Health Care's Climate Footprint

by Health Care Without Harm + Arup
https://noharm-uscanada.org/content/global/health-care-climate-footprint-report

The Lancet has called Climate Change the "biggest global health threat of the 21st century"

Health sector has a responsibility to implement the Hippocratic Oath **"first do no harm"**

Carbon is the leading cause of climate change

There are **health and environmental co-benefits** if the **healthcare industry targets zero carbon**

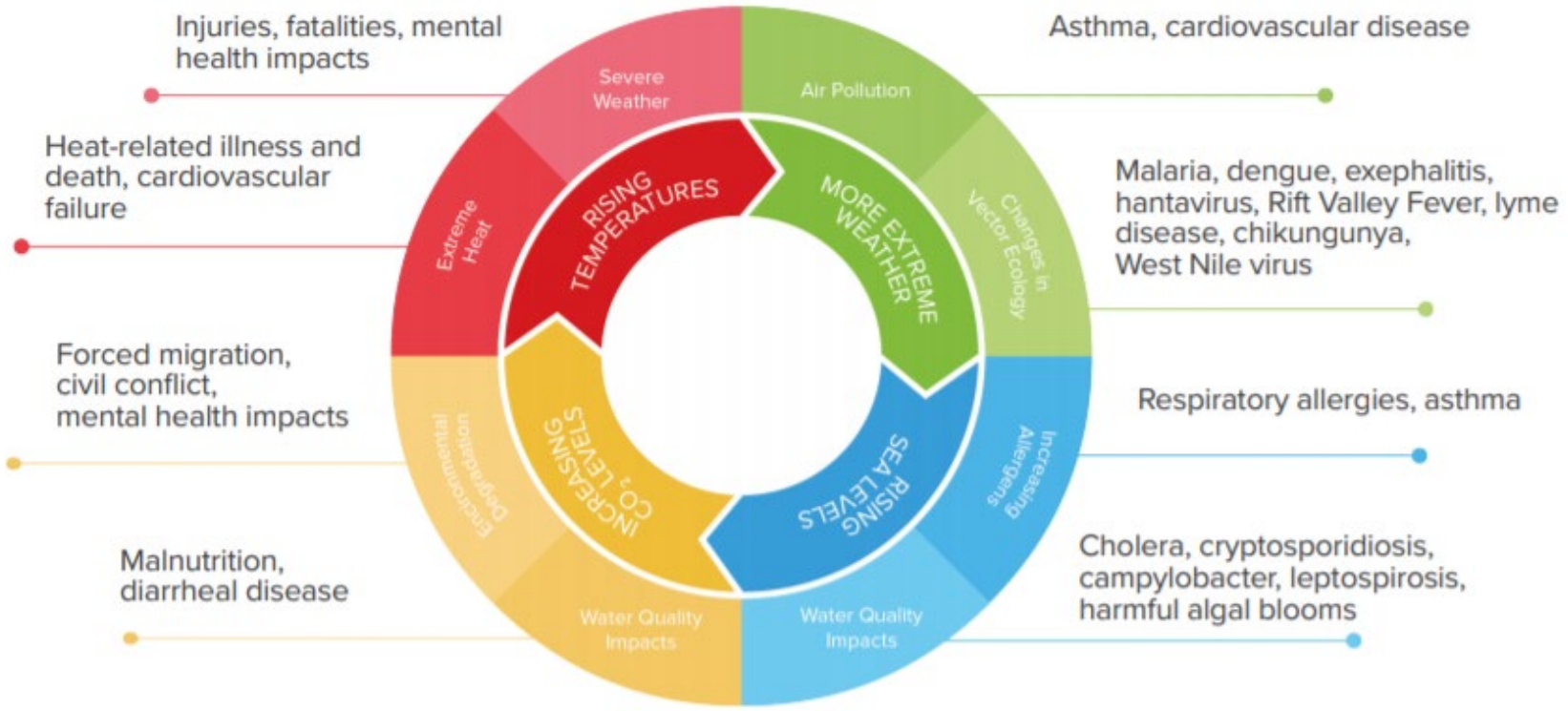


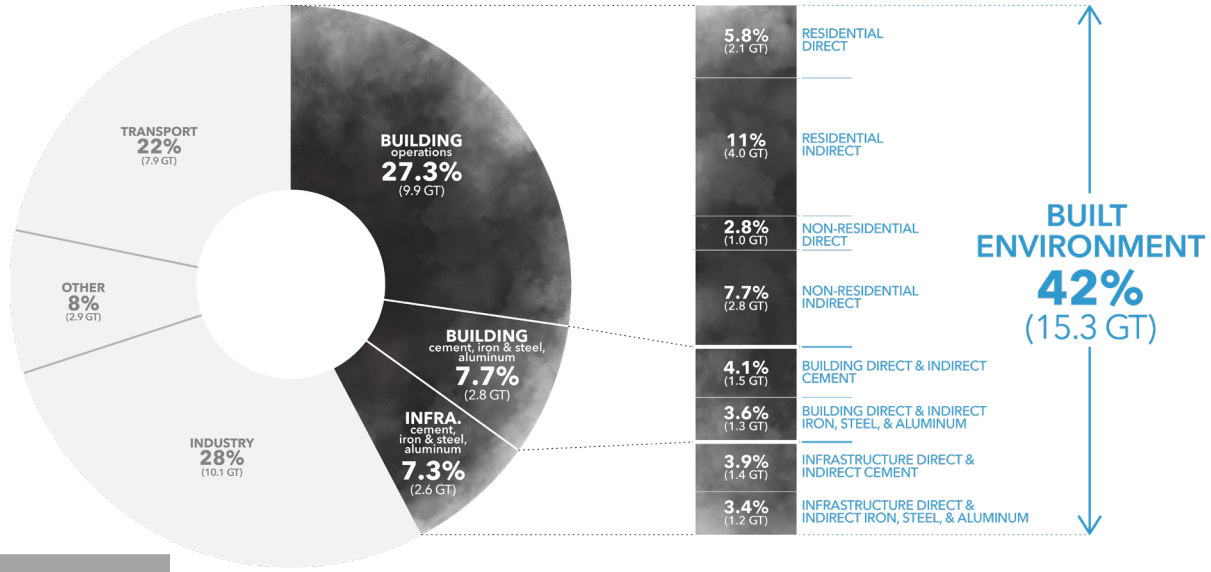
Figure 1: Impact of climate change on human health (Source: U.S. Centers for Disease Control and Prevention)

HKS

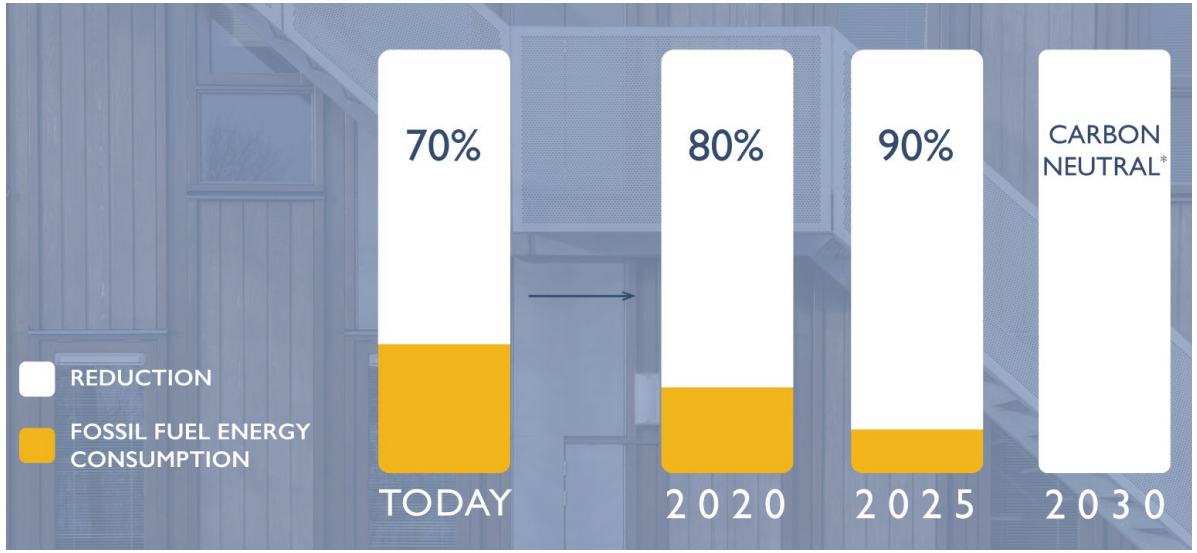
The 2030 Challenge

The Architecture 2030 Challenge charges the global building community to be **Carbon Neutral by 2030** (using no fossil fuel GHG emitting energy to operate) with a future goal of **Zero Embodied Carbon Emissions by 2050.**

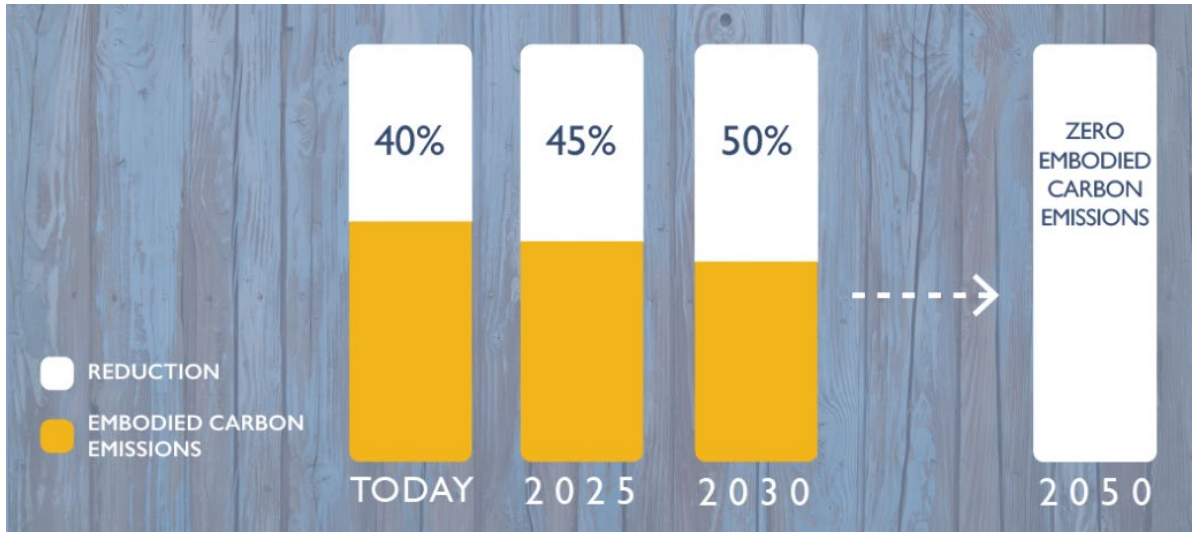
TOTAL ANNUAL GLOBAL CO_2 EMISSIONS
Direct & Indirect Energy & Process Emissions (36.3 GT)



THE 2030 CHALLENGE OPERATIONAL CARBON

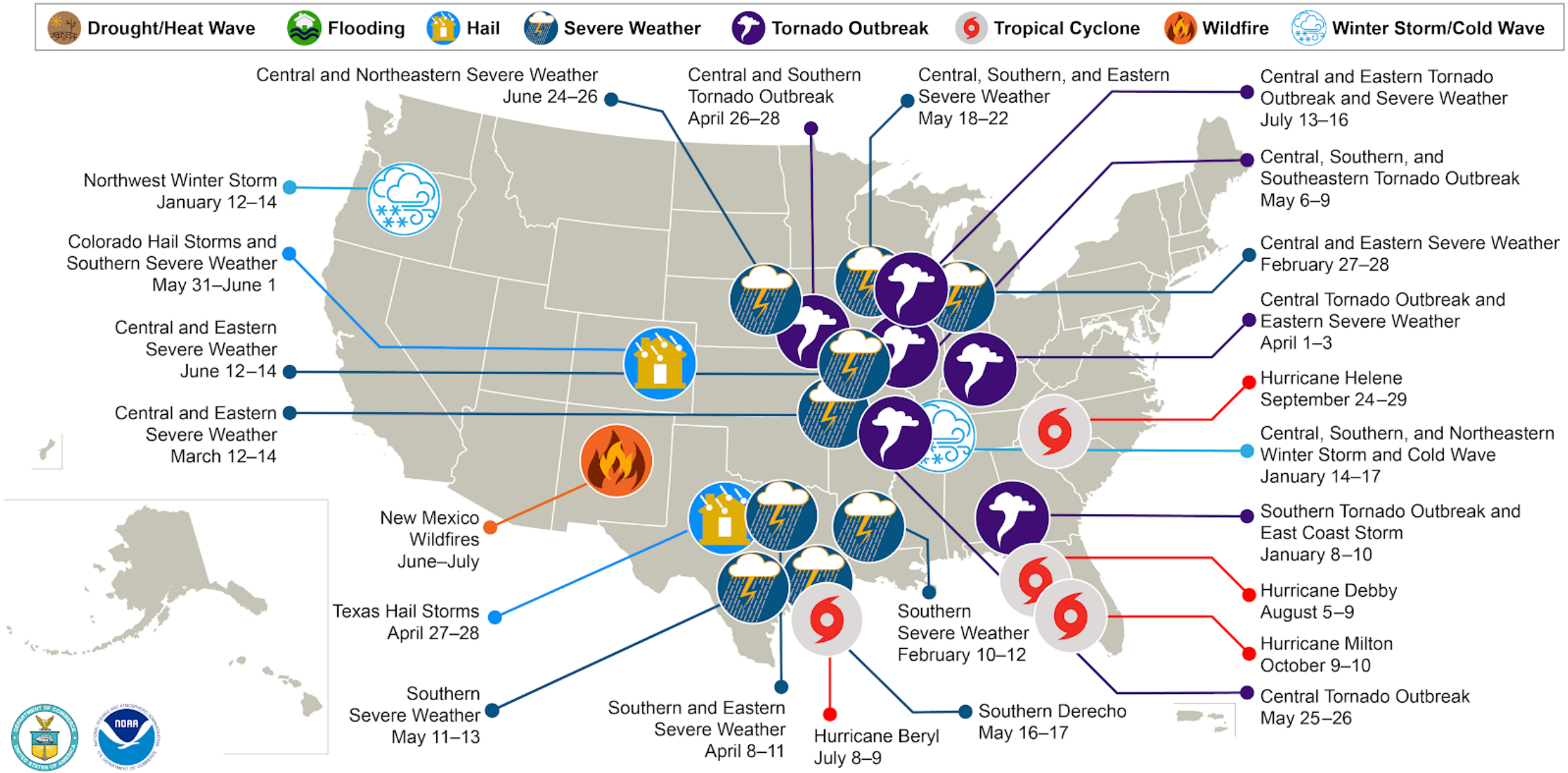


THE 2030 CHALLENGE EMBODIED CARBON



Source: Architecture 2030

U.S. 2024 Billion-Dollar Weather and Climate Disasters



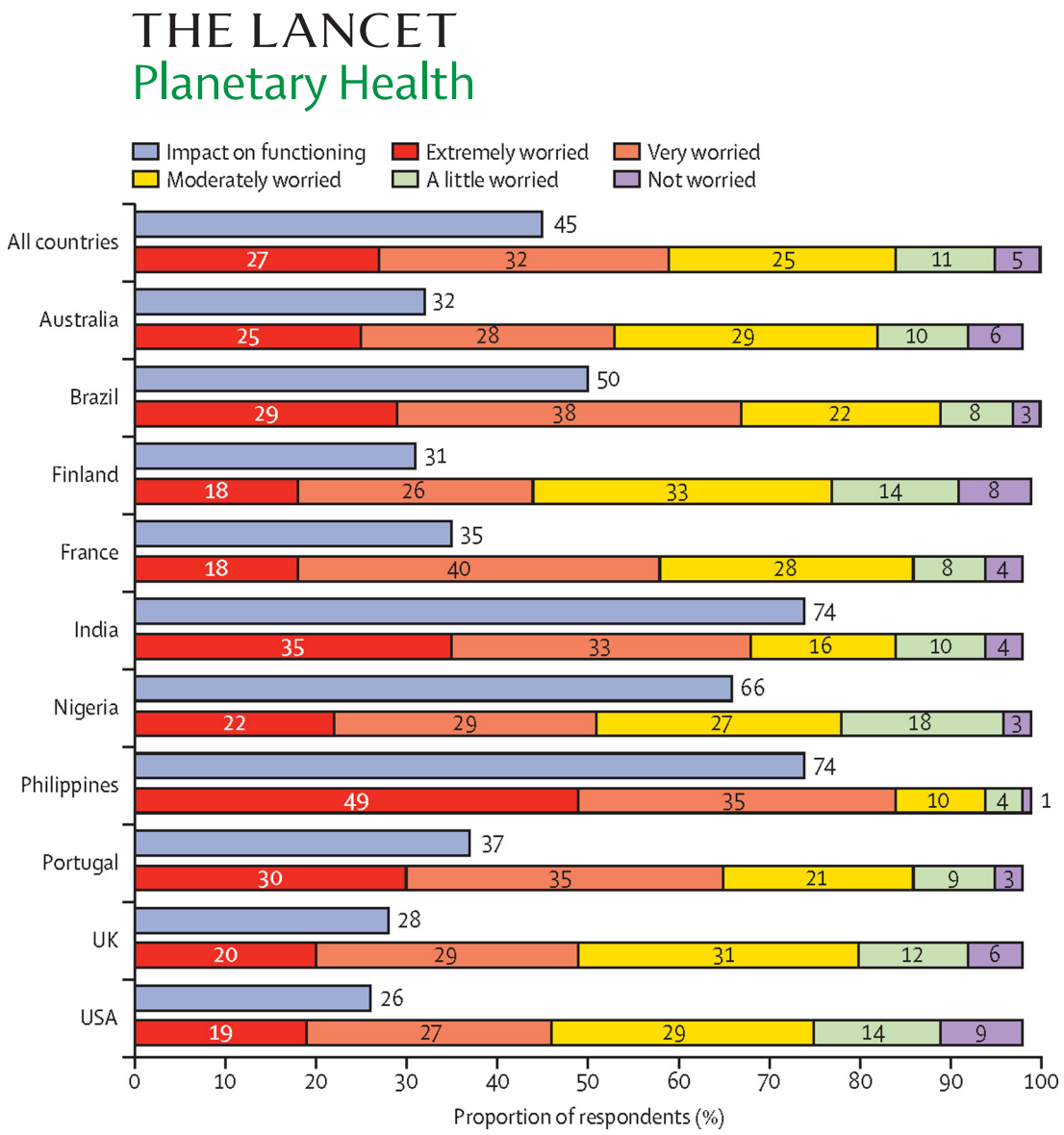
This map denotes the approximate location for each of the ***24 separate billion-dollar weather and climate disasters that impacted the United States through October 2024.***

Climate Anxiety

Climate anxiety in children and young people and their beliefs about government responses to climate change: a global survey.

Climate Anxiety and dissatisfaction with government responses **are widespread in children and young people in countries across the world and impact their daily functioning.**

There is an urgent need for further research into the emotional impact of climate change on children and young people **and for governments to validate their distress by taking urgent action on climate change**.

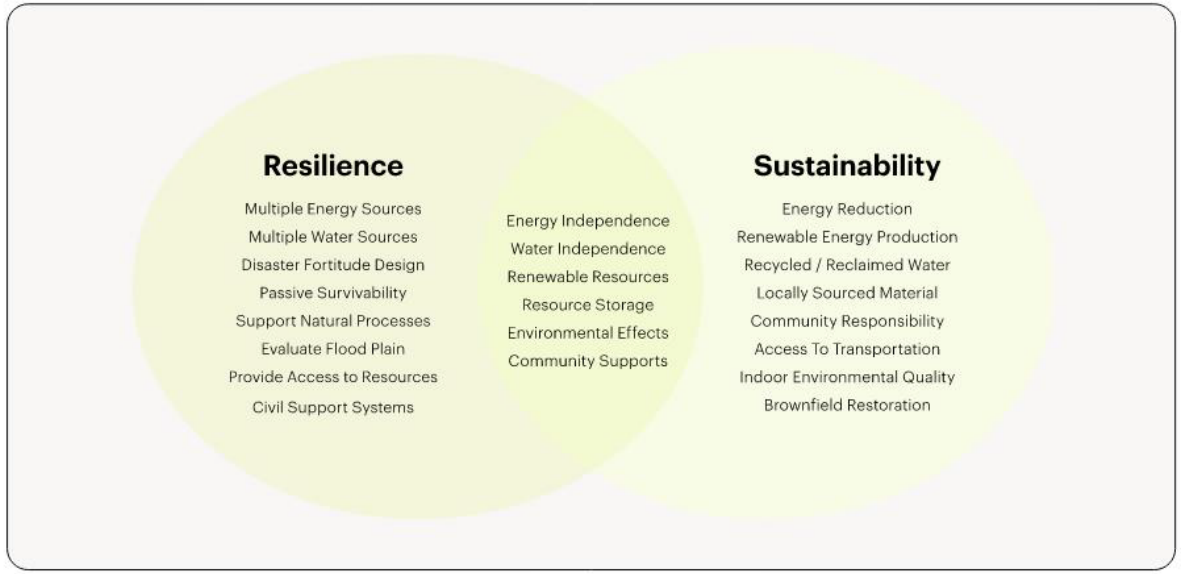


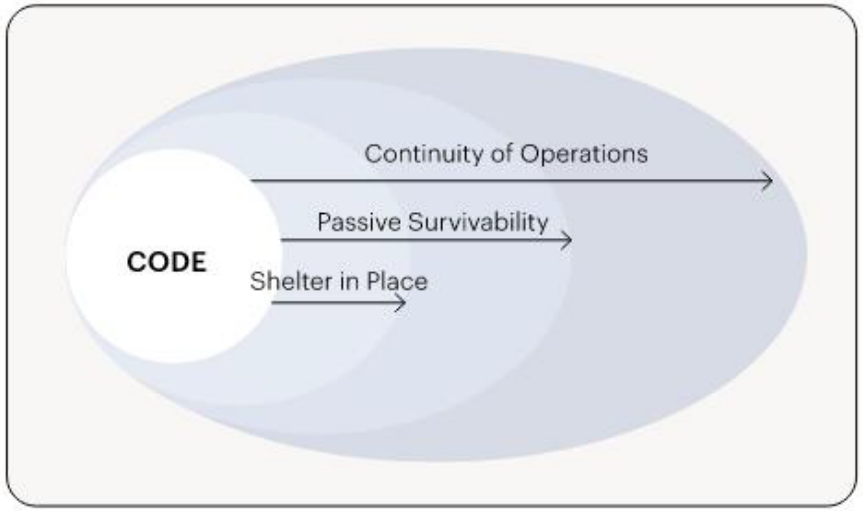
https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(21)00278-3/fulltext#fig2

What is Resilience?

The ability of a system and its component parts to **anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner**, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions.

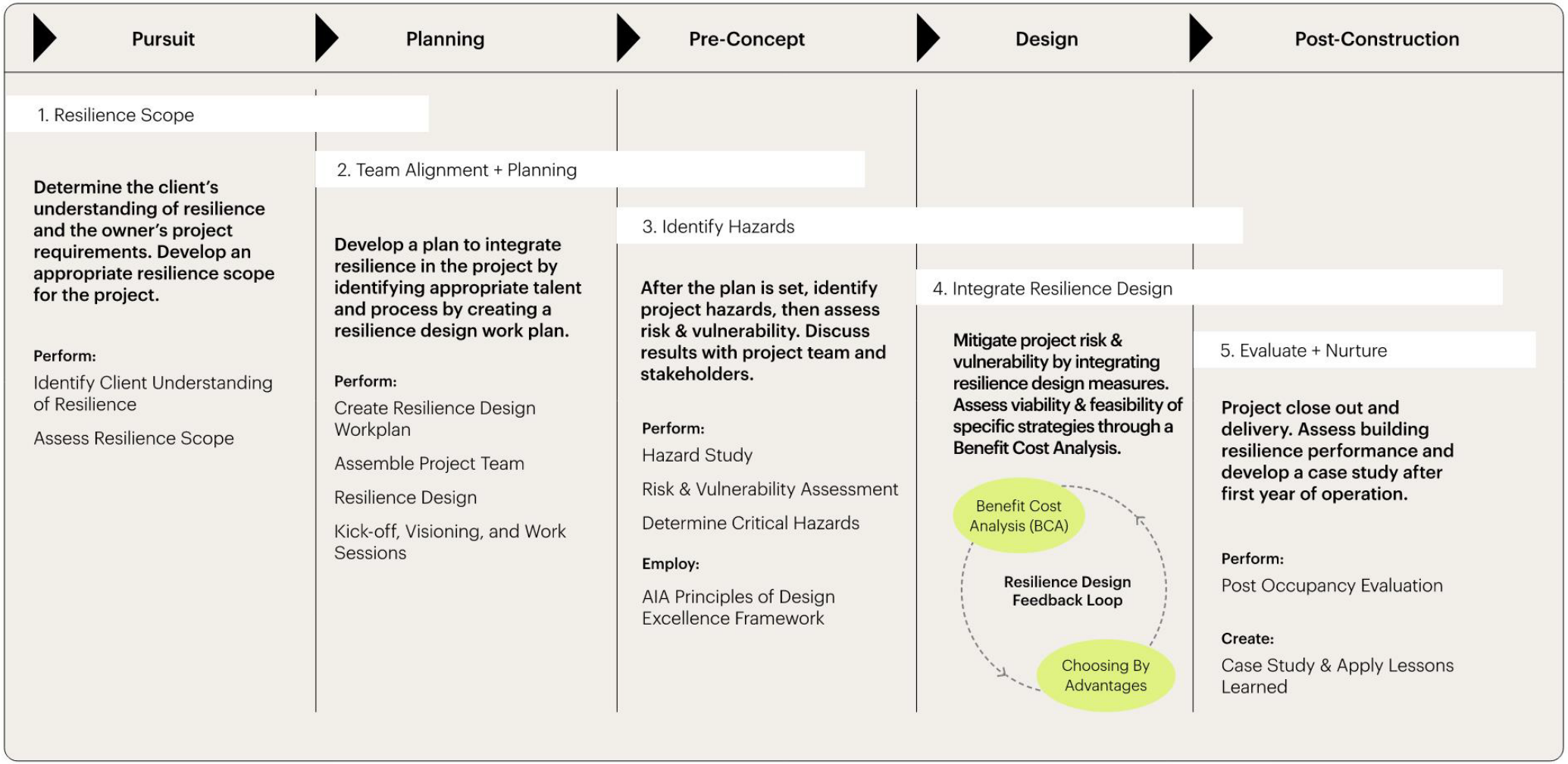
There are 5 forms of Resilience





https://content.aia.org/sites/default/files/2023-05/2023_Resilience_Design_Toolkit_HKS_AIA_FINAL.pdf

Resilience Design Toolkit Process



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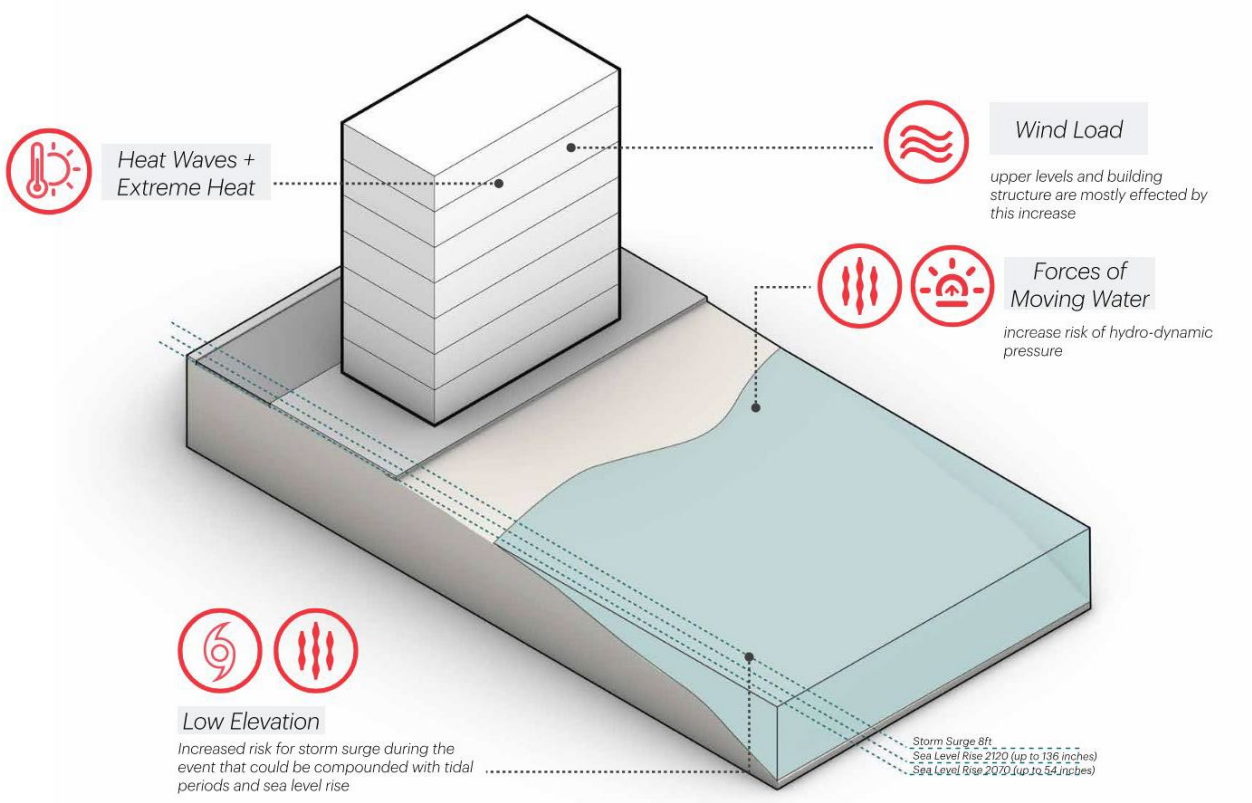
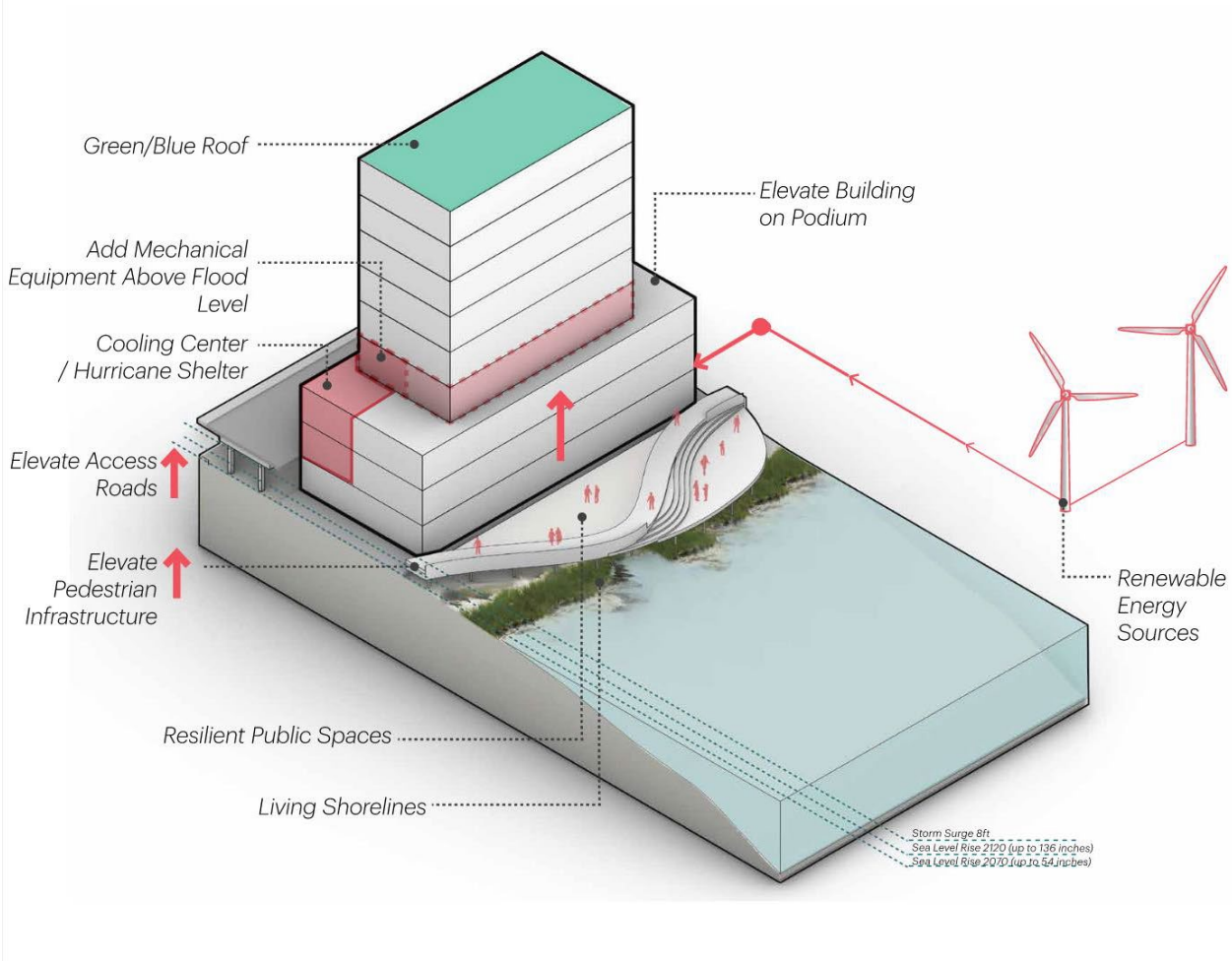
Resilience Strategies





https://content.aia.org/sites/default/files/2023-05/2023_Resilience_Design_Toolkit_HKS_AIA_FINAL.pdf

Benefit Cost Analysis

Being unprepared is expensive.

Every $1 spent on resilience strategies during design results in potentially $4 or more in savings from potential losses in the future

National Cost Benefit Ratio Per Peril	Beyond Code	Federal Funding
Overall Hazard Benefit-Cost Ratio	**$4:1**	**$6:1**
Riverine Flood	$5:1	$7:1
Hurricane Surge	$7:1	N/A
Wind	$5:1	$5:1
Earthquake	$4:1	$3:1
Wild-land-Urban Interface Fire	$4:1	$3:1

Estimates are rounded and based on hypothetical Hazard scenarios. Natural hazard mitigation saves $6 on average for every $1 spent on federal mitigation grants, according to an analysis by the National Institute of Building Sciences. An earlier (2005) study by NIBS found a benefit-cost ratio (BCR) of 4:1. (FEMA, June 2018).

Benefit Cost Analysis Steps

AIA Resilience Course, Module 7 "Business of Resilience" (AIA, 2018)

Step 1. Collect Project Data

- Building Service Life or project useful life
- Level of protection as determined by desired level of building performance
- Hazard Data (Hazard specific resources; HAZUS MH)

Step 2. Determine the Value of Building & Assets

- Building Service Life Cycle Analysis
- Property value, initial cost, operation and maintenance repairs, cost of replacement, residual value (resale or disposal)
- Tax assessment, real estate comparable, city credit rating

Step 2. Determining the Value of Building Contents

- Building contents: furniture, equipment, intellectual property, appliances
- Sources of information: insurance records, appraisals, receipts, estimates

Step 3. Characterize Impacts and Determine Damages

- Physical Damage Estimates: building contents, vehicles & equipment, site impacts, infrastructure.
- Loss of Function impacts: facility or material type, customers served, functional downtime and loss of function, loss of public services, displacement costs

Step 4. Hazard Mitigation Analysis

- Create an inventory of potential hazard mitigation strategies
- Document damages avoided per hazard mitigation strategy
- Provide cost analysis for each strategy: design & construction, maintenance

Step 5. Calculating Benefit-Cost Ratios (BCR)

- BCR is numerical expression of cost effectiveness of a project
- BCR = Benefits / Costs
- BCR > 1.0 = Effective
- Benefits = Expected annual damages before mitigation - expected annual damages after mitigation
- Expected damages before mitigation are damages per year over life of project
- Expected annual damages after each/or collective mitigation strategies vary depending on effectiveness and degree of risk
- Benefits are a best guess based on hypothetical events

https://content.aia.org/sites/default/files/2023-05/2023_Resilience_Design_Toolkit_HKS_AIA_FINAL.pdf

White House / HHS Health Sector Pledge

HHS Climate Pledge signers commit to:

1. **At minimum, reduce organizational emissions by 50% by 2030 and achieve net-zero by 2050**, publicly accounting for progress on this goal every year.
2. **Designate an executive-level lead for their work on reducing emissions** by 2023 or within six months of signing the pledge and conduct an inventory of Scope 3 (supply chain) emissions by the end of 2024.
3. **Develop and release a climate resilience plan for continuous operations** by the end of 2023 or within six months of signing the pledge, anticipating the needs of groups in their community that experience disproportionate risk of climate-related harm.

HKS

https://www.hhs.gov/climate-change-health-equity-environmental-justice/climate-change-health-equity/actions/health-sector-pledge/index.html

U.S. Department of Health and Human Services

Enhancing the health and well-being of all Americans

Health Systems, Hospitals and Other Providers

AdventHealth, Advocate Aurora Health, Advocate Children's Hospital, AltaMed Health Services Corporation, Ascension, Aspirus Health, Atlantic Health System, Atrium Health, Baptist Health South Florida, Baystate Health, Bergen New Bridge Medical Center, Berkshire Health Systems, Beth Israel Deaconess Medical Center, Boston Children's Hospital, Boston Medical Center, Care Alliance Health Center, CentraState Healthcare System, Cherokee Health Systems, Children's National Hospital, Children's Hospital Los Angeles, ChristianaCare, CommonSpirit Health, Dana-Farber Cancer Institute, DaVita, Denver Health and Hospital Authority, Eastern Connecticut Health Network, Englewood Health, Full Circle Health, Gillette Children's, Greater Lawrence Family Health Center, Gundersen Health System, Hackensack Meridian Health, Hartford HealthCare, HealthPartners, Henry Ford Health, HonorHealth, Jackson Health System, John Muir Health, Kaiser Permanente, Keck Medicine of USC, Kedren Health, Lawrence General Hospital, Legacy Health, Main Line Health, Mass General Brigham, Memorial Health Services (MemorialCare), Montefiore, Mount Sinai Health System, Nebraska Medicine, Northern Arizona Healthcare, Northern Light Health, Northwell Health, NYC Health + Hospitals, NYU Langone Health, OhioHealth, OLE Health, One Brooklyn Health, Oregon Health & Science University, Providence Health, Rochester Regional Health, Rush University System for Health, RWJBarnabas Health, Santa Clara Valley HealthCare, Seattle Children's Hospital, Southcoast Health, SSM Health, Stanford Children's Health, Stanford Health Care, Stanford Health Care Tri-Valley, Steward Health Care System, St. Luke's Health System, Stony Brook University Hospital, Sun River Health, SUNY Upstate Medical University, Texas Children's, The Valley Health System, Tufts Medicine, University Medical Center of El Paso, University of Arkansas for Medical Sciences, University of California Health, University of Michigan Health, University of Nebraska Medical Center, University of Pennsylvania Health System, University of Pittsburgh Medical Center, University of Utah Health, US Acute Care Solutions, UW Medicine, Valley Children's Healthcare, Waterbury Hospital, WellSpan Health, Western Wisconsin Health

Other Industry Organizations

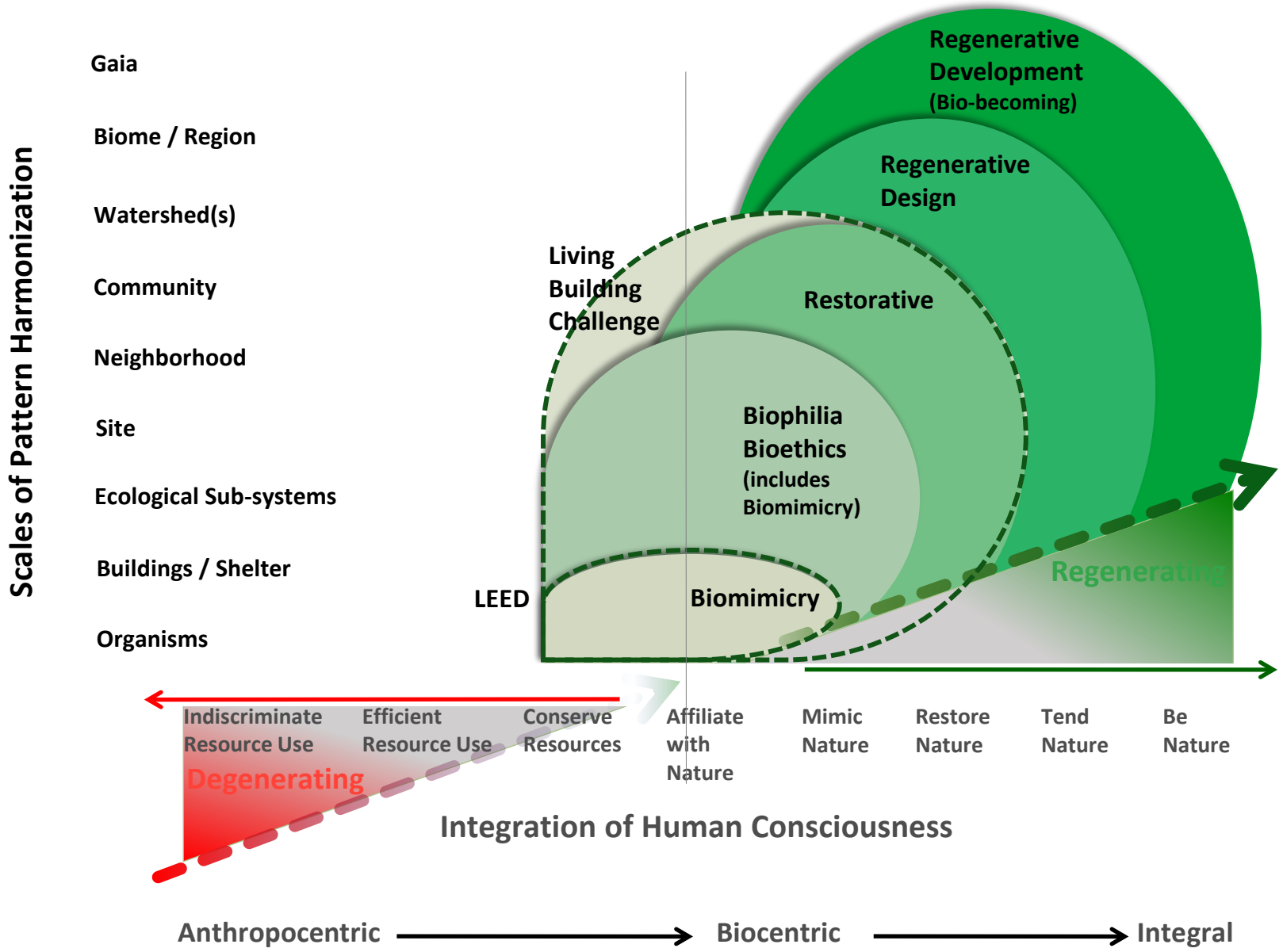
AstraZeneca, Biogen, Becton Dickinson (BD), Blue Cross Blue Shield of Massachusetts, Blue Shield of California, Blue Zone Technologies, CannonDesign, Cardinal Health, Cencora, Chiesi Group, Daniels Health, Eaton, Elevance Health, Excellus Health, GE HealthCare, GSK, MindClick, Inc., NewGen Surgical, Owens & Minor, Pfizer, Phase2, Philips, Premier, Inc., Prime Therapeutics, Prospera Institute, Sanofi, SmithGroup, Inc., Sodexo Healthcare & Senior Living USA, Takeda Pharmaceutical Company, Vizient, WCM Waste and Compliance Management, ZGF Architects

Associations, Nonprofits and Technical Assistance Organizations

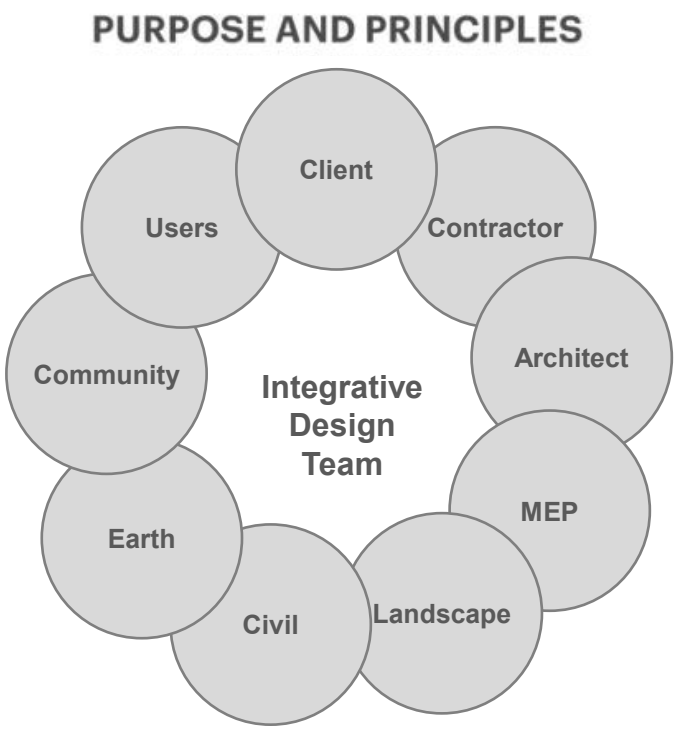
Abt Associates, American Academy of Disaster Medicine, American Board of Surgery, American College of Physicians (NJ), American Medical Women's Association, Association of American Medical Colleges, Children's Hospital Association, Clinically Sustainable Consulting LLC, ecoAmerica, Envinity, Inc, Health Care Without Harm, Health Promotion Consultants, High Alert Institute, Inc., Kimball Sustainable Healthcare, Mazzetti, My Green Lab, National Academy of Medicine, SION60, Inc, Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), The Joint Commission

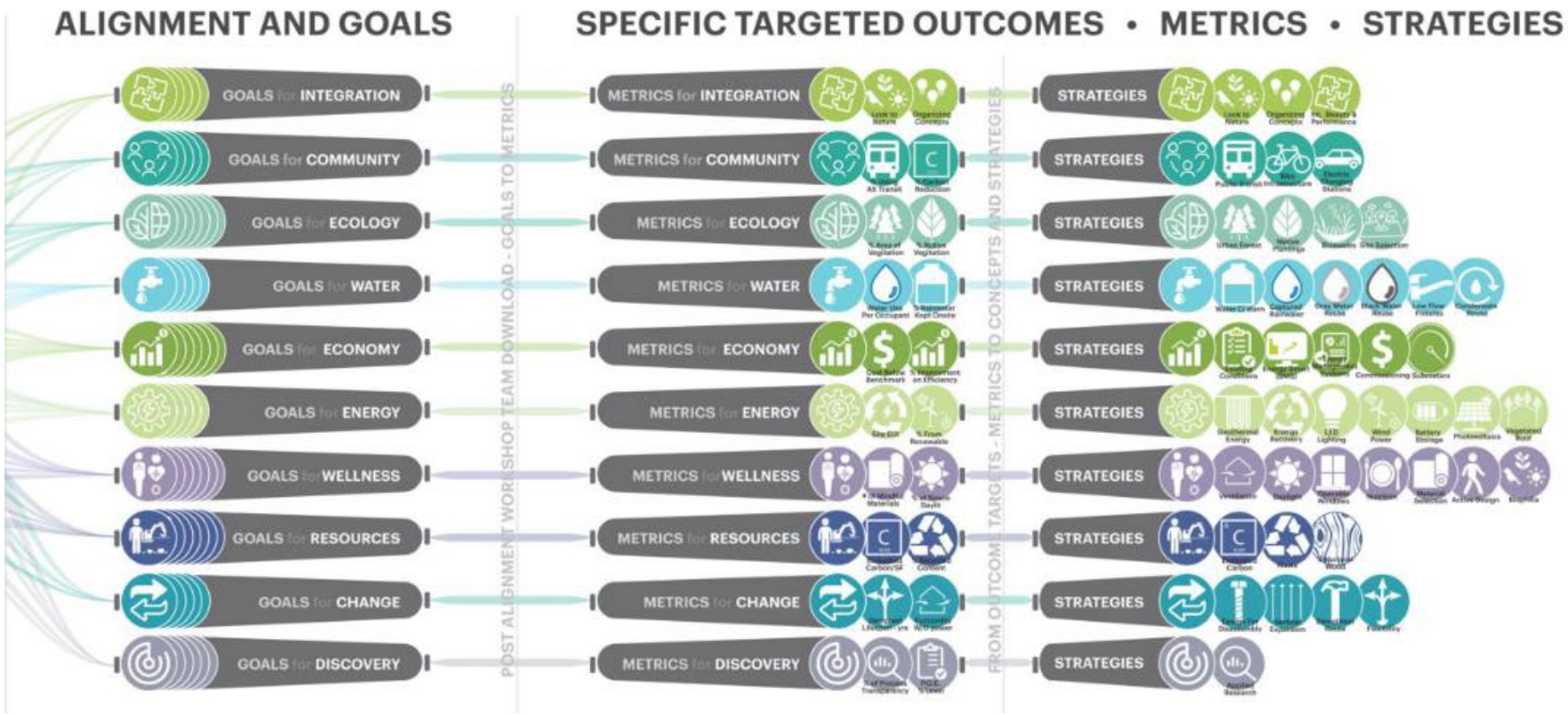
Regenerative Design

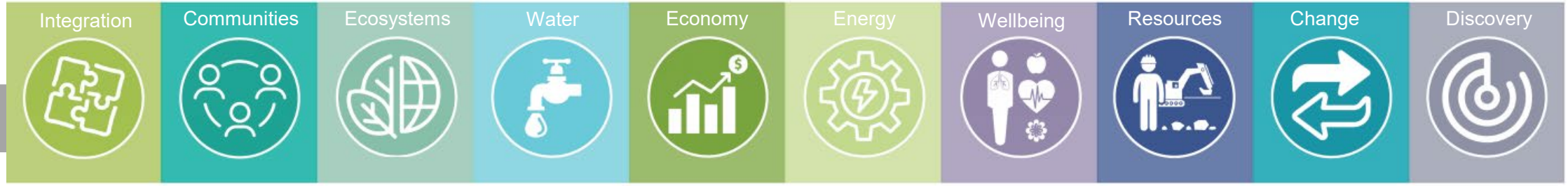
Regenerative Design according to Bill Reed seeks not only to **reverse the degeneration of the earth's natural systems**, but also to **design human systems that can coevolve with natural systems** – evolve in a way that generates **mutual benefits and greater overall expression of life and resilience**



Integrative Design Process



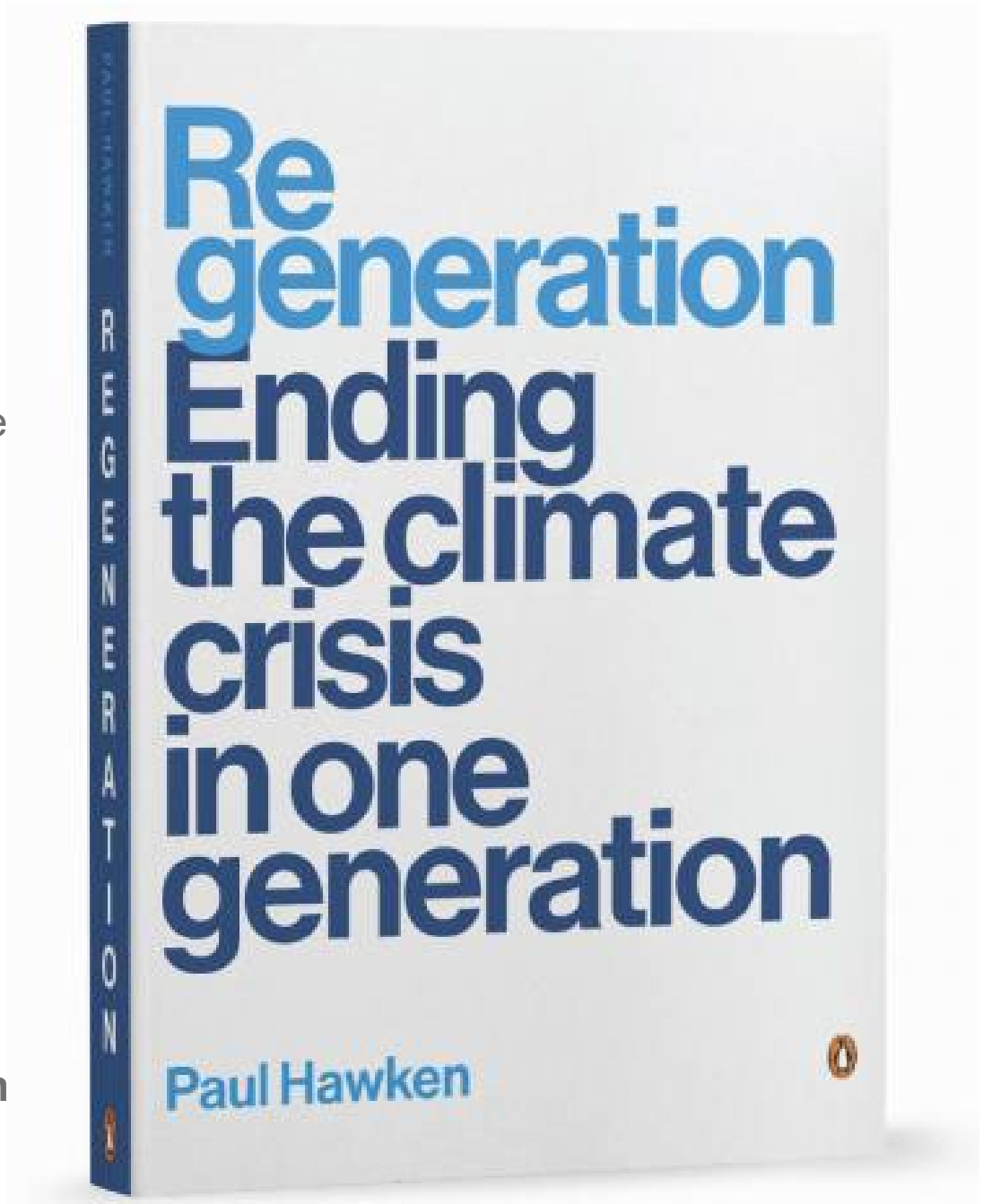




Regeneration

- “Regeneration means **putting life at the center of every action and decision**.”
- “The only **effective and timely** way to reverse the climate crisis is the regeneration of life in all its manifestations, human and biological.”
- It is also the **most prosperous and inclusive** way.”
- “To address and reverse the climate crisis requires **connection and reciprocity**.”
- “It calls for **moving out of our comfort zones to find a depth of courage** we may have never known. **It calls for action that is bold and fearless**.”
- “It relies on **reverence, respect and compassion – for ourselves, for all people, and for all life**.”

-Paul Hawken



What can you do?

Now: Be Bold and speak up in your sphere of influence, there is too much at stake not to! Advocate for signing the HHS Climate Pledge and Carbon Reduction and Resilience Plans.

Near: Lean into nature-based solutions that support regeneration with co benefits to mitigate climate change and improve resilience.

Far: Consider your long-term Legacy, commitment to doing no harm, and how you can leave the planet better than you found it for the next generation.