PRESENTED BY TEXAS TECH UNIVERSITY

TAMEST NATURAL HAZARDS SUMMIT

Responding to and Mitigating the Impacts

LUBBOCK, TEXAS
05.16.2022

#NATURALHAZARDSSUMMIT

Panel:
Improving Resiliency of Infrastructure to Prevent Fatalities and Mitigate Damages

MODERATOR

CHANDRA FRANKLIN WOMACK

Owner and Chief Executive Officer, Aran & Franklin; **Board Chair,** Texas Windstorm Insurance Association

SPEAKERS

IAN GIAMMANCO, PH.D.

Lead Research Meteorologist & Sr. Director for Standards and Data Analytics, Insurance Institute for Business & Home Safety

MARC LEVITAN, PH.D.

Lead Research Engineer, National Windstorm Impact Reduction Program, National Institute of Standards and Technology

CHRIS LETCHFORD, D.PHIL.

Professor and Chair Rensselaer Polytechnic Institute

Panel 3: Improving resiliency of infrastructure including buildings to prevent fatalities and mitigate damages

Moderator:

Chandra Womack, Engineer, Aran and Franklin Engineering, Inc.

Panelists:

Ian Giammanco, Ph.D., Insurance Institute for Business and Home Safety (IBHS)

Marc Levitan, Ph.D., National Institute of Standards and Technology; NWIRP

Chris Letchford, D.Phil., Civil & Environmental Engineering, Rensselaer Polytechnic Institute

Resiliency (in the past)

Federal Government

FEMA - HAZUS

FEMA's Hazus Program provides standardized tools and data for estimating risk from earthquakes, floods, tsunamis, and hurricanes. Hazus models combine expertise from many disciplines to create actionable risk information that increases community resilience. Hazus software is distributed as a GIS-based desktop application with a growing collection of simplified open-source tools. Risk assessment resources from the Hazus program are always freely available and transparently developed. The Hazus Program is managed by FEMA's Natural Hazards Risk Assessment Program (NHRAP), within the Risk Management Directorate.

Resiliency (in the present)

Academic Centers:

Center for Risk-Based Community Resilience Planning, A NIST-funded Center of Excellence (@CSU) http://resilience.colostate.edu/

- *The Center of Excellence will provide a common data architecture by collaborating with the National Center for Supercomputing Applications to ensure that data from around the world can be seamlessly integrated into a robust computational environment known as **IN-CORE** with the capability of computing the proposed resiliency measures at the user-desired community level.*

Resiliency (in the present)

Academic Centers (cont):

Computational Modeling and Simulation Center, NSF-funded NHERI Center, (@UCB) https://simcenter.designsafe-ci.org/

- *The SimCenter provides next-generation computational modeling and simulation software tools, user support, and educational materials to the natural hazards engineering research community with the goal of advancing the nation's capability to simulate the impact of natural hazards on structures, lifelines, and communities.*

https://www.frontiersin.org/articles/10.3389/fbuil.2020.558706/full
(addresses Earthquake, Hurricane, and Surge/Tsunami hazards specifically)

Resiliency (in the future)

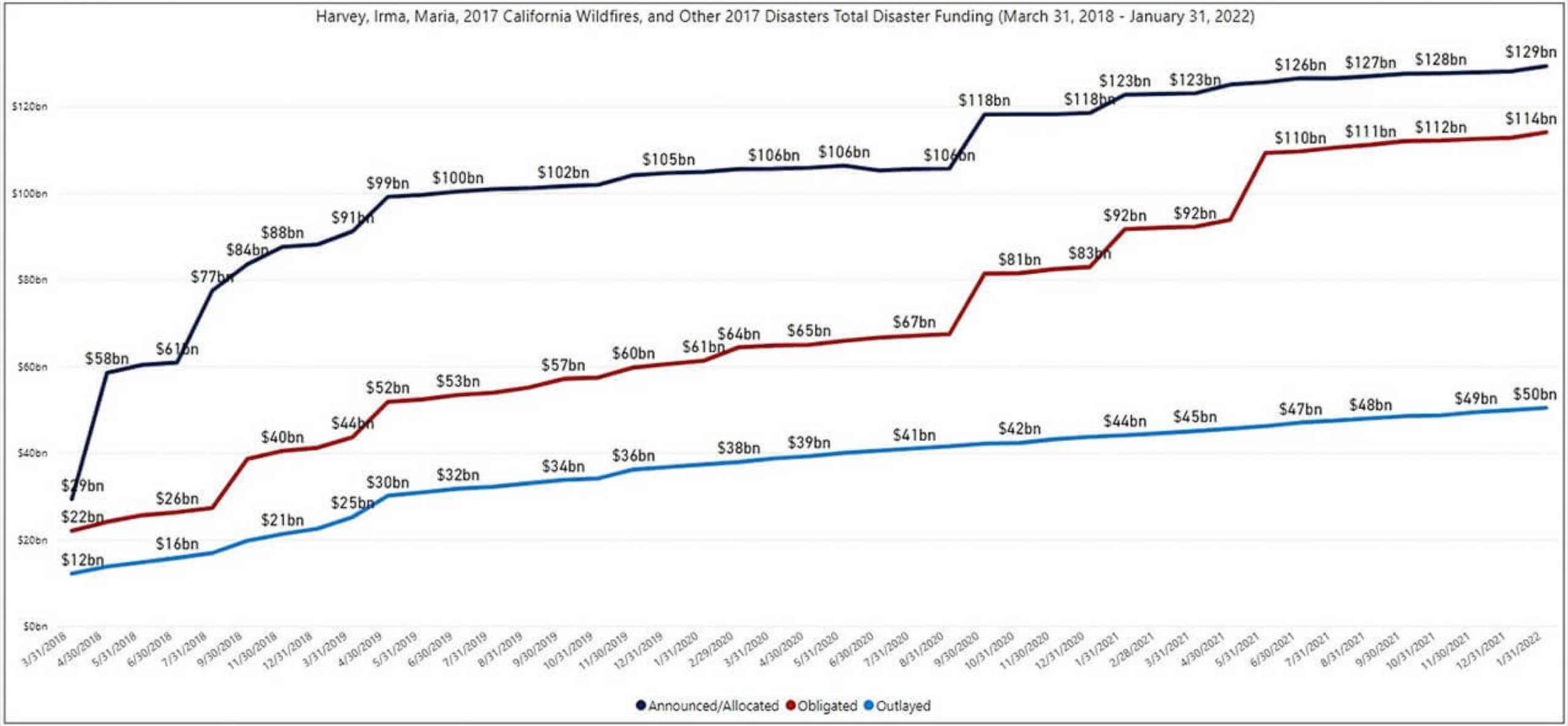
Resiliency priorities (in the future) ?

- Funding issues
- Social Justice issues
- Climate adaptation issues

Disaster Funding Progress: Harvey, Irma, Maria, 2017 California Wildfires, and Other 2017 Disasters

2017

Since September 2017, 20 federal agencies have collectively announced/allocated approximately **$129.0 billion**, obligated **$114.0 billion**, and outlayed **$50.3 billion**, including FEMA and SBA non-supplemental funding for Hurricanes Harvey, Irma, Maria, 2017 California Wildfires, and Other 2017 Disasters.

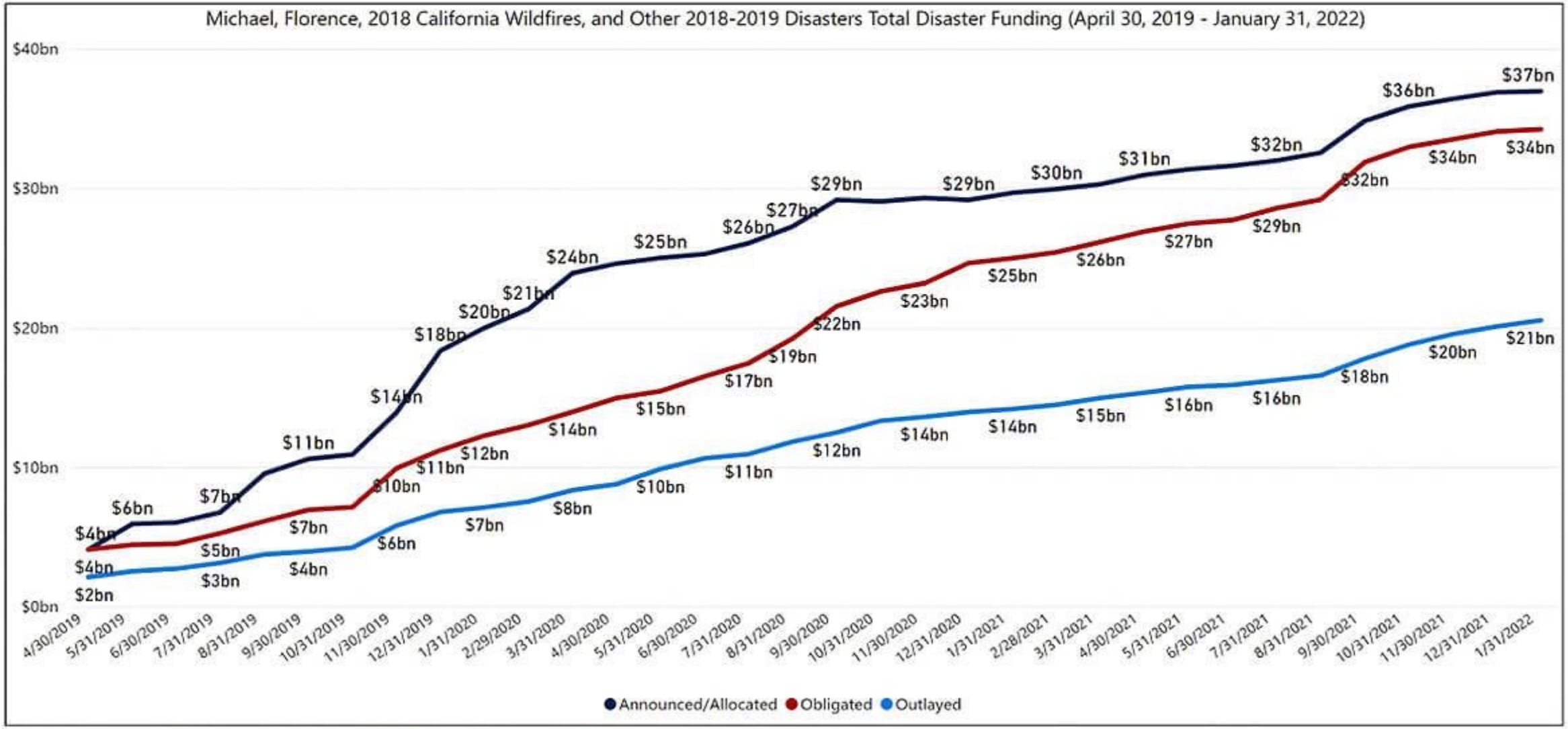


Data Source: Announced/Allocated, Obligated, and Outlayed amounts provided to RSFLG by departments/agencies and reflect data as of January 31, 2022.

2018/9

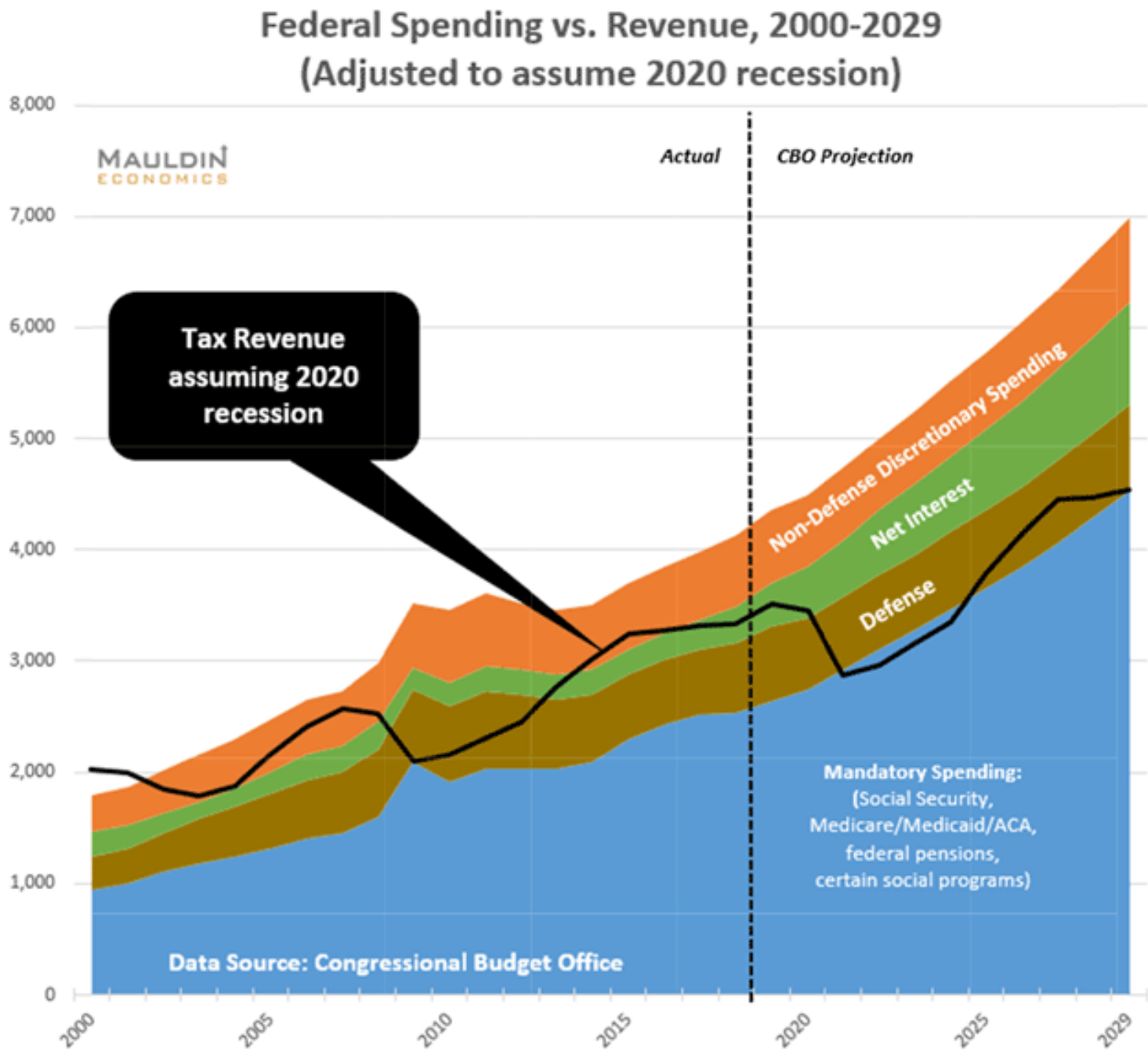
Disaster Funding Progress: Michael, Florence, 2018 California Wildfires, and Other 2018-2019 Disasters

Since March 2019, 17 federal agencies have collectively announced/allocated approximately **$36.9 billion**, obligated **$34.2 billion**, and outlayed **$20.5 billion**, including FEMA and SBA non-supplemental funding for Hurricanes Michael, Florence, 2018 California Wildfires, and Other 2018-2019 Disasters.

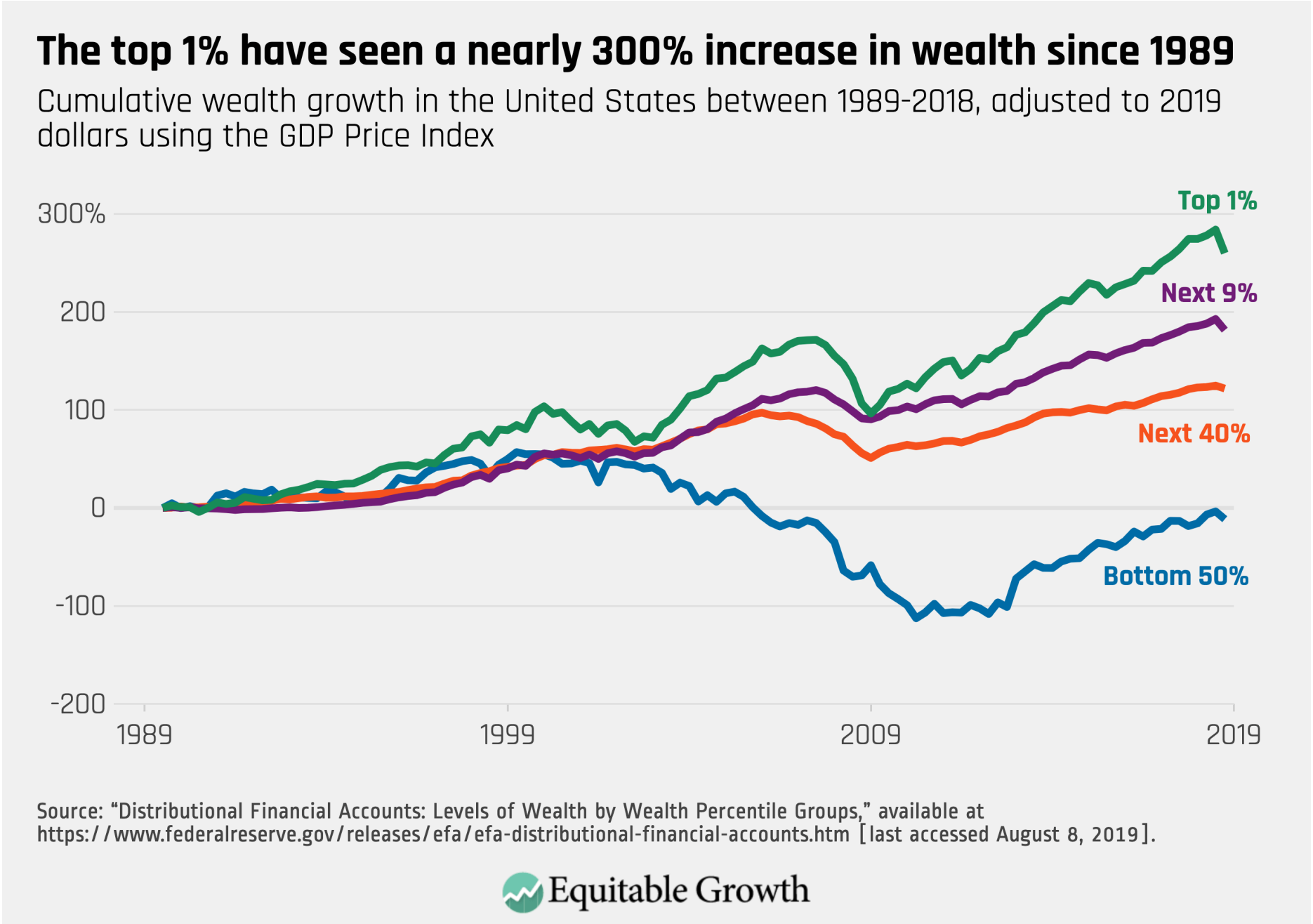


Data Source: Announced/Allocated, Obligated, and Outlayed amounts provided to RSFLG by departments/agencies and reflect data as of January 31, 2022.

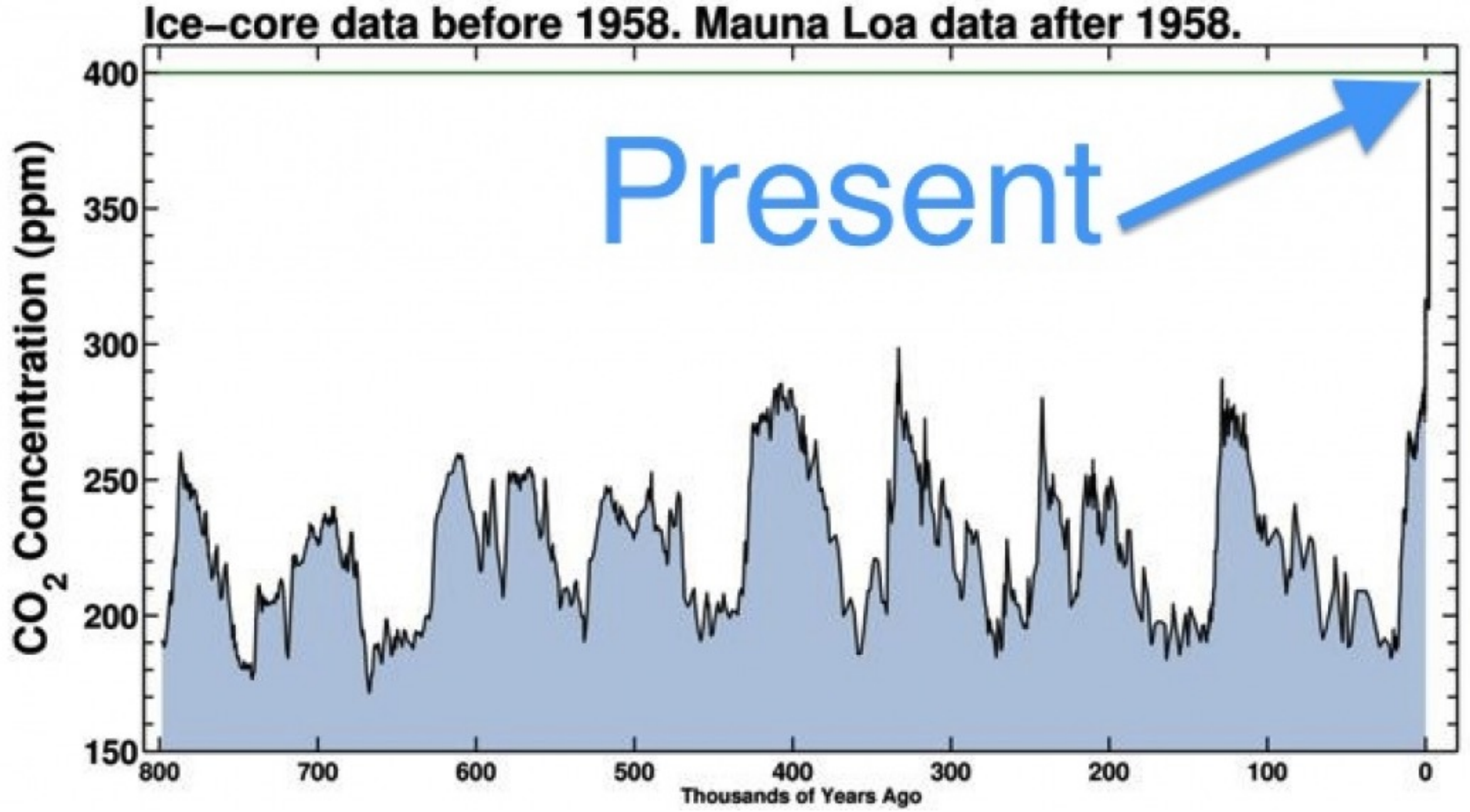
Where is the money coming from?



Who benefits most from resiliency efforts?



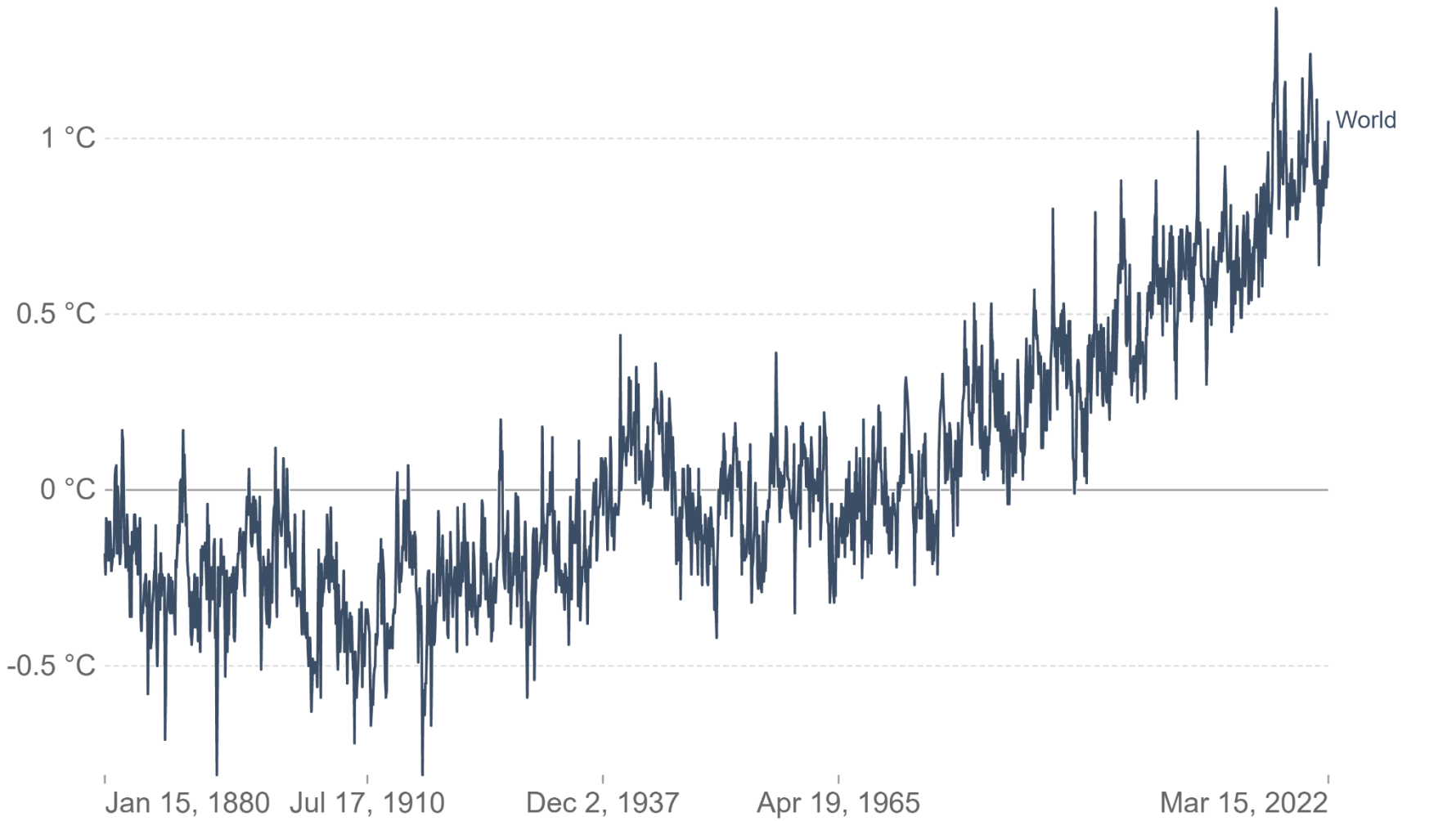
Adapting to a changing climate?



Global warming: monthly temperature anomaly

The combined land-surface air and sea-surface water temperature anomaly is given as the deviation from the 1951–1980 mean.

Our World in Data



Source: National Aeronautics and Space Administration (NASA), Goddard Institute for Space Studies (GISS)

CC BY

Opportunities for innovation in a hotter world?

One house does not a resilient community make!