Overview

The Global Health Education and Learning Incubator at Harvard University (GHELI) supports interdisciplinary education about world health through the production, curation, and dissemination of educational public goods. This exemplar work was a final project for "World Health: Challenges and Opportunities," a General Education course at Harvard College taught by GHELI Faculty Director Sue J. Goldie. For this creative assessment designed with support from GHELI, students systematically analyze a societal health challenge they care about and create a "real world" product intended to influence policy or motivate change.

Abstract

A website and collection of infographics shed light on the human health impacts of climate change.

Artist

Sarah Cao (2023)

Caption

The climate crisis is a major interdisciplinary global challenge with severe impacts on human health. One primary reason people do not always act in the most environmentally conscious ways, particularly here in the U.S., is because they do not feel that climate change will negatively affect them personally, and thus do not fully comprehend the urgency of the crisis. This product aims to raise awareness of the severity of the human health impacts of climate change and motivate changes in everyday behavior that both increase environmental friendliness and are accessible to everyone.

Artist Lens

I created a collection of infographics and displayed them via the website. Infographics are one of the easiest ways to spread information, especially in the age of social media, where one can post an infographic on Facebook, Instagram, etc., for their followers to see. Websites on their own cannot be shared so quickly and directly, as they require people to navigate to links and explore an often-complex network of pages.

However, climate change and health is a huge topic, and audiences might be more curious about or influenced by different aspects of the issue. Covering all the key points in a single infographic could be overwhelming. So I formed a set of guiding questions (i.e., "What is the climate crisis?", "Why is it happening?", "Who are the most vulnerable?") and created many different graphics to answer them. While the infographics could stand alone as campaign products, I wanted to give audiences the choice to consider them all together or select what they want to learn more about. I therefore organized them via a website, making the layout as straightforward as possible so users could easily navigate to their primary area(s) of interest. I provided the option to download the graphics to share with others or use in personal campaigns.

Because a large portion of my intended message is that anyone can make a difference, I aimed to recommend relatively small changes and actions accessible to everyone. The intended target audience is the broader global community, and American audiences in particular. All the infographics raise awareness and inspire action, but

some lean more toward campaign use, as they highlight important facts and figures motivating action without much additional text. Others are more text-heavy and might be better as educational infographics. Each graphic includes a line saying “visit ourclimate-ourhealth.weebly.com for more information and how you can help” as a call to action and so viewers would know where to find the rest of the infographics in this collection.

Watch Sarah Cao Reflection

Media

Digital

View the Our Climate, Our Health Website

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Let's talk money

THE ECONOMIC COSTS OF ADVERSE HEALTH EFFECTS ATTRIBUTED TO CLIMATE CHANGE INCLUDE MEDICAL EXPENSES, CAREGIVING SERVICE COSTS, AND LOST PRODUCTIVITY

- Direct damage costs to health (i.e., not including costs in health-related sectors such as agriculture and sanitation) are estimated to be between **2-4 billion USD per year** by 2030
- Damage costs associated with additional extreme temperature-related deaths are projected to reach **140 billion USD per year** by 2090
- Nearly **2 billion labor hours** may be lost per year by 2090 due to the impacts of temperature extremes, costing an estimated **160 billion USD** in lost wages annually
- Without climate-resilient development, climate change may force an estimated **100 million people** into extreme poverty by 2030.

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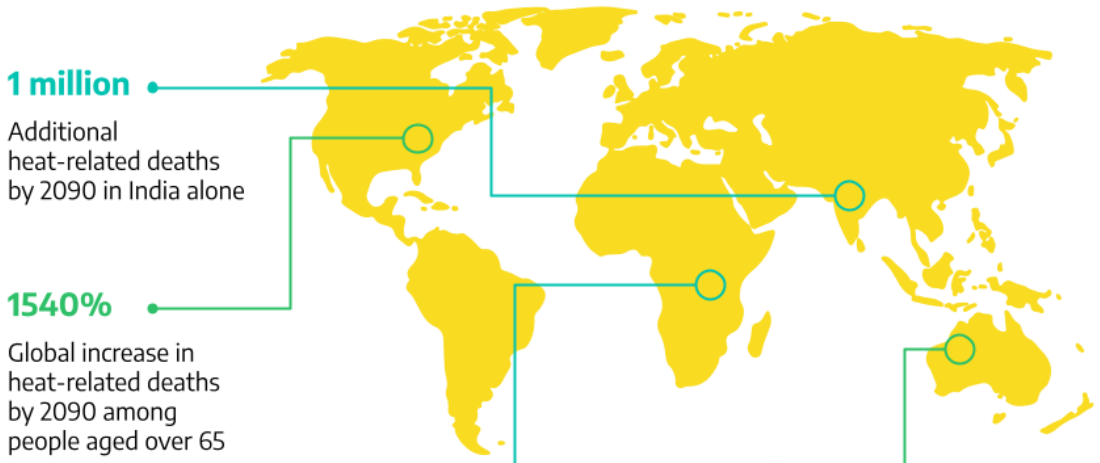
If no action is taken to fight climate change...



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"CLIMATE CHANGE IS THE **SINGLE BIGGEST HEALTH THREAT** FACING HUMANITY"

-The World Health Organization

Climate change has been occurring rapidly over the last two centuries, largely driven by human activity. Its impacts include warming temperatures, rising sea levels, more intense natural disasters, and major human health consequences.

The average temperature of Earth's surface is now warmer than at any time in at least the last **100,000 years**. The last decade (2011-2020) was the **warmest on record.**

Hot days are associated with an **increase in heat-related illnesses**, including cardiovascular and respiratory complications, renal failure, negative impacts on fetal health, and preterm birth.

Between 2030 and 2050, climate change is expected to cause approximately **250,000 additional deaths** per year, from malnutrition, malaria, diarrhea and heat stress.

Climate change affects various social and environmental **determinants of health**, such as clean air, safe drinking water, and food & shelter security.

At least **155 million** people were pushed into food insecurity in 2020 due to extreme weather. This included **over 75 million children** under age 5 who displayed symptoms of **stunted growth.**

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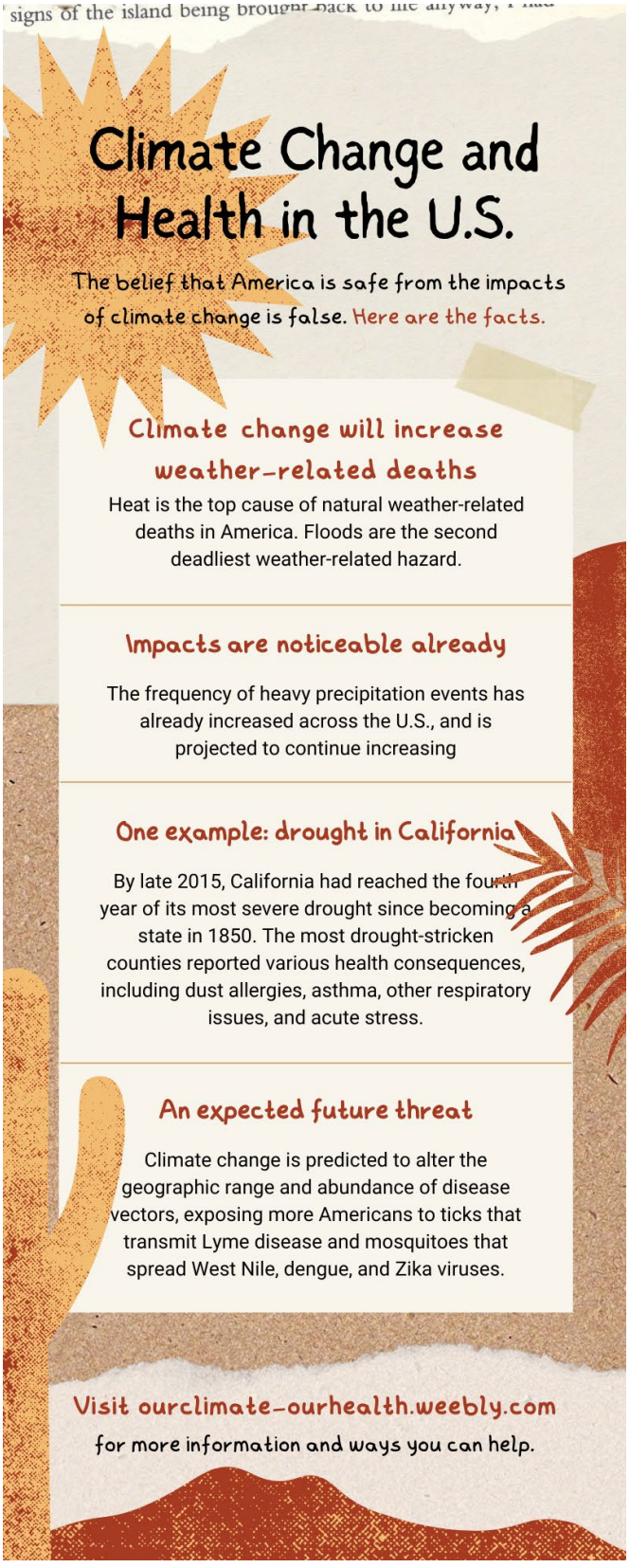

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Climate Change:

THE WORST OFFENDER VS THE MOST VULNERABLE

WHO IS MOST RESPONSIBLE FOR THE DAMAGE?

The United States has emitted more CO2 than any other country to date.

- At around 400 billion tonnes since 1751, the U.S. is responsible for 25% of historical emissions
  - This is twice more than China, the second largest national contributor, and more than the 28 nations of the E.U. grouped together
- Of 37 health systems analyzed in the global Lancet report, the U.S. had the most emissions per person- 50 times the emissions from the Indian health sector

WHO IS MOST VULNERABLE TO THE CONSEQUENCES?

Developing countries with weak health infrastructure will be the least able to cope without assistance.

- People in low-income and disadvantaged communities and/or nations are least able to protect themselves against climate hazards
- Top countries at risk of climate disaster include Somalia, Afghanistan, Chad, and Syria
- While no one is safe from the risks, the people whose health is being harmed first and worst by the climate crisis are those who contribute least to its causes

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A PERSON`S VULNERABILITY TO CLIMATE CHANGE IMPACTS

Depends on:

Exposure

For example, people who spend lots of time outdoors may be more exposed to extreme heat

Adaptive Capacity

Ability to adjust or respond to climate hazards may depend on income, age, healthcare access, etc.

Sensitivity

Some are more sensitive to climate hazards due to factors like age and health conditions

People living on coastlines are more vulnerable to storms and flooding. Those living in poverty may be less able to respond to extreme events. People with asthma are highly sensitive to changes in air quality. These are examples of particularly vulnerable groups.

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Climate change impacts: Who is most at risk?

While all people are vulnerable to the negative health effects of climate change, certain populations—largely the most disadvantaged—are disproportionately so:

Migrants or displaced persons

Low-income communities

Children

Pregnant, breastfeeding, or postpartum women

Communities of color

People with preexisting medical conditions

Older adults

Indigenous populations

People with disabilities

Vulnerable occupational groups

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6 BENEFITS OF RENEWABLE ENERGY

Renewable energy refers to energy produced from sources that are naturally replenished and thus do not run out. Common types include bioenergy, geothermal energy, hydrogen, hydropower, marin energy, solar energy, and wind energy. Its benefits include economic, environmental, national security, and human health benefits.

01 Reduced carbon emissions and air pollution from energy production

02 Job creation throughout renewable energy industries

03 Increased U.S. energy independence

04 Enhanced reliability, security, and resilience of the nation's power grid

05 Increased affordability- many types of renewable energy are cost-competitive with traditional energy sources

06 Expanded clean energy access for remote or coastal communities

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How are we responsible for the climate crisis?

Human activity has been the primary driver of climate change, largely through the burning of fossil fuels (such as oil, coal, and gas).

Burning fossil fuels results in the emission of greenhouse gases like carbon dioxide and methane that trap the sun's heat within Earth's atmosphere, thus causing climate change. Fueling cars with gasoline, heating buildings with coal, and clearing land or cutting down trees are all common sources of greenhouse gases.

The main sectors contributing to greenhouse gas emissions include:

- **Energy**
- **Industry**
- **Transport**
- **Agriculture & land use**

Greenhouse gas levels are at their highest in **4.5 MILLION YEARS**

And the global hunger for energy is only expected to grow in the future.

Take action now Visit ourclimate-ourhealth.weebly.com

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Myth:

AMERICA HAS LIMITED ACCESS TO RENEWABLE ENERGY SOURCES.

The U.S. has abundant renewable energy resources. The amount available is **100 times** that of the nation's annual electricity need.

There is large, untapped potential to convert renewable resources into electricity.

In 2020, the U.S. used only 0.2% of the total available renewable energy potential available for electricity production.

Learn more about taking action to fight climate change at

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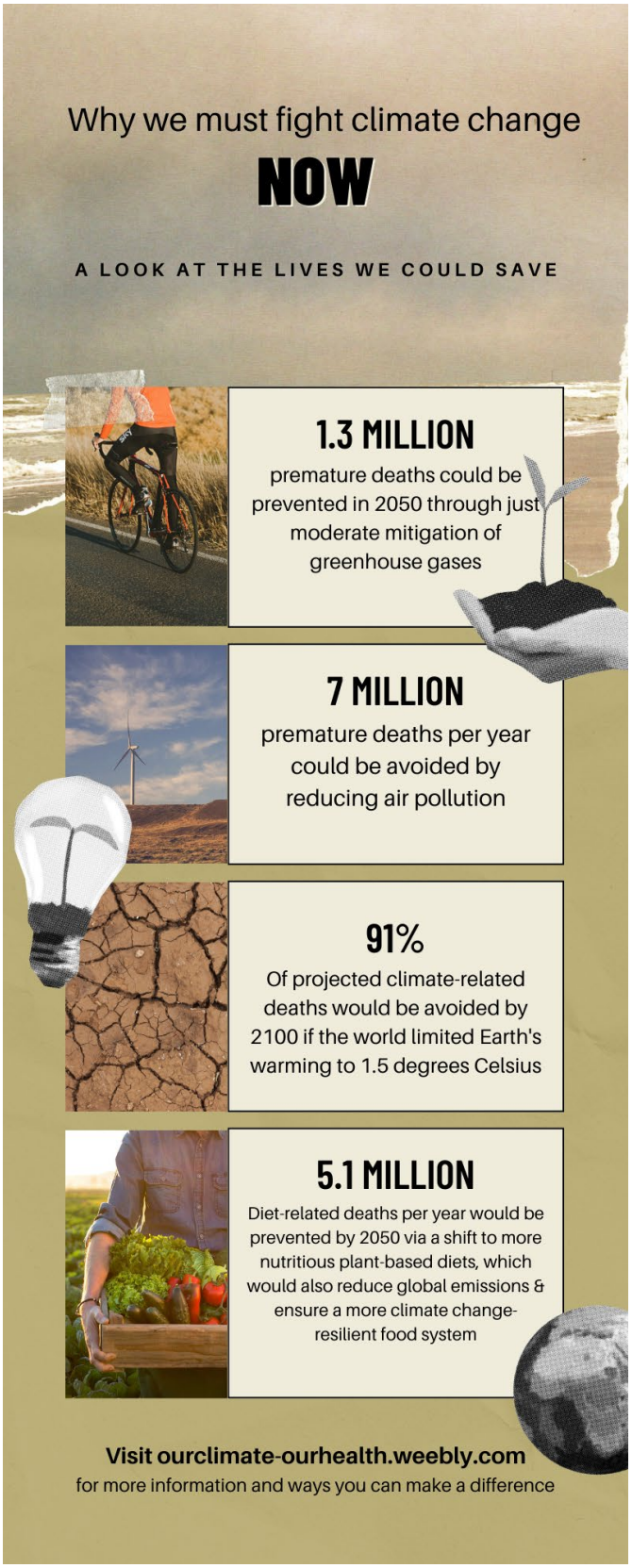

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