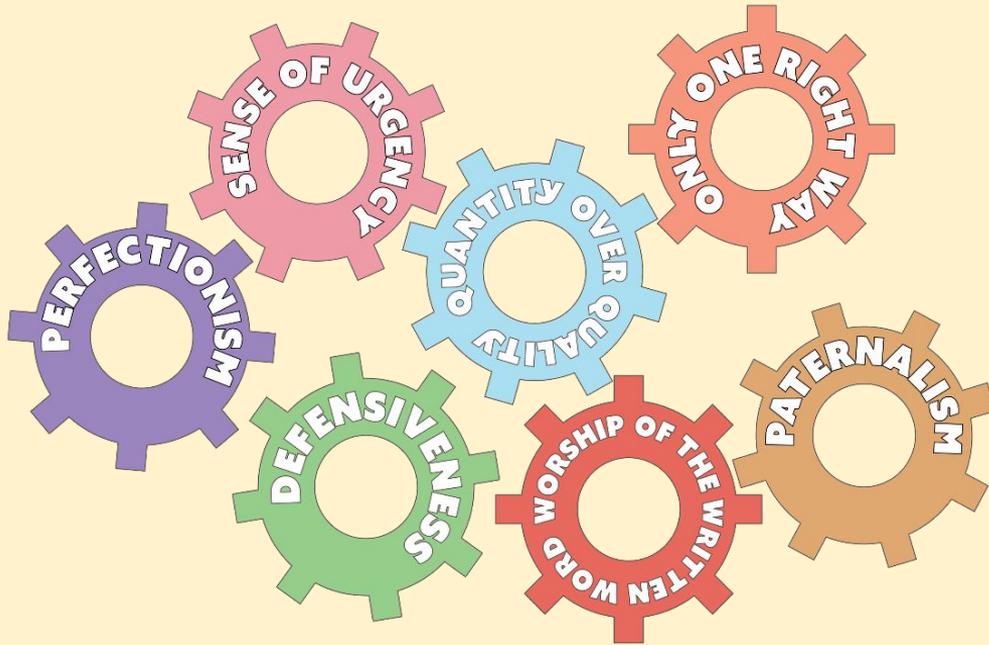
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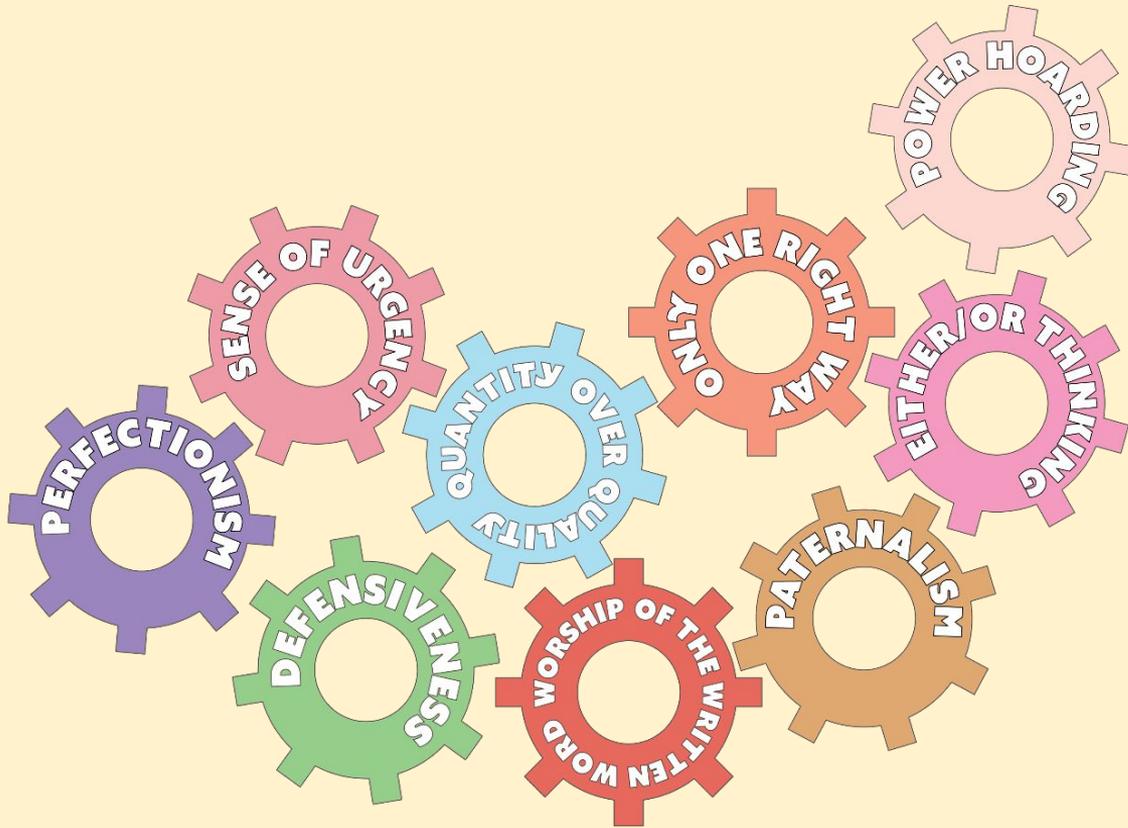
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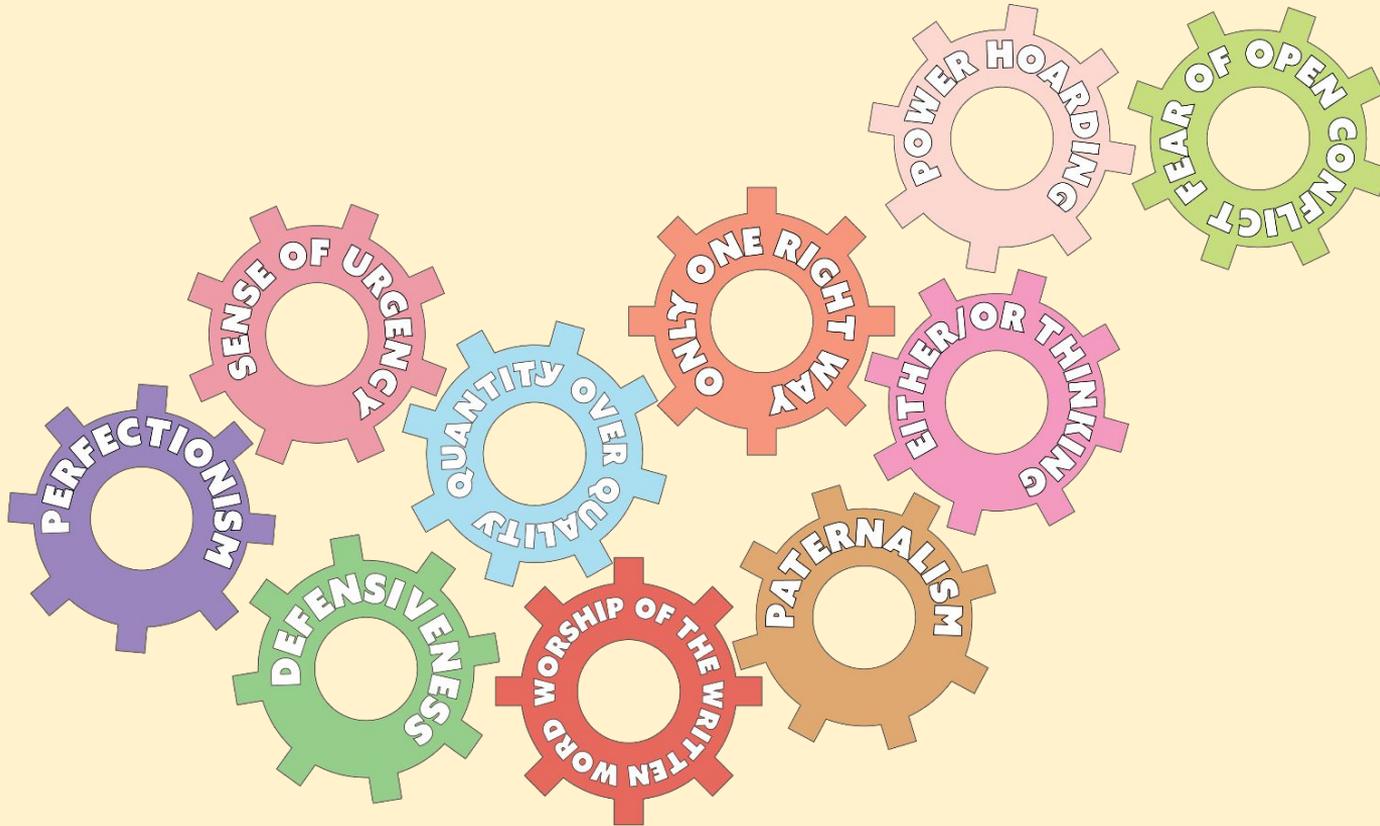
# CHARACTERISTICS OF WHITE SUPREMACY CULTURE



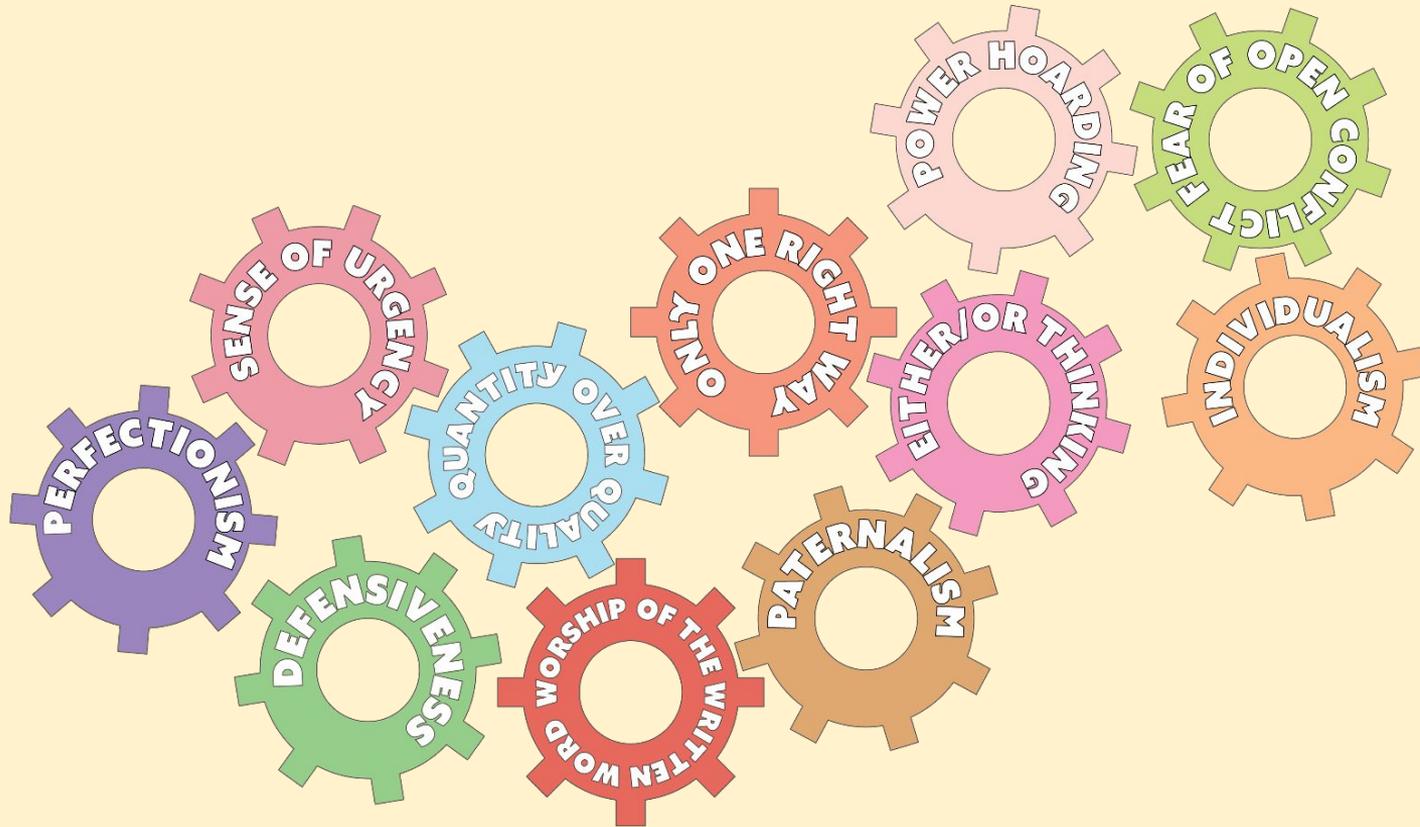
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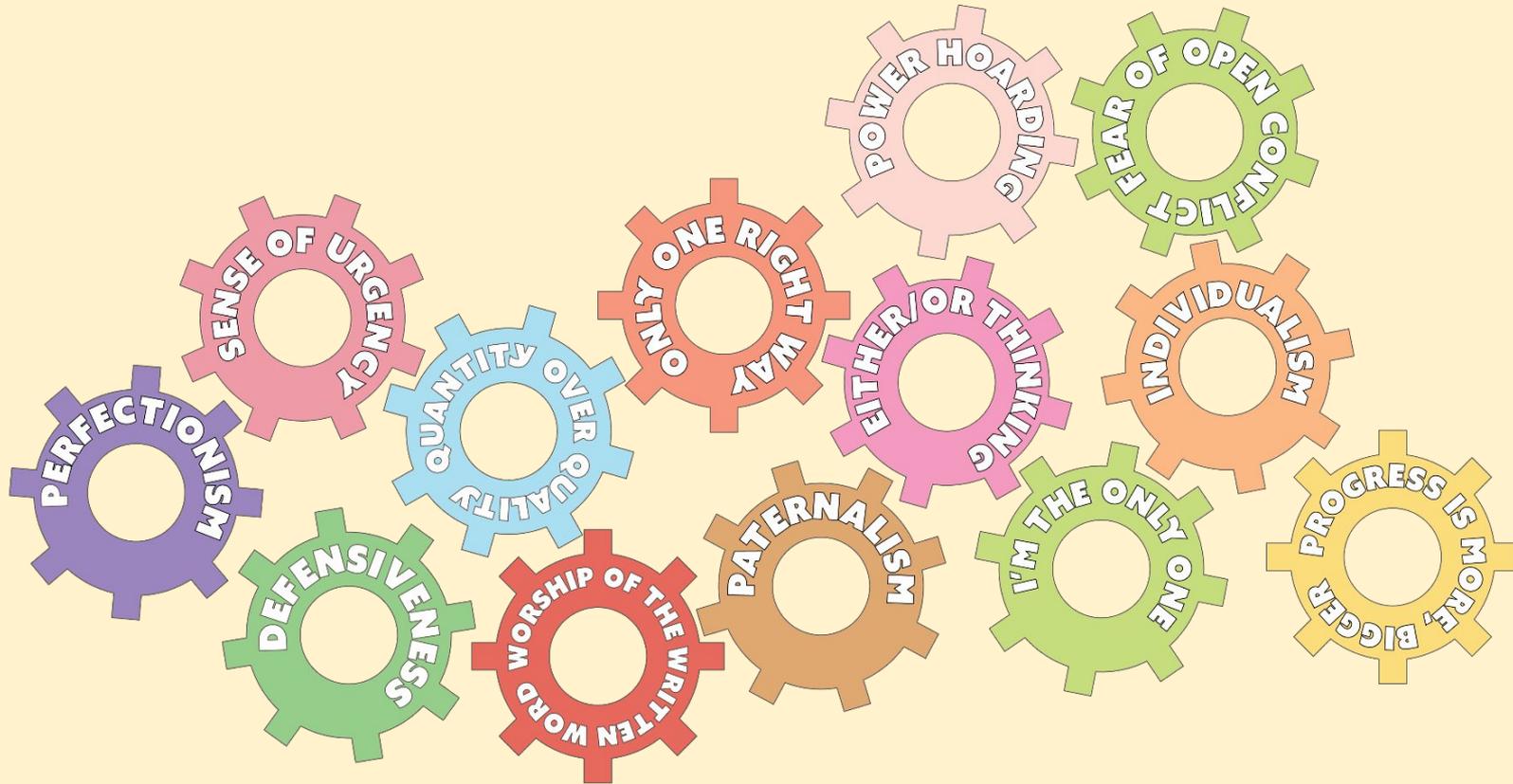
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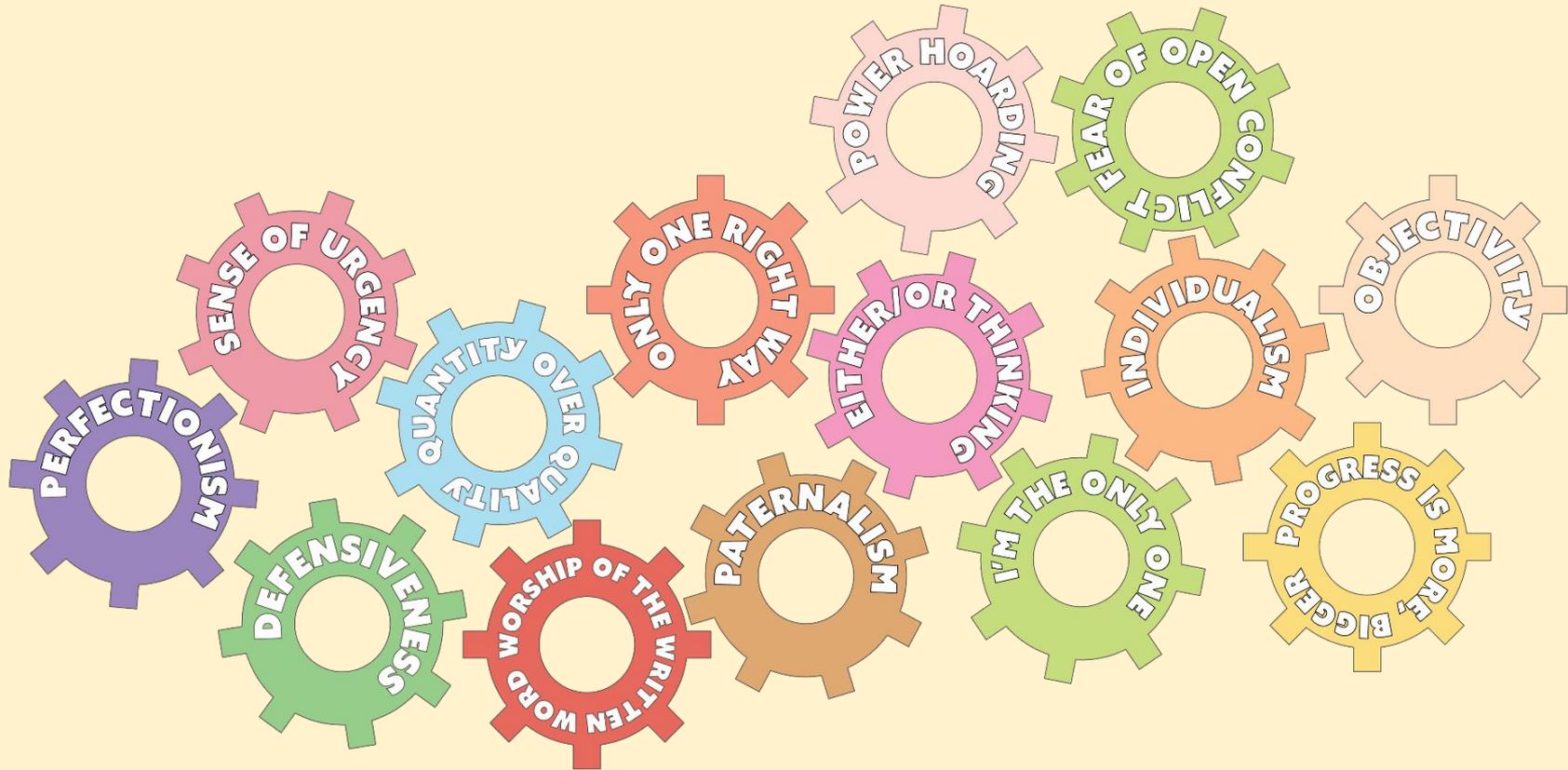
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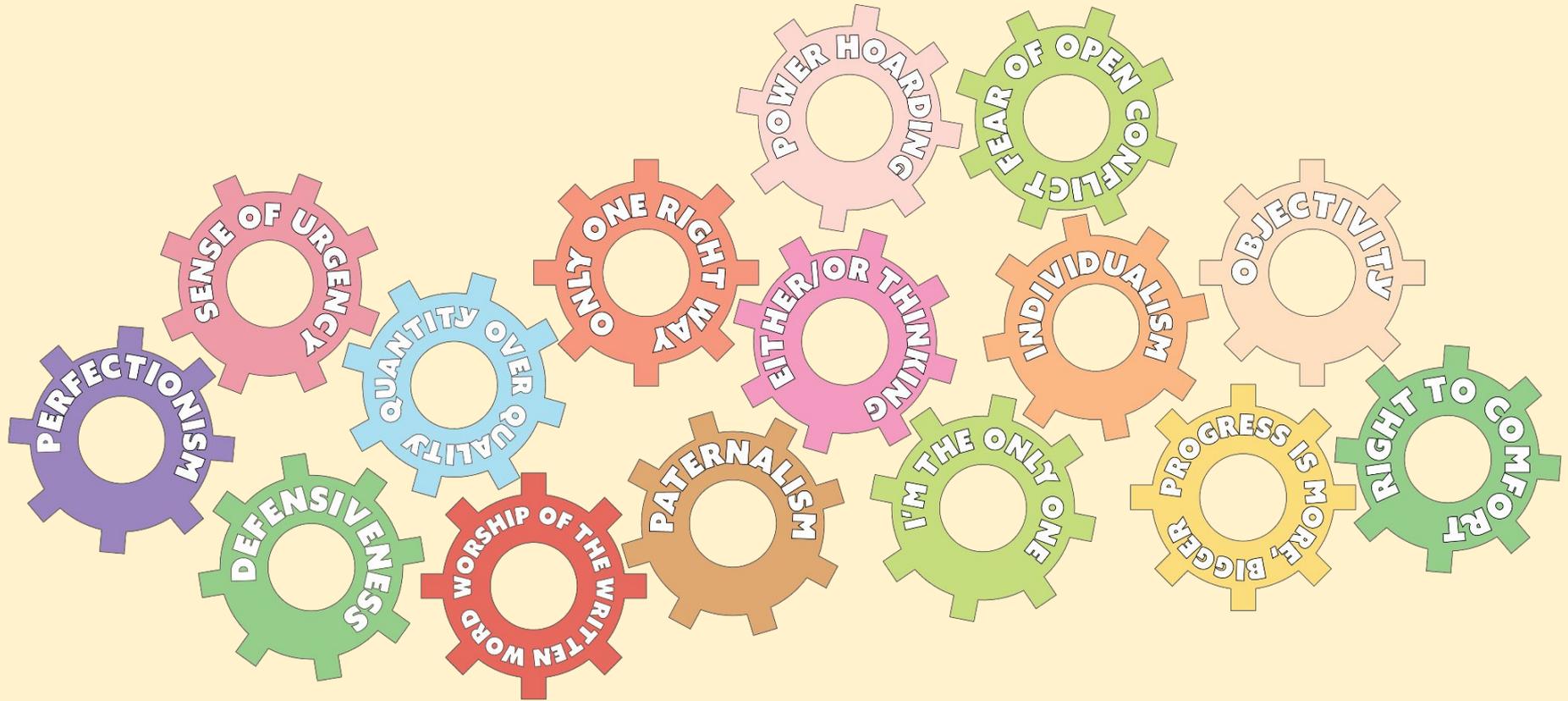
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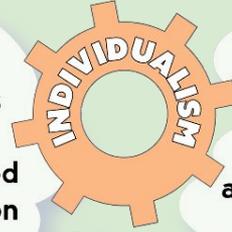


WHY DO I FEEL HOPELESS?



# WHY DO I FEEL HOPELESS?

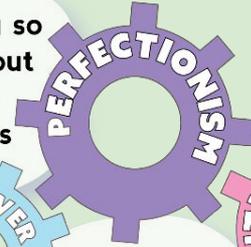
I feel powerless when an issue can't be remedied by a single person



I don't have anything novel to add



There are already so many initiatives out there, and the problem persists



I can't do everything right, my shortcomings will cancel out my efforts



what's the point if others aren't going to pull their weight?



I don't call the shots; people at the levers don't seem invested in radical change



**HOPELESS**

WHY DO I FEEL CLUELESS?

**CLUELESS**



# WHY DO I FEEL CLUELESS?

# CLUELESS



WHY DO I FEEL THREATENED?



# WHY DO I FEEL THREATENED?



**THREATENED**

I'm unfamiliar and uncomfortable with subtractive measures and "doing less"

RIGHT TO COMFORT

DEFENSIVENESS

I'M THE ONLY ONE

Does my participation in this industry mean I'm a "bad guy"?

PROGRESS IS MORE, BIGGER

I'm afraid of the **cost** of prioritizing Sustainability

QUANTITY OVER QUALITY

EITHER/OR THINKING

PERFECTIONISM

will our designs suffer?

what if we try but still make mistakes?

OBJECTIVITY

will we miss out on work?

PATERNALISM

FEAR OF OPEN CONFLICT

ONLY ONE RIGHT WAY



**"THE BIGGEST DANGER  
IS NOT INACTION. THE  
REAL DANGER IS WHEN  
POLITICIANS AND CEOS  
ARE MAKING IT LOOK  
LIKE REAL ACTION IS  
HAPPENING, WHEN IN  
FACT ALMOST NOTHING  
IS BEING DONE, APART  
FROM CLEVER  
ACCOUNTING AND  
CREATIVE PR."**



GRETA THUNBERG

CHICKS  
FOR  
CLIMATE

POP QUIZ!

Energy Star Product level

# Climate Resiliency

*Institute for market transformation to sustainability*

## Net-Zero Buildings

Green label plus, carpet and rug institute

## Sustainability

Building research establishment environmental assessment method

Green label plus, carpet and rug institute

ISO 14000

Floorscore for resilient floor covering institute

Green seal LEED

MBDC Cradle (C2C)

Scientific certification system  
Greenformat

## Net-Zero Buildings

Forest Stewardship council

Green Building initiative

Energy Star Product level

UL Environment

BIFMA International

Healthier for people for every product

Redlist

*Healthy Materials Lab*

*Climate Resiliency*

LEED

Green

Greenguard

Equity

Greenguard

Greenformat

Energy Star

Forest Stewardship council

Alternative Building Materials

UL Environment

Healthy hospital initiative

Green Star Certification

Scientific certification system

WELL

Green Building initiative

EDGE Certification

Collaborative for high performance Schools

EDGE Certification

Green seal

Energy Star

*Alternative Building Materials*

*Distributed energy system*

*Climate change*

Climate Justice

ISO 14000

WELL

Distributed energy system

Healthy materials lab

Collaborative for high performance Schools

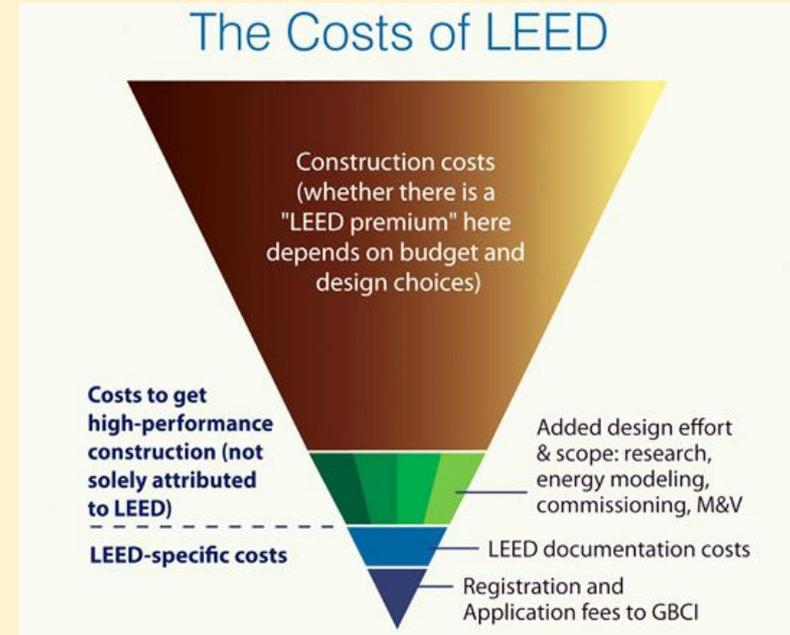
*BIFMA International*

“several organizations have emerged that provide industry- recognized ratings of the relative sustainability of a building or interior build-out. These organizations develop objective criteria that designers must follow in order to receive a particular type of rating. **Although conforming to the criteria these organizations establish is not mandatory by any building code, some governmental entities and large corporations may require their designers to follow the organizations guidelines...**”

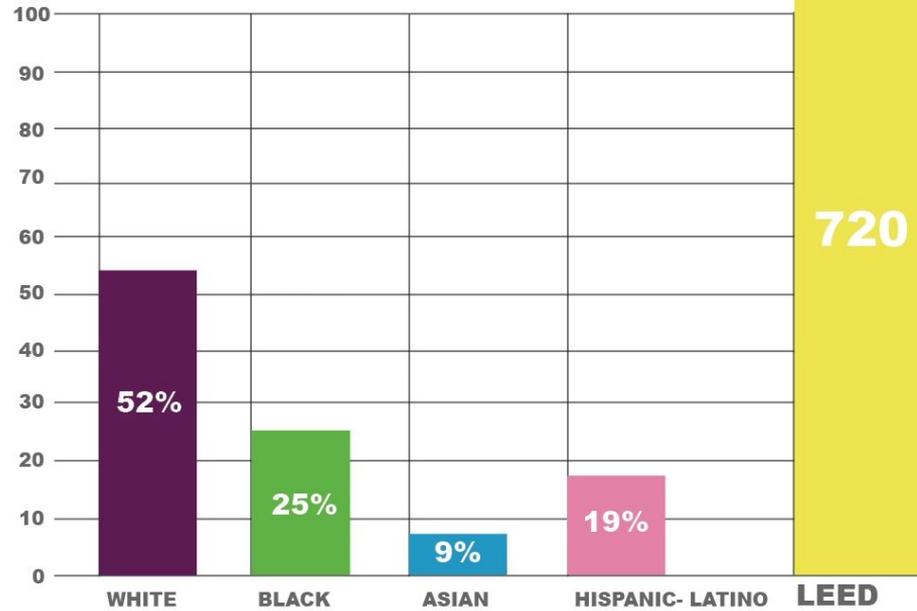
LEED Case Study

Green Gentrification

- Construction-related expenses for LEED-certified buildings can increase a project's cost by about 10 to 30 percent.
- LEED certification alone can account for 5 to 15 percent of the total construction costs, not including funds required for other mandated expenses
- Average price of a home in the state of Massachusetts is approx \$382K
- To upgrade a home to incorporate LEED certification could cost between \$57K- \$172K on top of the average price for a home.



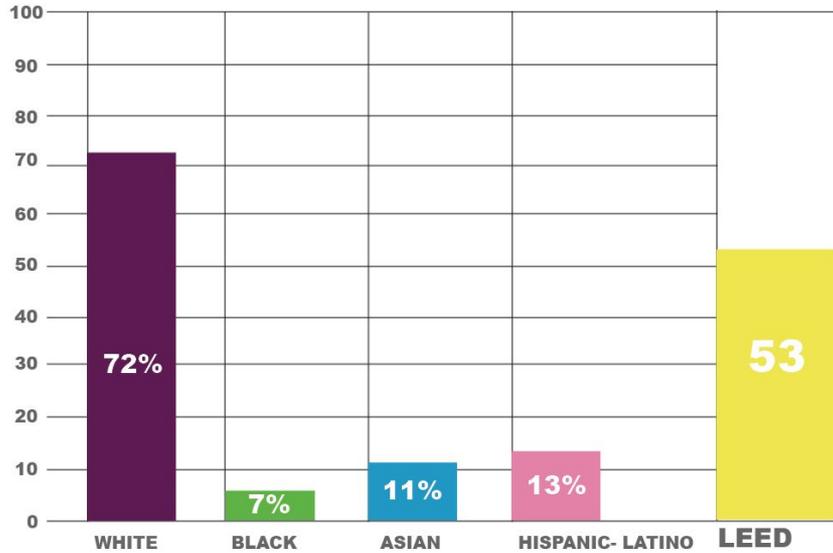
**BOSTON**  
**POPULATION 692,600**  
**MHI \$71K**



# WALTHAM

POPULATION 62,495

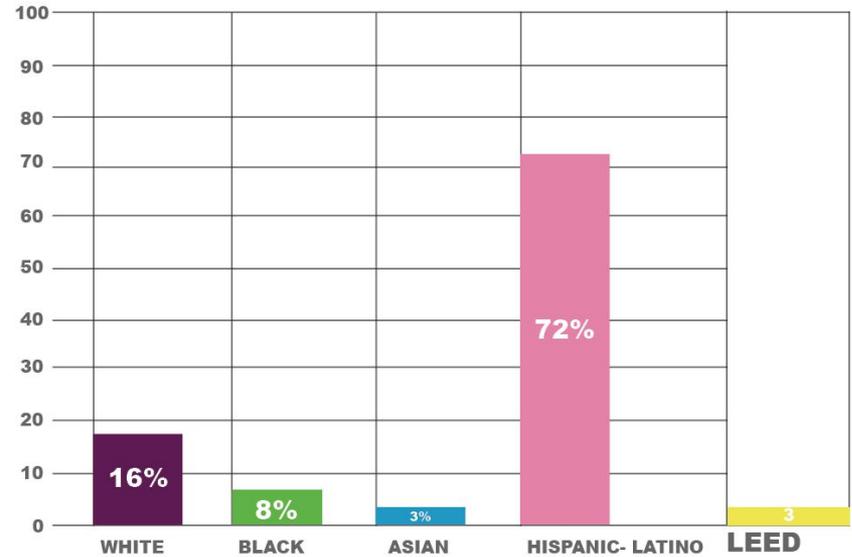
MHI \$96K



# LAWRENCE

POPULATION 80,028

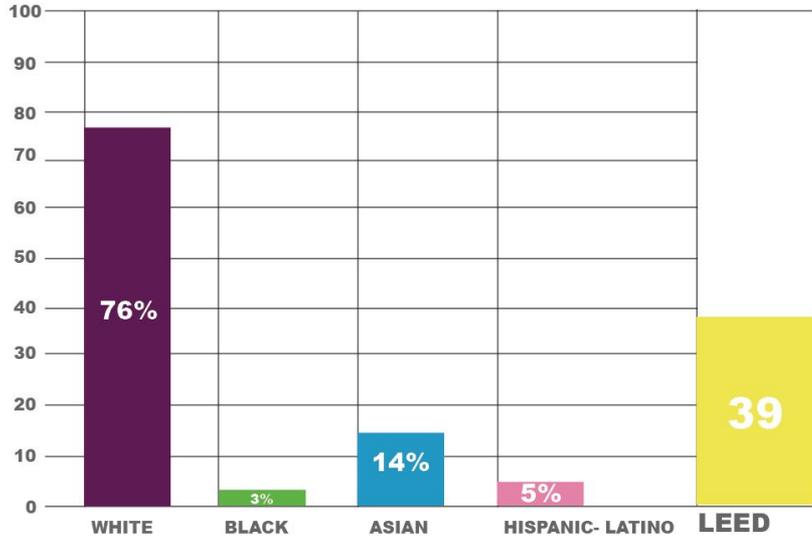
MHI \$45K



# NEWTON

POPULATION 88,414

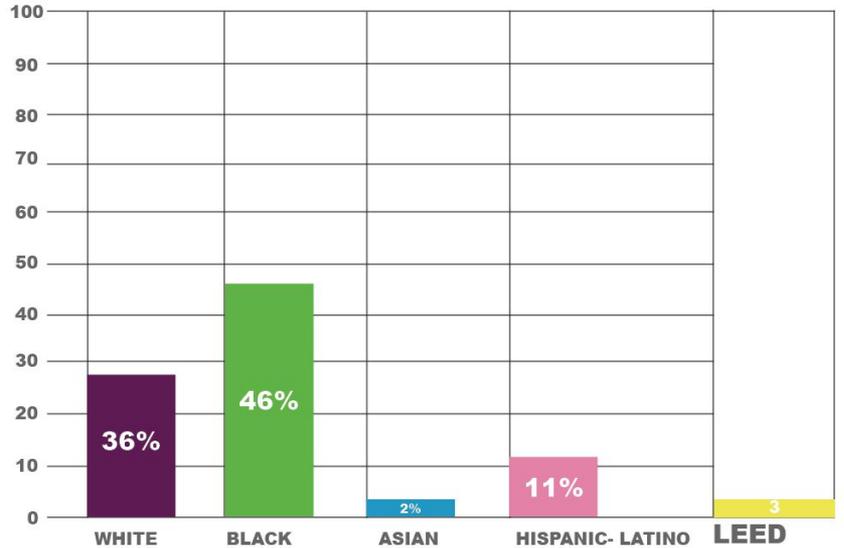
MHI \$151



# BROCKTON

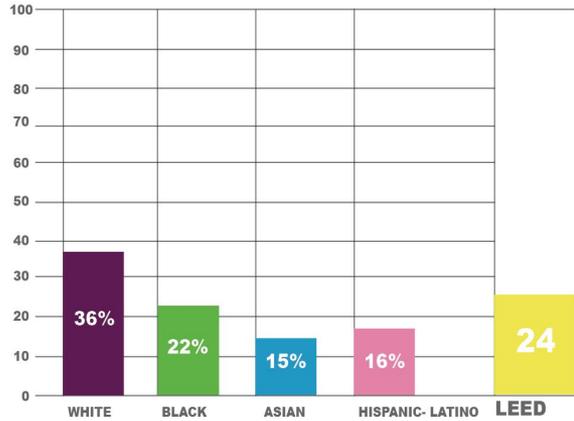
POPULATION 95,708

MHI \$58



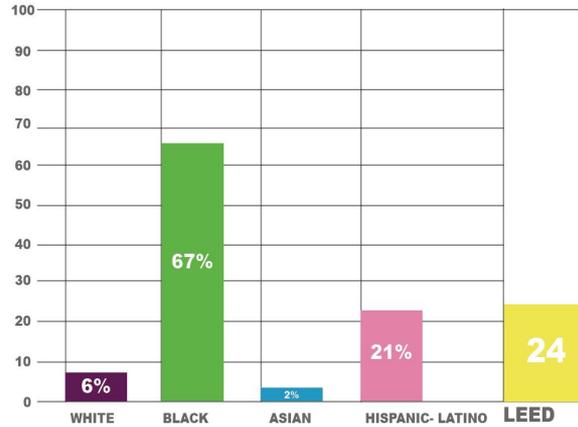
## DORCHESTER

POPULATION 88,333



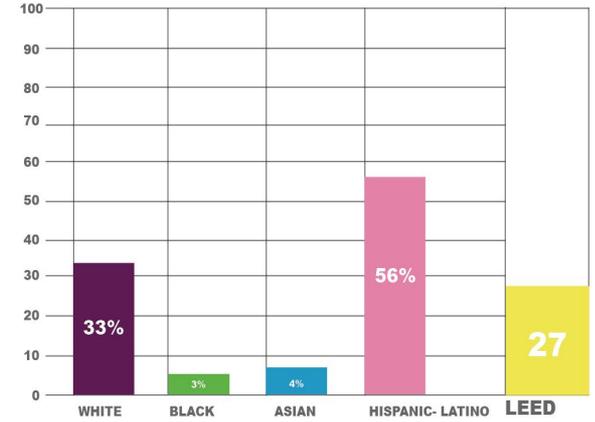
## ROXBURY

POPULATION 52,534



## EAST BOSTON

POPULATION 40,508



# East Boston

27 LEED Certifications

16 in ONE Multi-Family Housing Complex

6 Logan Airport

5 Public space

- More than half of East Boston's LEED certified spaces existing in a luxury apartment complex.
- The minimum household income is \$51k to live in this Multi-Family Complex.
- The median household income of the immediate surrounding neighborhood is \$41k



# GREEN GENTRIFICATION

*“All over the world, the most marginalized people are the most vulnerable to global warming—yet our efforts to mitigate and adapt to climate change tend to focus on those who can afford these “amenities” for their own tiny corners of the built environment.”*



# The Road to Inclusive Climate Action

“To achieve a **just sustainability**,” government responses must consider and address the equity impacts of climate change resilience policies. Managed retreat and degrowth strategies for climate resilience offer greater potential for a just sustainability.”

***inclusive  
climate action***

**Is government intervention an effective method for driving sustainable change in the A&D industry?**

# BANNING MATERIALS THAT FUEL CLIMATE CHANGE: GOVERNMENT INTERVENTION, LEGAL ACTION, & PAST RESULTS

In theory, U.S. Government intervention would be an effective method of driving real change through legal pursuit.

However, the U.S. Government doesn't have a great track record with previous attempts to ban materials that have a negative impact on the environment and human health. Example: **asbestos**.



Although it is highly regulated in the U.S. today, **asbestos continues to be used in hundreds of consumer products**. 50 years ago, studies proved that any exposure to asbestos will lead to clinical effects.

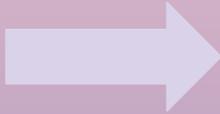
# GOVERNMENT INTERVENTION & LEGAL ACTION: PAST RESULTS

- The **Clean Air Act of 1970** classified asbestos as a hazardous air pollutant and gave the EPA the power to regulate the use and disposal of asbestos.
- In 1976, the **Toxic Substances Control Act (TSCA)** provided the EPA the authority to place restrictions on certain chemicals such as asbestos, radon and lead-based paint.
- The **Asbestos Hazard Emergency Response Act of 1986 (AHERA)** made the EPA establish standards for inspecting and removing asbestos in schools.
- In July 1989, the EPA issued the **Asbestos Ban and Phase-Out Rule (ABPR)**, which planned to impose a full ban on the manufacturing, importation, processing and sale of asbestos-containing products

# GOVERNMENT INACTION DUE TO “DEATH BY REGULATION”

Pushback from the industry and politicians motivated by self-interests continues to stand in the way of potential legislation.

BILL IS  
INTRODUCED



INDUSTRY PUSHES BACK  
DUE TO ECONOMIC  
CONCERNS. “DEATH BY  
REGULATION”



POLITICIANS GET  
FINANCIAL  
INCENTIVE TO  
BLOCK BILL

# INTERNATIONAL EXAMPLES OF INTERVENTION & LEGAL ACTION

Government entities that have driven legal change to support environmental sustainability:

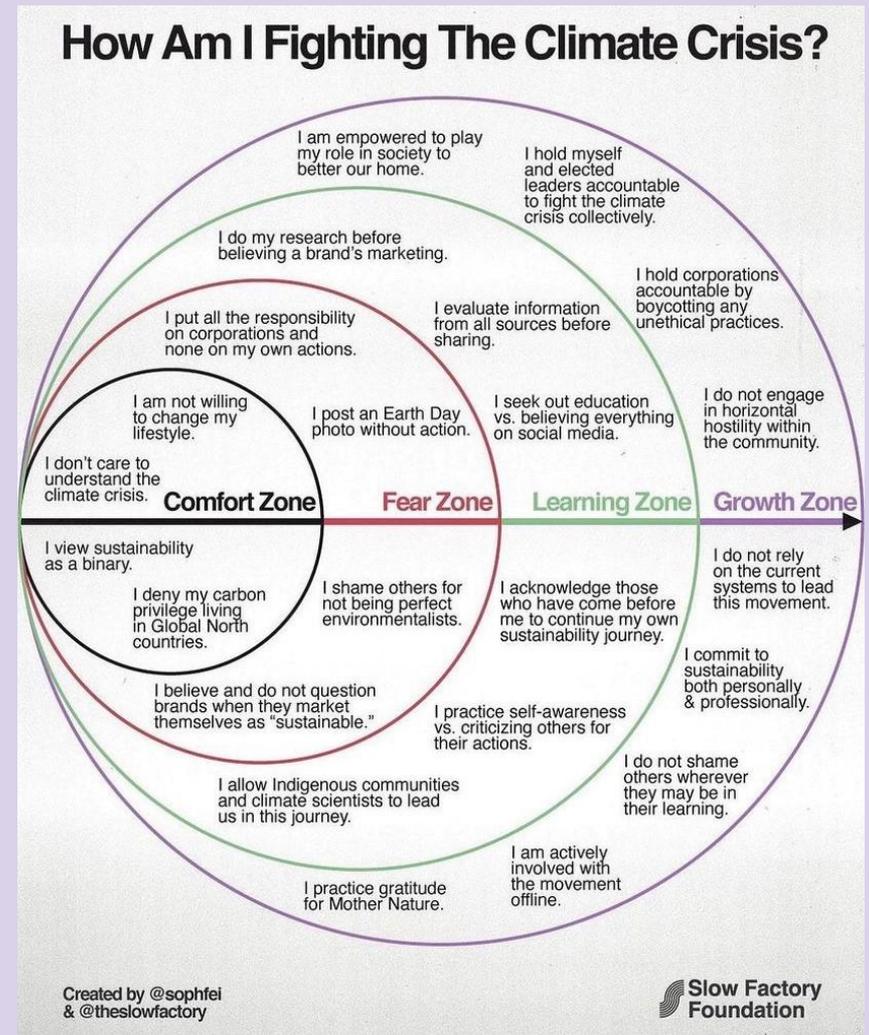
- **Zurich** - requires all publicly owned buildings must be built using recycled, Co2-reduced cement.
- **In 2019, Berlin** decided that all public buildings should generally be constructed using recycled concrete.
- **Europe's transition to a circular economy**, a pillar of the European Green Deal
- **Canada** - 2020 NBCC code brings new era for Canadian wood construction, combined with their stringent forest laws:
  1. require land-use planning
  2. require that Aboriginal interests be considered and respected
  3. regulate wildlife habitat protection
  4. Regulate timber farming
  5. establish practices to ensure forests regrow

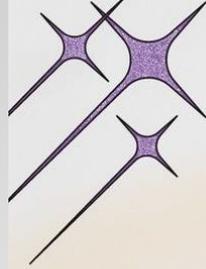


The David Chipperfield-designed extension to Kunsthaus Zurich, the main art gallery in Zurich, is built with a share of 98% recycled concrete. Source: David Chipperfield Architects

So, while government intervention is less of an immediate solution to the greater problem of climate injustice, how can we reflect on our own action? It's important that each of us considers and addresses how we fit into the larger mission of fighting climate change.

Which zone do you identify with?





If we wait for governments,  
it will be *too late*

If we act as individuals, it  
will be *too little*

But if we act as communities,  
it might *just be enough*

and it might *just be in time.*

CHICKS  
FOR  
CLIMATE

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