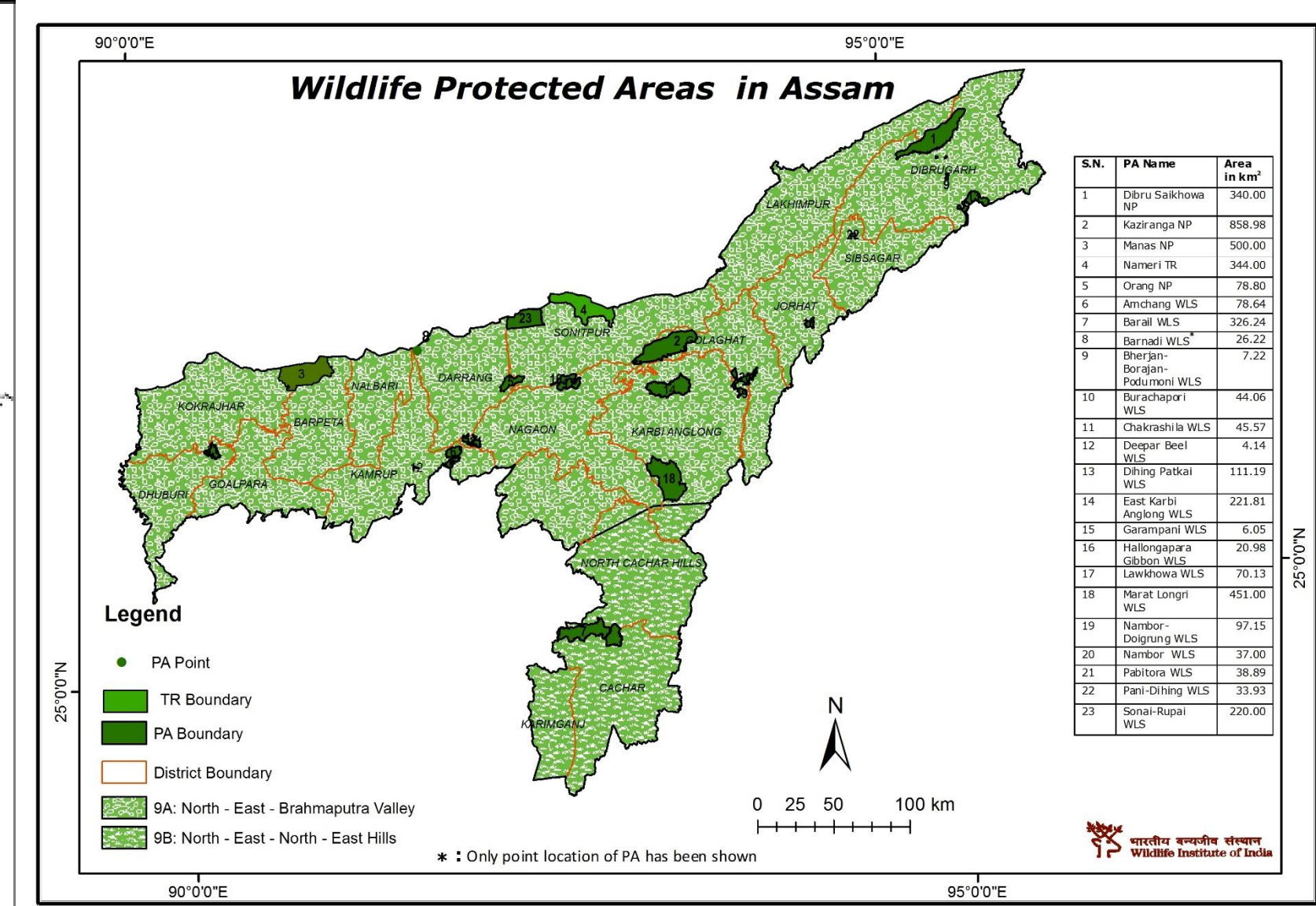
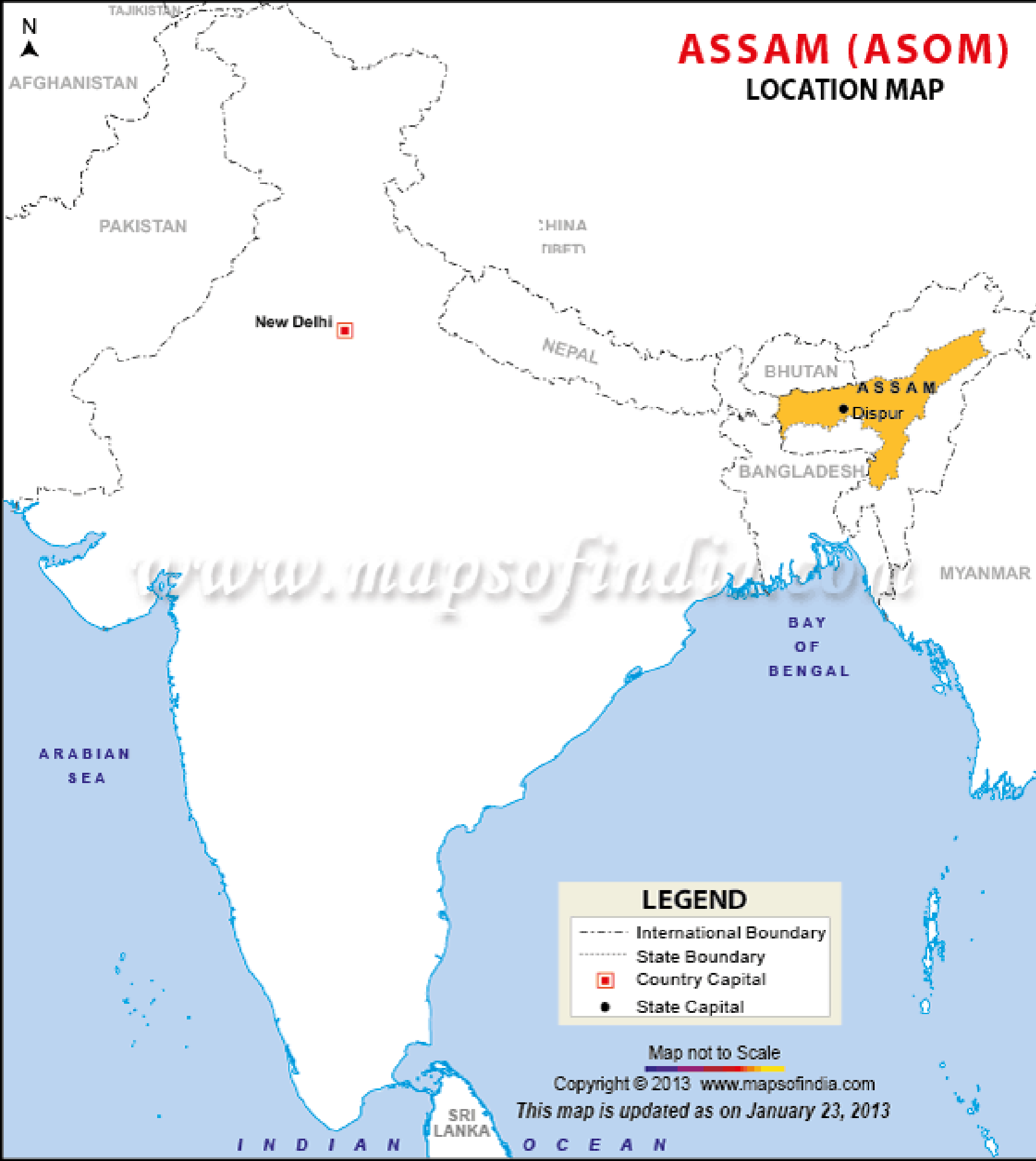


Connecting the 3 W's: **W**arming, **W**ater & **W**ildlife

RITURAJ PHUKAN

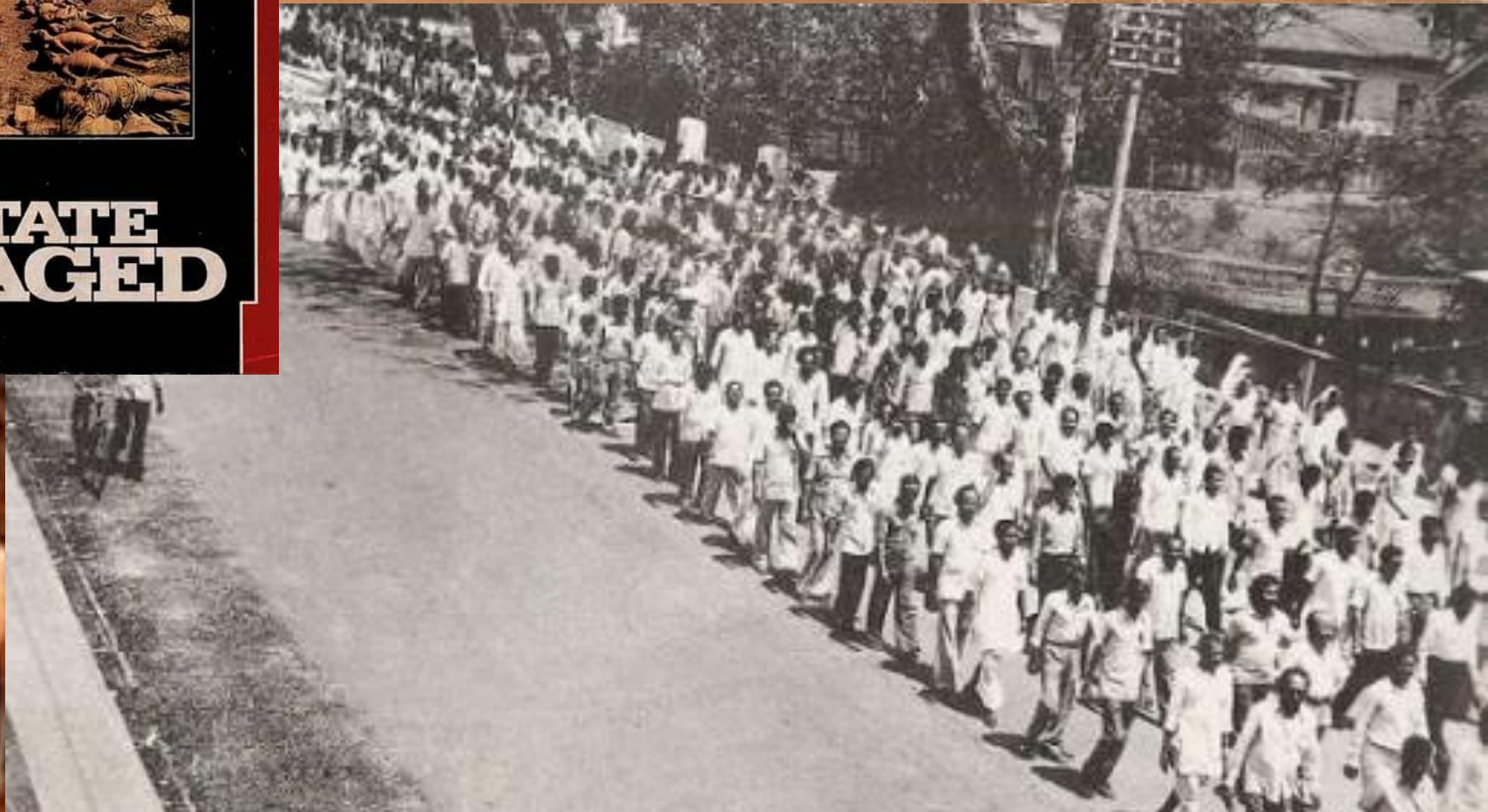
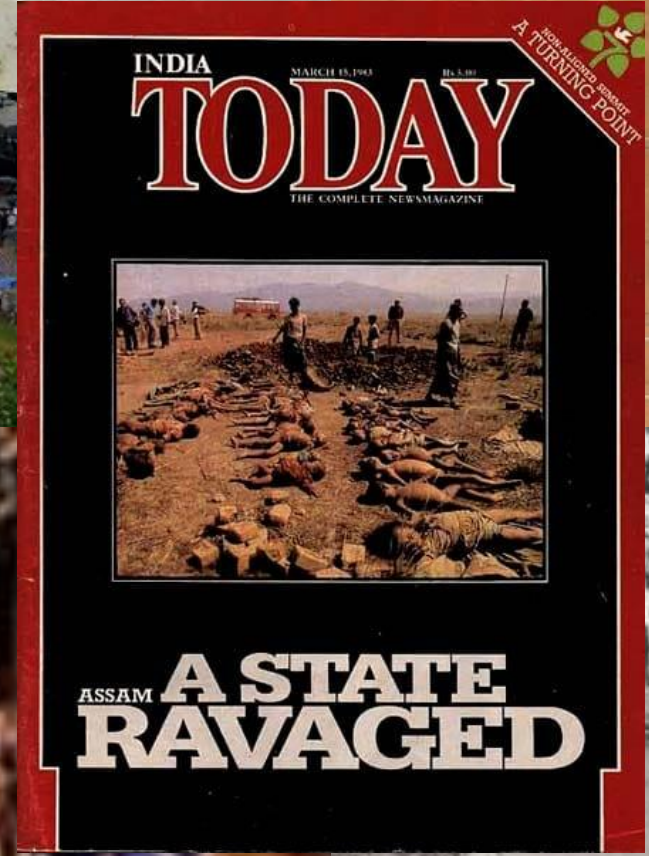


Dhemaji, Assam, India



© 2011 AP Photo

Guwahati, India





WITH THE
PACIFIC WARRIORS
ON CLIMATE CHANGE
FROM ANTARCTICA

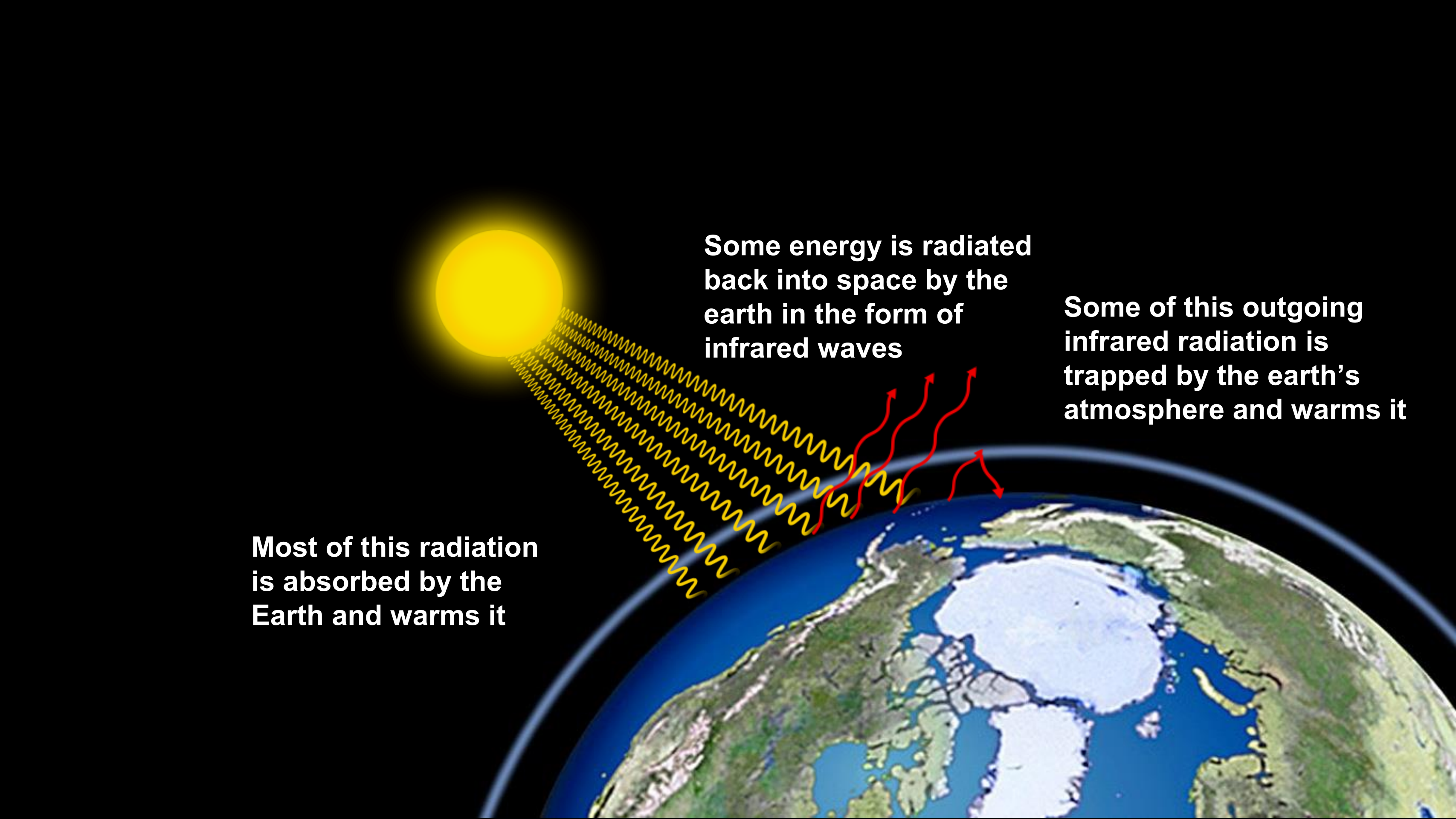




**The Climate
Reality Project®**



Source: NASA

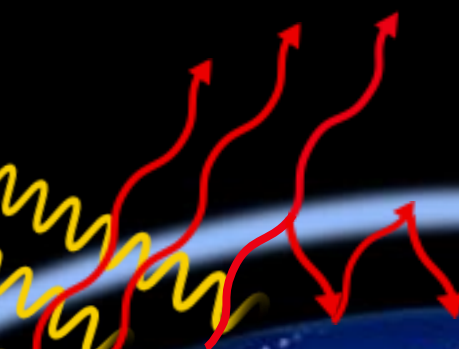
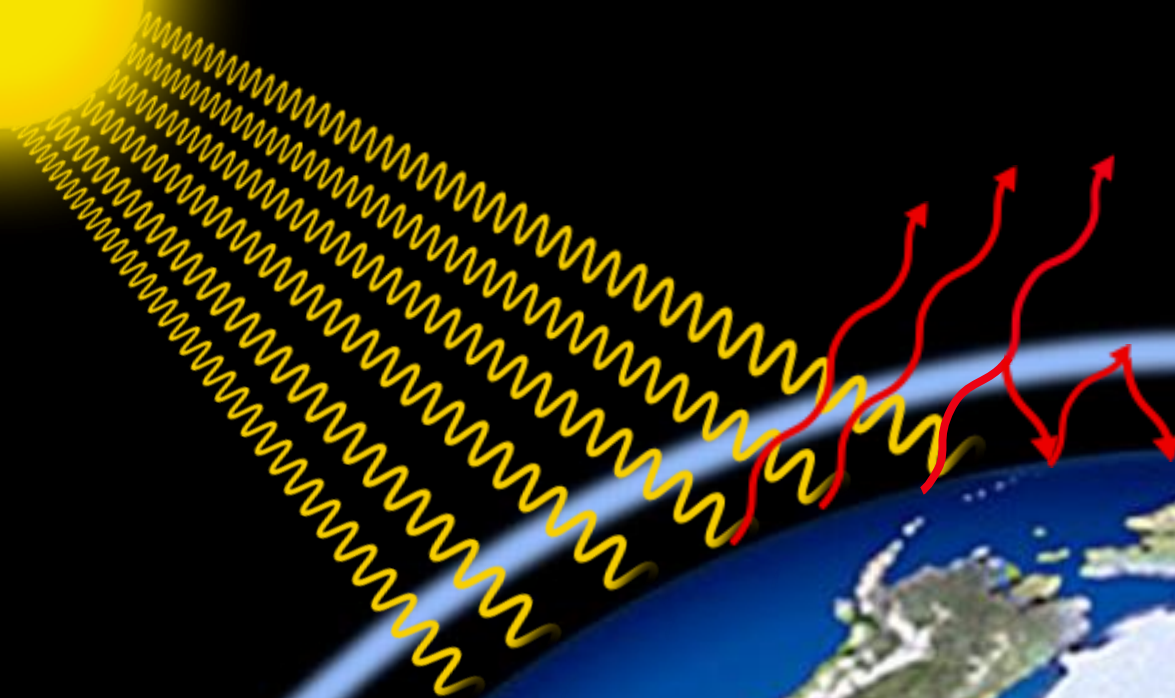
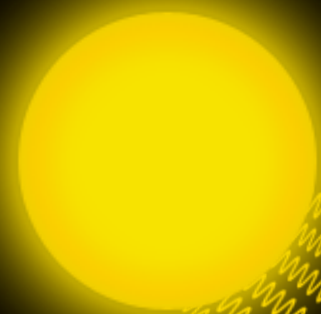


**Most of this radiation
is absorbed by the
Earth and warms it**

**Some energy is radiated
back into space by the
earth in the form of
infrared waves**

**Some of this outgoing
infrared radiation is
trapped by the earth's
atmosphere and warms it**

We are now spewing 110 million tons of manmade global warming pollution into the thin shell of our atmosphere every 24 hours, as if it were an open sewer.



As the CO₂ concentration increases, more of the outgoing infrared radiation is trapped.



THAWING PERMAFROST

COAL MINING

COAL PLANTS

AIR TRANSPORT

OIL PRODUCTION

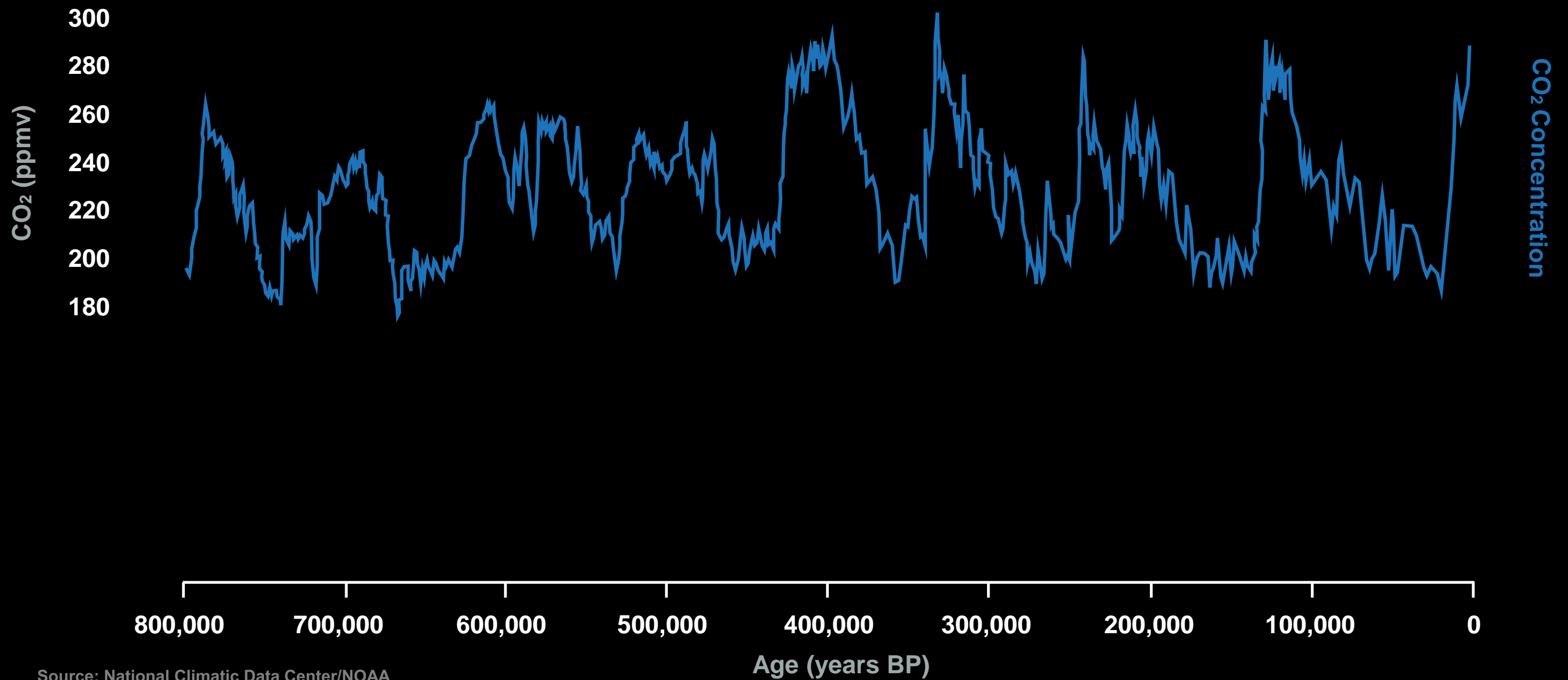
INDUSTRIAL PROCESSES

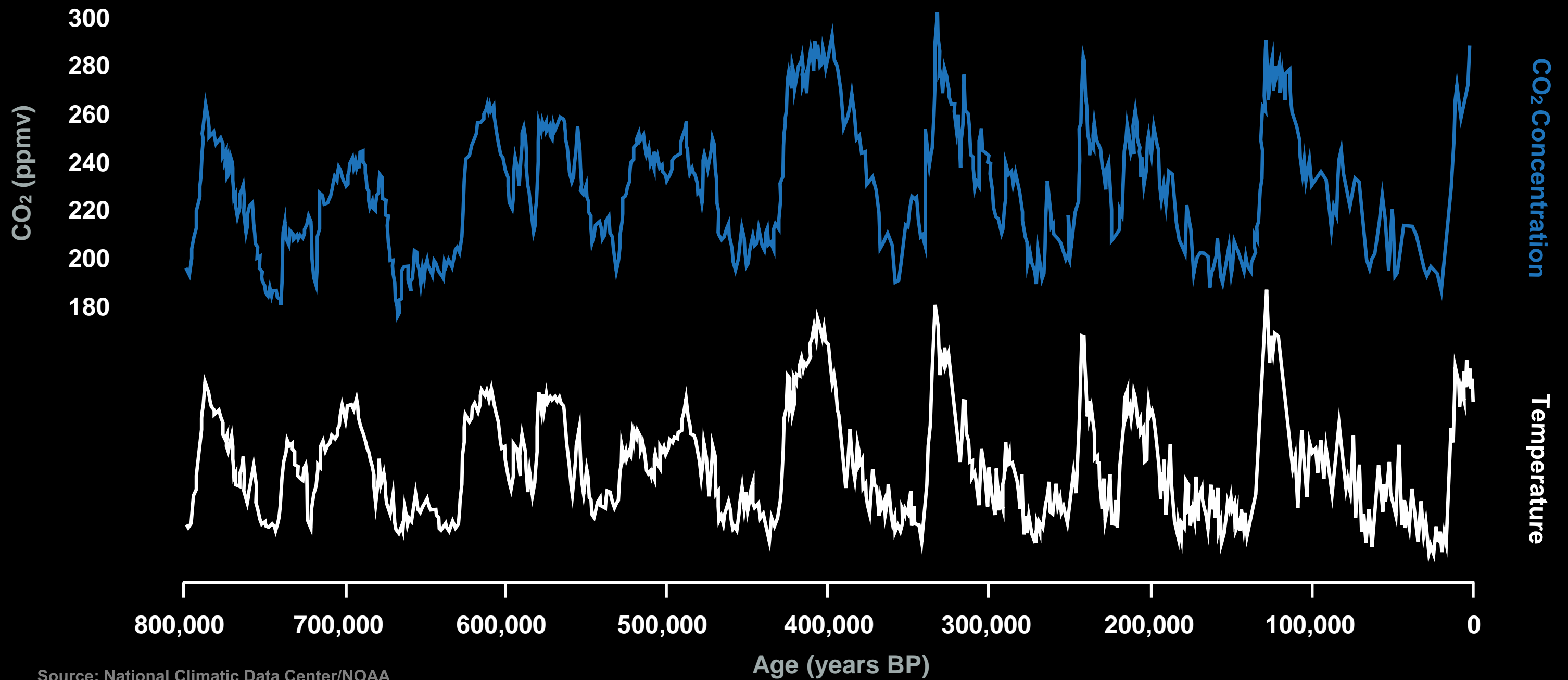
FERTILIZATION

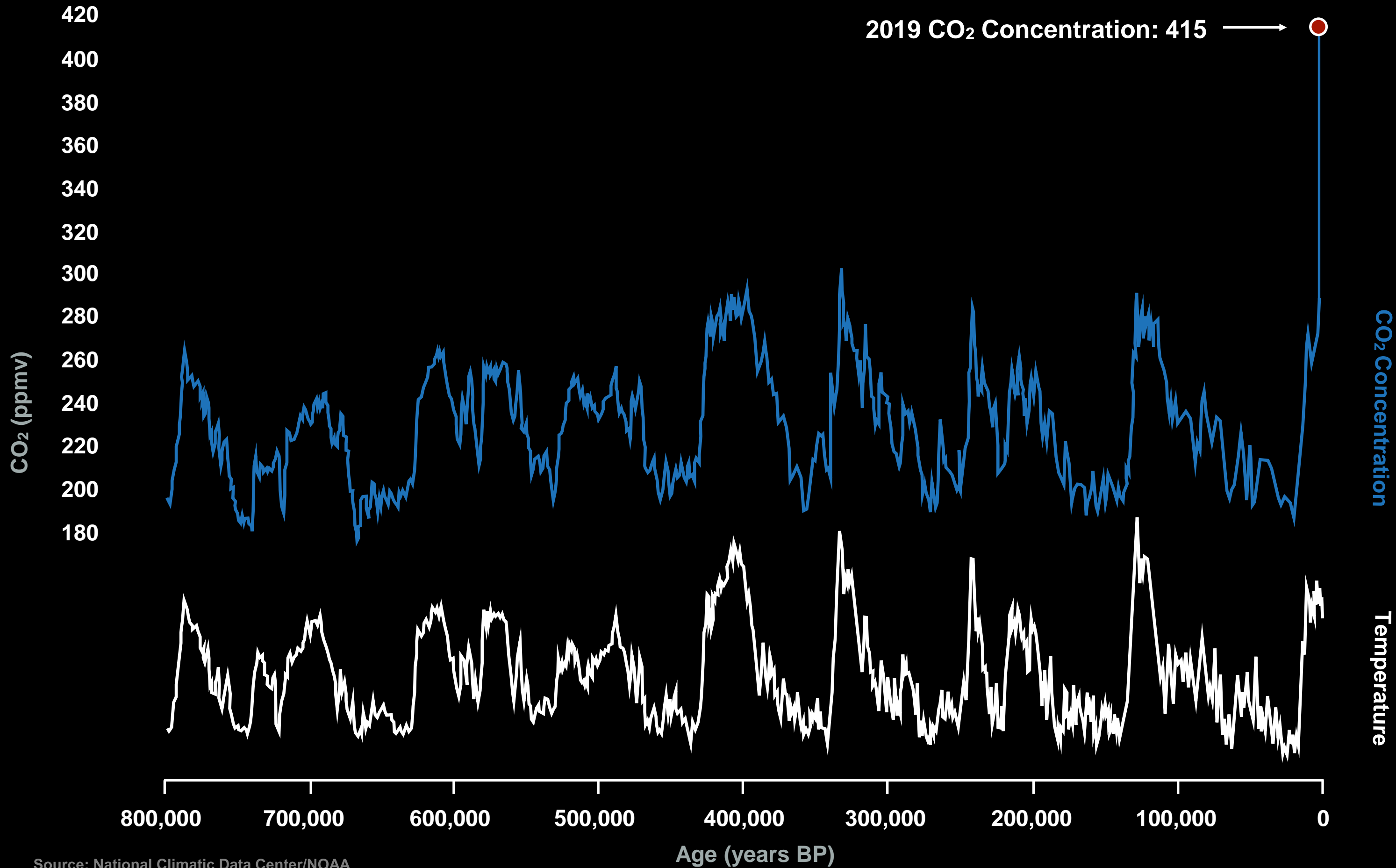
LAND TRANSPORT

LANDFILLS

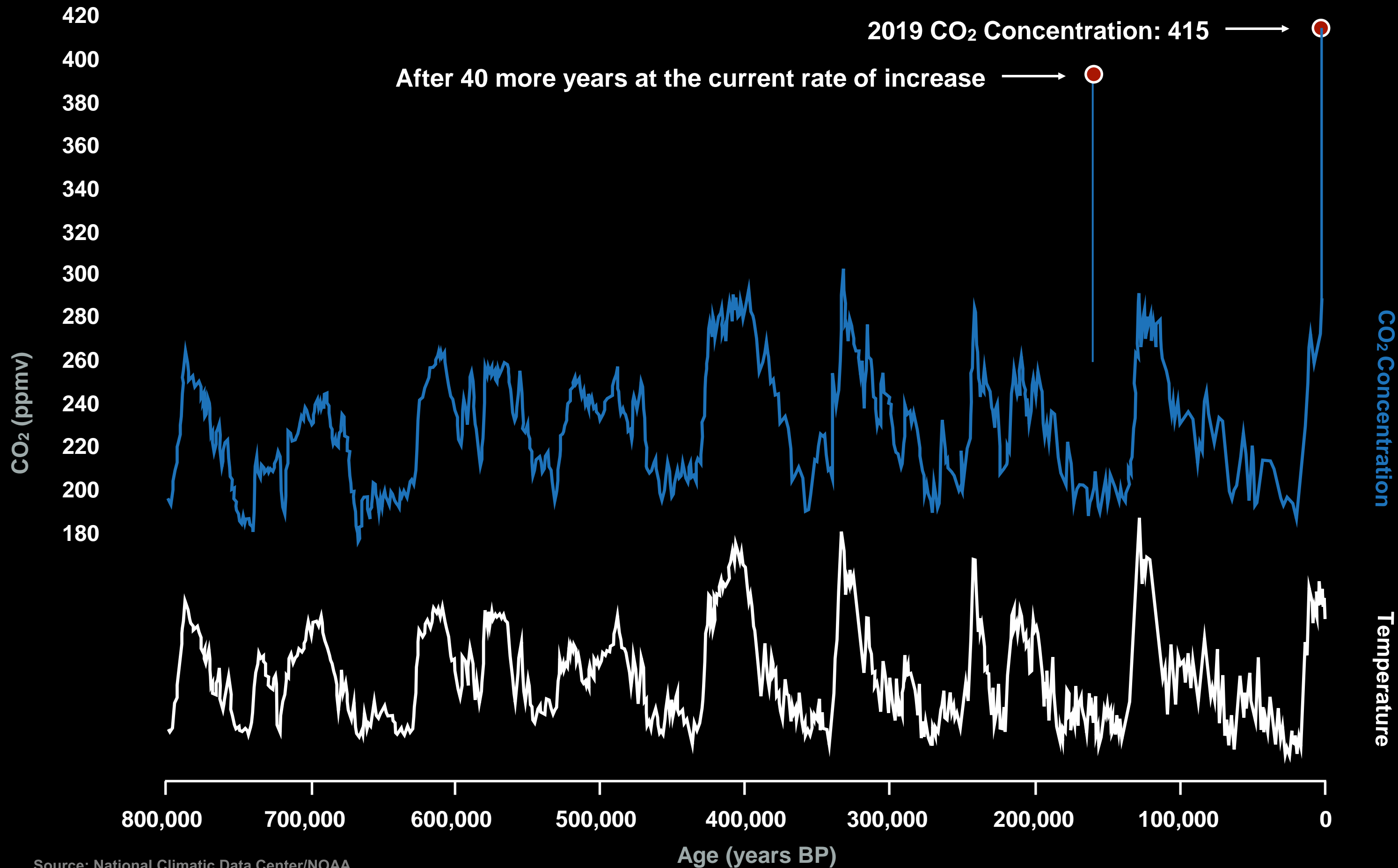
**CO₂ is being released
into the atmosphere
faster than at any time in
at least the last
66 million years.**







Source: National Climatic Data Center/NOAA



**The energy trapped by man-made
global warming pollution is now
“...equivalent to exploding**

500,000

**Hiroshima atomic bombs
per day 365 days per year.”**

James Hansen

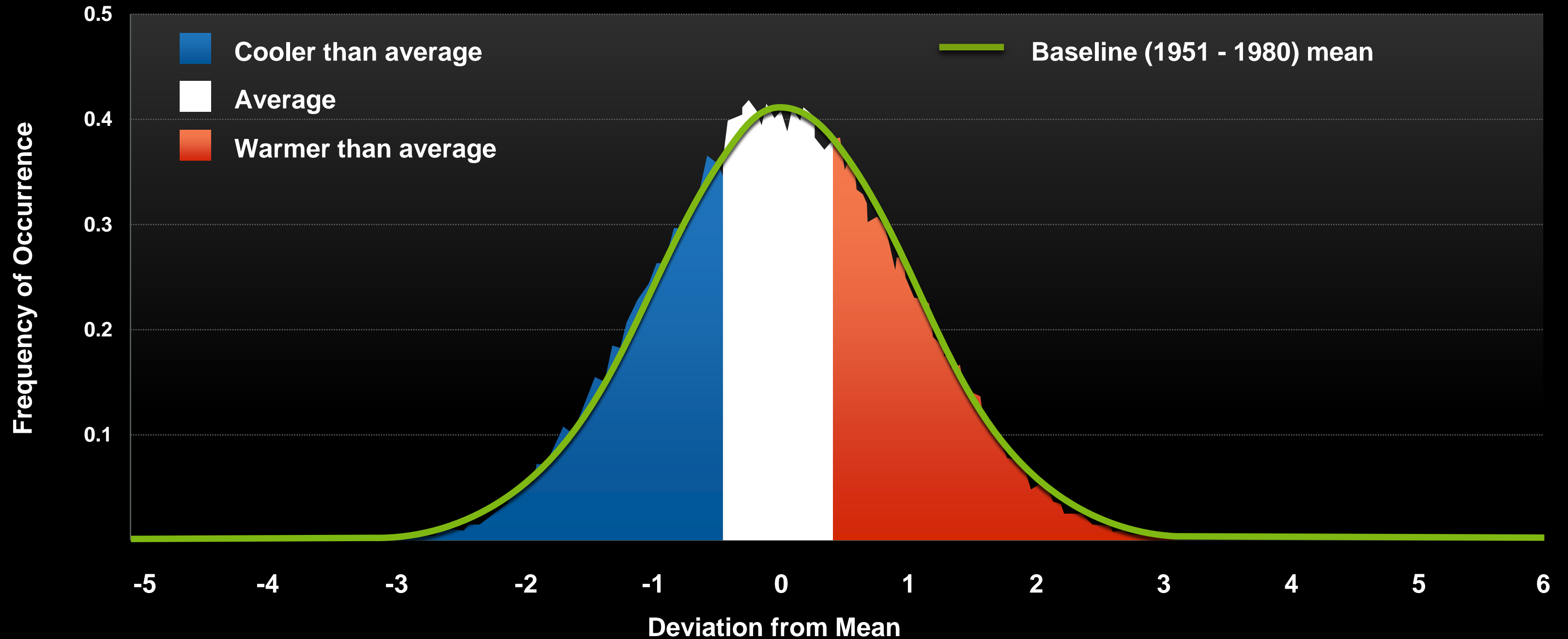
Former Director, NASA Goddard Institute for Space Studies



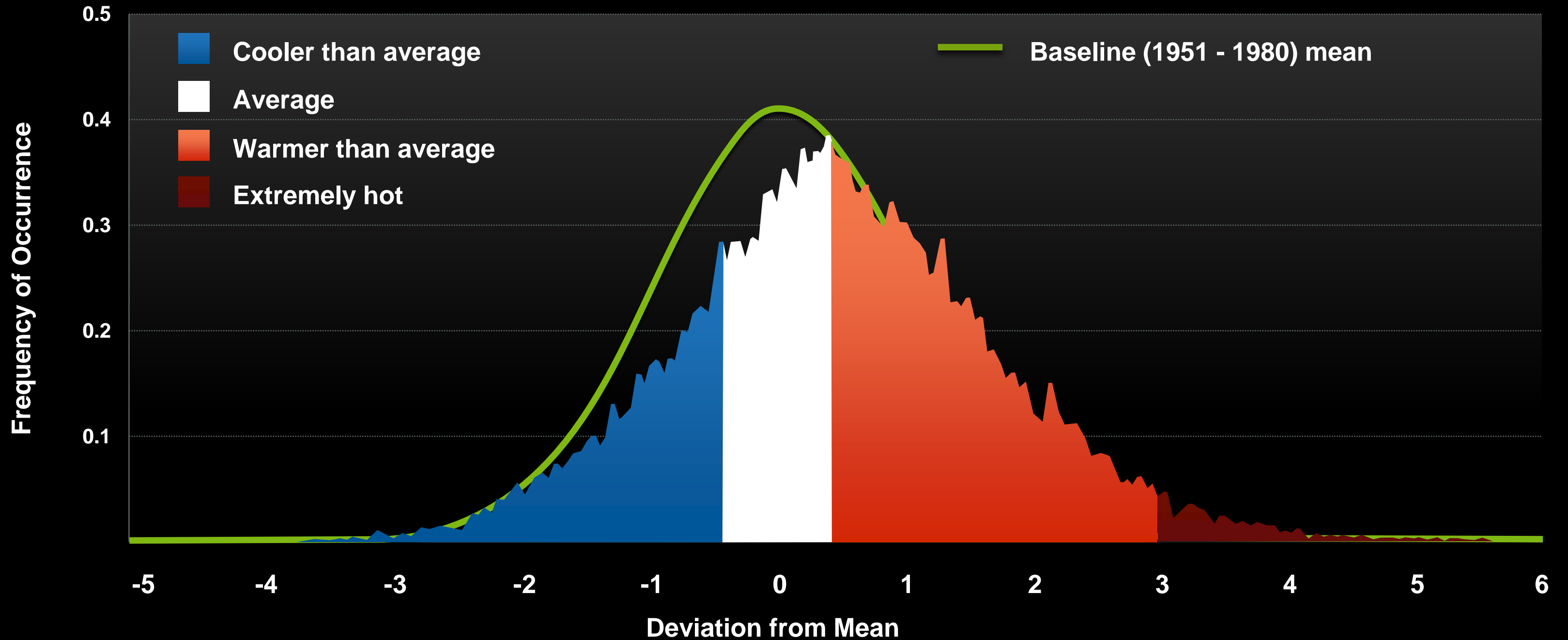
500,000
Times per day

Summer Temperatures Have Shifted

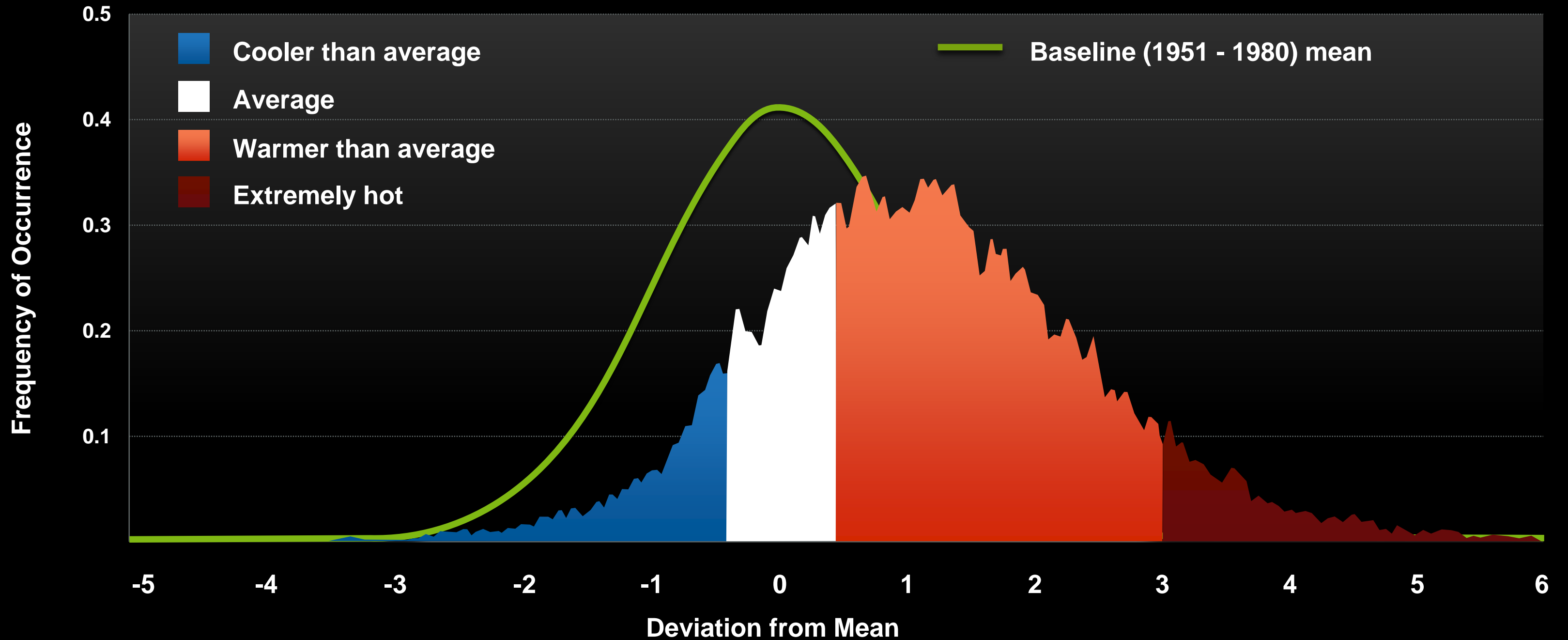
1951 – 1980



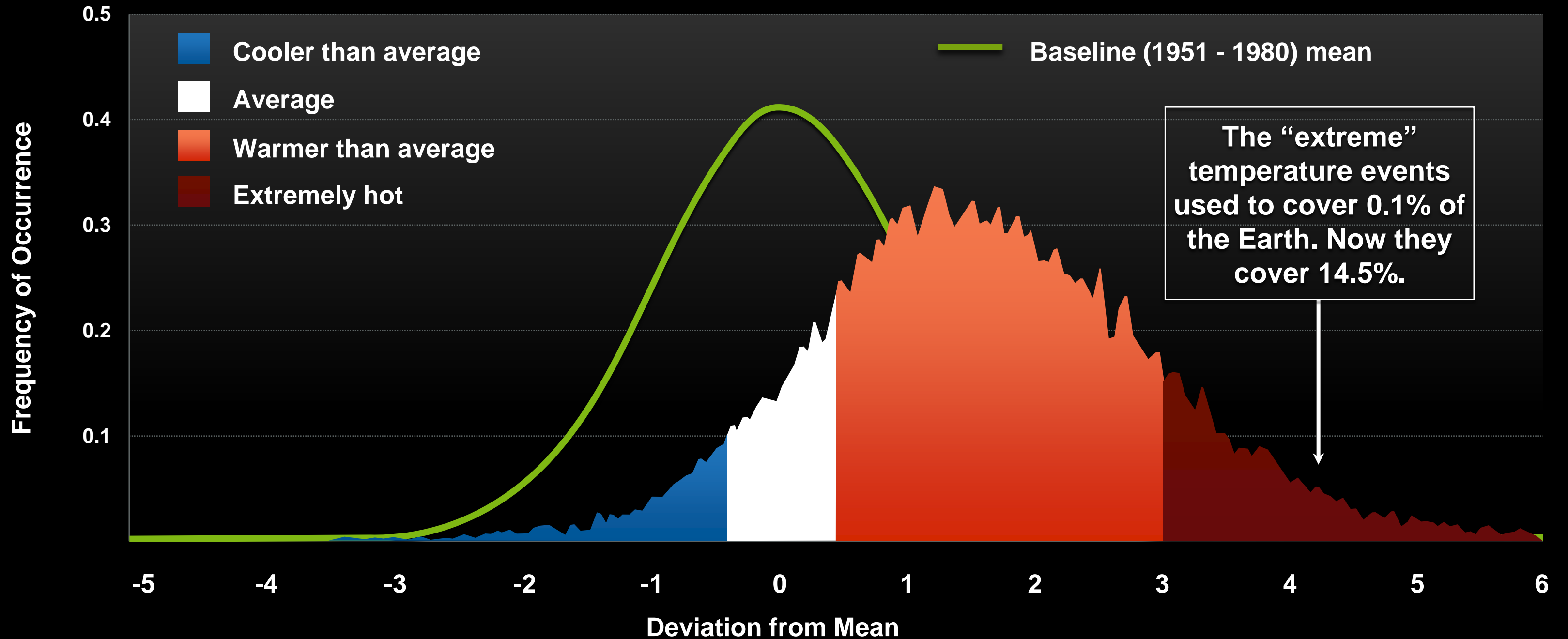
1983 – 1993



1994 – 2004



2005 – 2015



The Blotter of Abhorrent Years the Reason Five Years Occurred Since the Year 2001

2016

2017

2015

2018

2014

2010

2005

2007

2013

2009

2012

2006

1998

2002

2003

2011

2004

2001

At least **224 locations** around
the world **set all-time heat records** in 2018.



On May 19, 2016
India set a new all-time
high temperature record of
124° F (51° C)

Prayagraj, India

June 15, 2019

At least 36 people died as temperatures in India reached **123° F** (50.5° C) in mid-June.



“Water is the local issue of global climate change, for people, and for biodiversity”

- Rituraj Phukan

Home » Website » National » India Suffering Worst Water Crisis In History: NITI Aayog

India Suffering Worst Water Crisis In History: NITI Aayog

Currently, 600 million Indians face high to extreme water stress and about two lakh people die every year due to inadequate access to safe water.

OUTLOOK WEB BUREAU | 15 JUNE 2018

f Facebook

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in LinkedIn

Comments

'Please Don't Come To Shimla': Locals Plead To Tourists

Locals in Shimla are pleading tourists to "not come here" and "select other destination" for their summer vacation plans.

YAMINI KALRA | 30 MAY 2018

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Comments



PTI Photo

Mail Print Share

AAA INCREASE TEXT SIZE

Perhaps for the first time in Shimla-the most visited hill station in Himachal Pradesh- tourists are not welcome.

For eight straight days, the Queen of Hills is struggling to keep up with an unprecedented water shortage. Agitated with not receiving proper water supply for eight straight days, even as mercury mockingly soars, locals in Shimla are pleading tourists to "not come here" and "select other destination" for their summer vacation.

The parched Shimla is slowly getting hesitant to host tourists it had willingly accommodated in its culture and social fabric till a week ago. Messages like "There is no water for us, please do not come here and select some other destination," are being sent out and tourists are advised to hold their travel plans. Hotels are cancelling bookings and refunding the entire amount in some cases, because managing daily water requirements for them is too expensive, with many shelling about Rs 15,000 everyday to buy water from private tankers. Tourists already there are advised to use less water.

'Washing is a privilege': life on the frontline of India's water crisis

By 2030 the nation will have access to half the water it needs. The city of Shimla has already run out



THE HINDU

JUST IN 7 37mins Land, livelihood and political gambits 8 53mins Jamel Khashoggi strangled and 'cut into pieces' in Saudi consulate: 9 57mins ICC suspends Sri Lanka bowling coach Zoysa on fixing charges 10 1hr China river barrier breaches, Arunachal sa

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SCI-TECH » ENVIRONMENT

ENVIRONMENT

India faces worst water crisis: NITI Aayog

Jacob Koshy

NEW DELHI, JUNE 14, 2018 22:17 IST
UPDATED: JUNE 14, 2018 22:12 IST

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India is suffering from 'the worst water crisis' in its history with about 60 crore people facing high to extreme water stress and about two lakh people dying every year due to inadequate access to safe water, Niti Aayog said in a report today.

The report, titled 'Composite Water Management Index' released by Minister for Water Resources Nitin Gadkari, further said the crisis is only going to get worse.

"By 2030, the country's water demand is projected to be twice the available supply, implying severe water scarcity for hundreds of millions of people and an eventual 6 per cent loss in the country's GDP," the report noted.

Citing data by independent agencies, the report pointed out that with nearly 70 per cent of water being contaminated, India is placed at 120th amongst 122 countries in the water quality index.

"Currently, 600 million Indians face high to extreme water stress and about two lakh people die every year due to inadequate access to safe water," Niti Aayog said in the report.

It stressed that there is an imminent need to deepen understanding of water resources and usage.

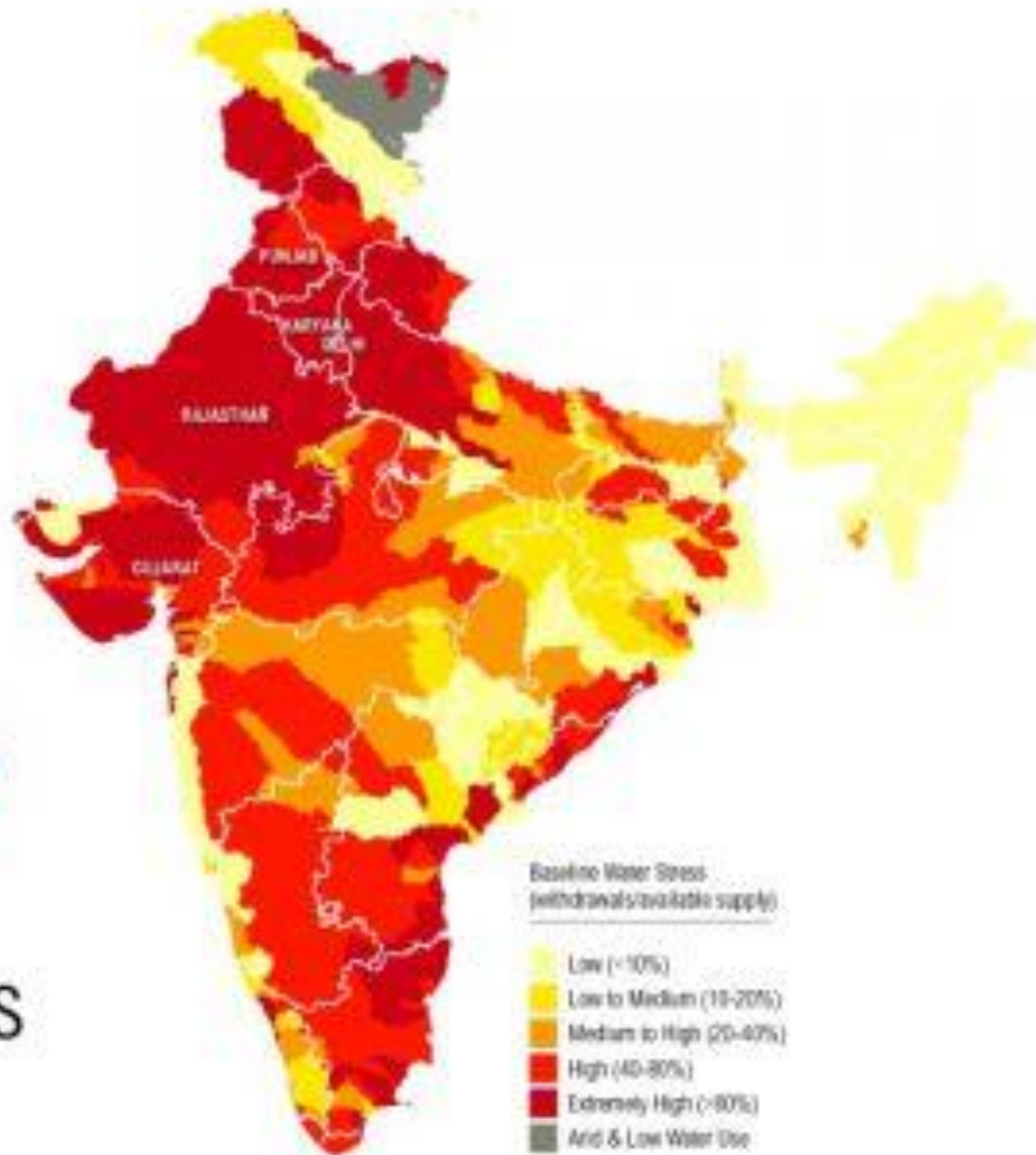
54%

of India

Faces

**High to
Extremely
High**

Water Stress



A new satellite early warning system showed shrinking reservoirs in India, Morocco, Iraq and Spain that could potentially spark the next "day zero" water crisis.

Pakistan (Population: 182M)

Wells near Islamabad are falling three to six feet per year. Near the city of Quetta, they are falling 11 feet per year.

India (Population: 1.2B)

In North Gujarat, water tables are falling 20 feet per year.



India (Population: 1.2B)
In Tamil Nadu, 95% of wells supplying small farmers have dried up.

Gujarat, India

India faces a severe groundwater crisis, and 16.6 million acres of land have been lost to salinization

Gujarat, India



Seena River, Maharashtra, India

2013

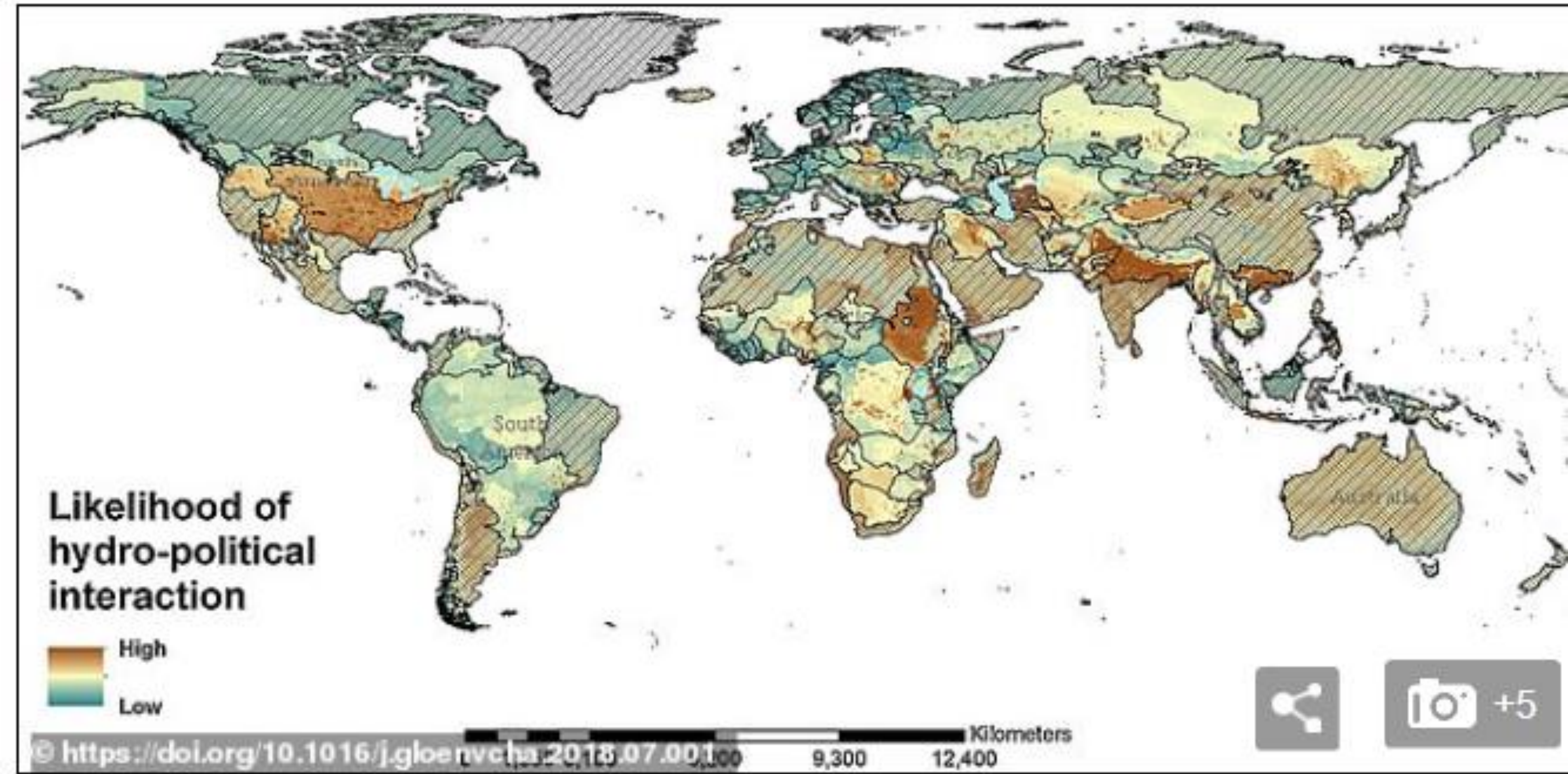


**In 2013, Maharashtra state
suffered its worst drought
in more than four decades**

Maharashtra State, India

May 10, 2016

Thousands of farmers have committed suicide across the country. The situation is worst in drought prone Maharashtra.



Researchers used machine learning to identify 'pre-conditions and factors' that might lead to depleting water resources, particularly areas that contain water shared by bordering nations

A team of scientists from the European Commission's Joint Research Center (JRC) used a novel machine learning method to identify 'pre-conditions and factors' that might lead to depleting water resources in certain areas, particularly those that contain water sources shared by bordering nations.

They also determined that the two dominant factors leading to 'hydro-political issues' are climate change and increasing population density.

While water scarcity isn't the only trigger for warfare, it's a major contributor.

'Competition over limited water resources is one of the main concerns for the coming decades,' the scientists explained.

'Although water issues alone have not been the sole trigger for warfare in the past, tensions over freshwater management and use represent one of the main concerns in political relations between riparian states and may exacerbate existing tensions, increase regional instability and social unrest.'

WHAT ARE THE HOTSPOTS FOR FUTURE 'WATER WARS?'

Researchers said the areas most likely to be hit by 'hydro-political' issues are those with already stressed water basins.

This includes the Nile, Ganges-Brahmaputra, Indus, Tigris-Euphrates and Colorado rivers.

They believe water-related conflict or cooperation is likely to develop in the next 50 to 100 years as a result of climate change and population growth.





**Assam most
vulnerable to climate
change in Indian
Himalayan Region,
says study**

**CLIMATE VULNERABILITY ASSESSMENT FOR THE INDIAN HIMALAYAN REGION
USING A COMMON FRAMEWORK**

**Dhubri, Goalpara, Barpeta
and Morigaon are highly at
risk**

COP24•KATOWICE

UNITED NATIONS CLIMATE CHANGE CONFERENCE

POLAND 2018

**Among Himalayan states,
Assam and Mizoram face
the biggest climate threat**



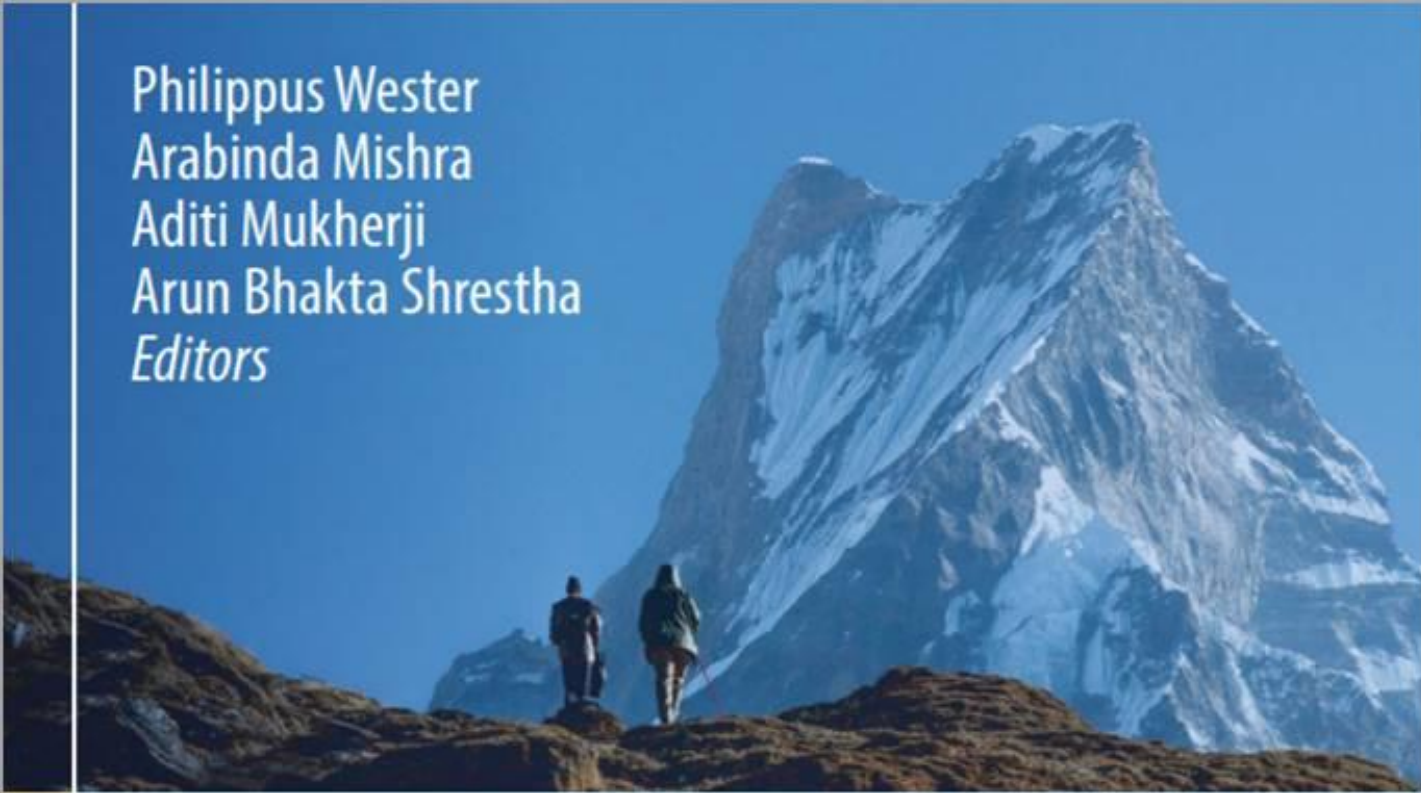
**Assam and Mizoram are the most
vulnerable to climate change among the
Himalayan states, according to a study
presented by a team of Indian scientists
at the COP 24 climate conference being
held in Katowice**



COP24•KATOWICE
UNITED NATIONS CLIMATE CHANGE CONFERENCE
POLAND 2018



Philippus Wester
Arabinda Mishra
Aditi Mukherji
Arun Bhakta Shrestha
Editors



The Hindu Kush Himalaya Assessment

Mountains, Climate Change,
Sustainability and People

ICIMOD HIMAP

 Springer Open

This report has received much media attention due to its alarming scientific findings of glaciers melting on the Hindu Kush Himalayan region, which would in turn would impact the overall water, energy, and food security in the region.

Glaciers on the Tibetan plateau play a key role in supplying perennial water for many countries. But there is a growing concern about the impact of glaciers melting on the Tibetan plateau and the availability of water in the region.

More than a third of the glaciers in the Hindu Kush Himalayan (HKH) mountain range, the "water tower" of Asia, will vanish by the end of this century even if global warming is contained at 1.50°C in the best case scenario, warns a report compiled by 210 experts.

The findings are particularly dire for India's northeastern region. The study says the eastern Himalayas could face a near-total loss of glaciers, around 95%, if global warming goes unchecked. Even in the best scenario (of 1.50°C warming), the region is likely to lose 64% of its glaciers by year 2100, it says.

The glaciers in the HKH region, spanning eight countries from Afghanistan to Myanmar, have the biggest store of ice outside the poles. The region, sometimes referred to as the "third pole", supplies water to nearly 2 billion people.

Allahabad, India

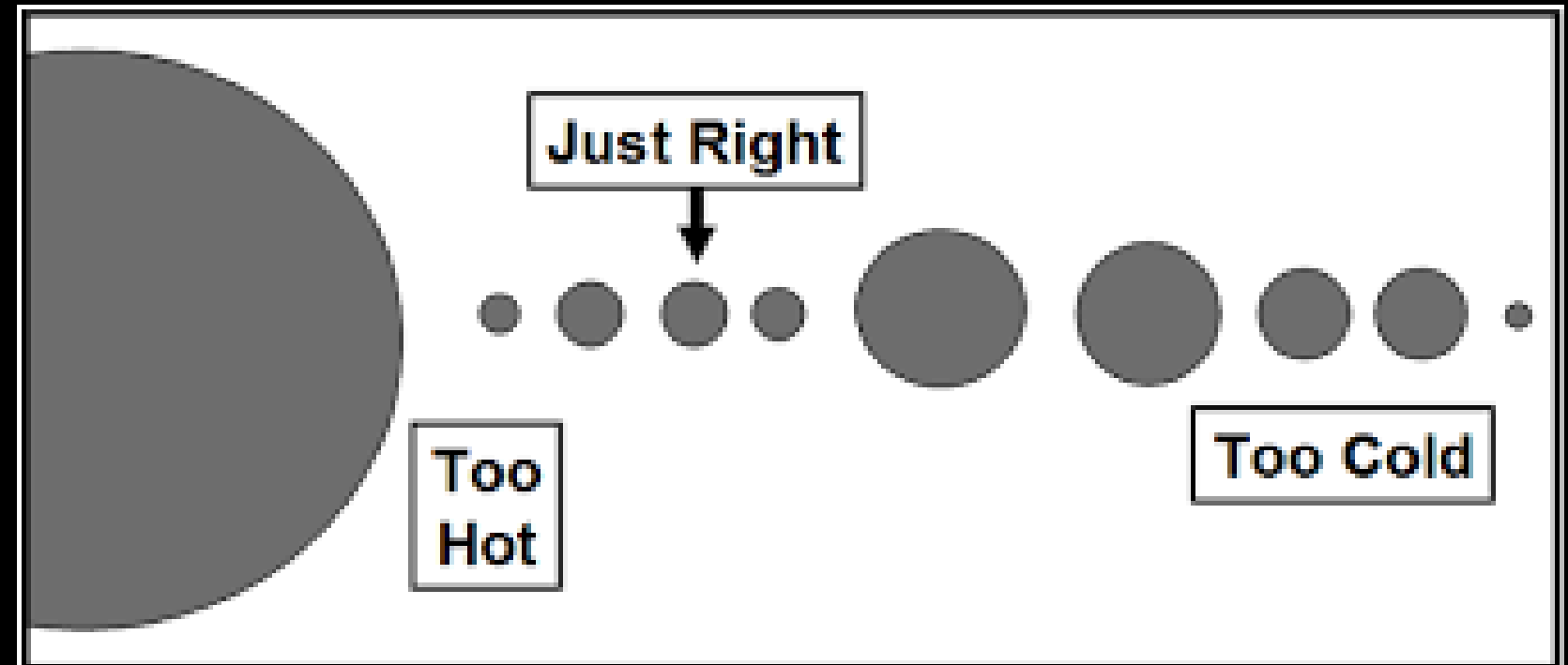
June 2, 2019



Even small changes in average temperatures can have a significant effect upon ecosystems.

To estimate the effect of climate change on species, scientists use what they call a climatic envelope (sometimes also referred to as a bioclimatic envelope), which is the range of temperatures, rainfall and other climate-related parameters in which a species currently exists.

Goldilocks principle



Venus



Earth



Mars

Carbon Dioxide (CO ₂)	96.5%	0.03%	95%
Nitrogen (N ₂)	3.5%	78%	2.7%
Oxygen (O ₂)	Trace	21%	0.13%
Argon (Ar)	0.007%	0.9%	1.6%
Methane (CH ₄)	0	0.002%	0

In many cases, however, such migration might not be possible because of unfavourable environmental parameters, geographical or human-made barriers and competition from species already in an area.

Apex predators like the tiger are especially vulnerable to climate change due to the lack of alternative suitable habitats for them to migrate.

Precipitation change could change the nature of the remaining tiger habitats in India and make them less suitable for its future survival.

A deficit in soil moisture due to less rainfall could increase tree mortality in the deciduous forest habitat and trigger a shift towards open tropical dry forests, which are considered to be less productive for tigers.



Rhinos are beginning to feel the effects of climate change and drought.



For the one-horned rhino, found on the floodplains in Assam and Nepal, disruption to the annual monsoon rain could deplete the grasslands and impact its future survival.

The Sumatran rhino is at risk of fire as dry seasons get longer and forests and peatland become prone to fires.

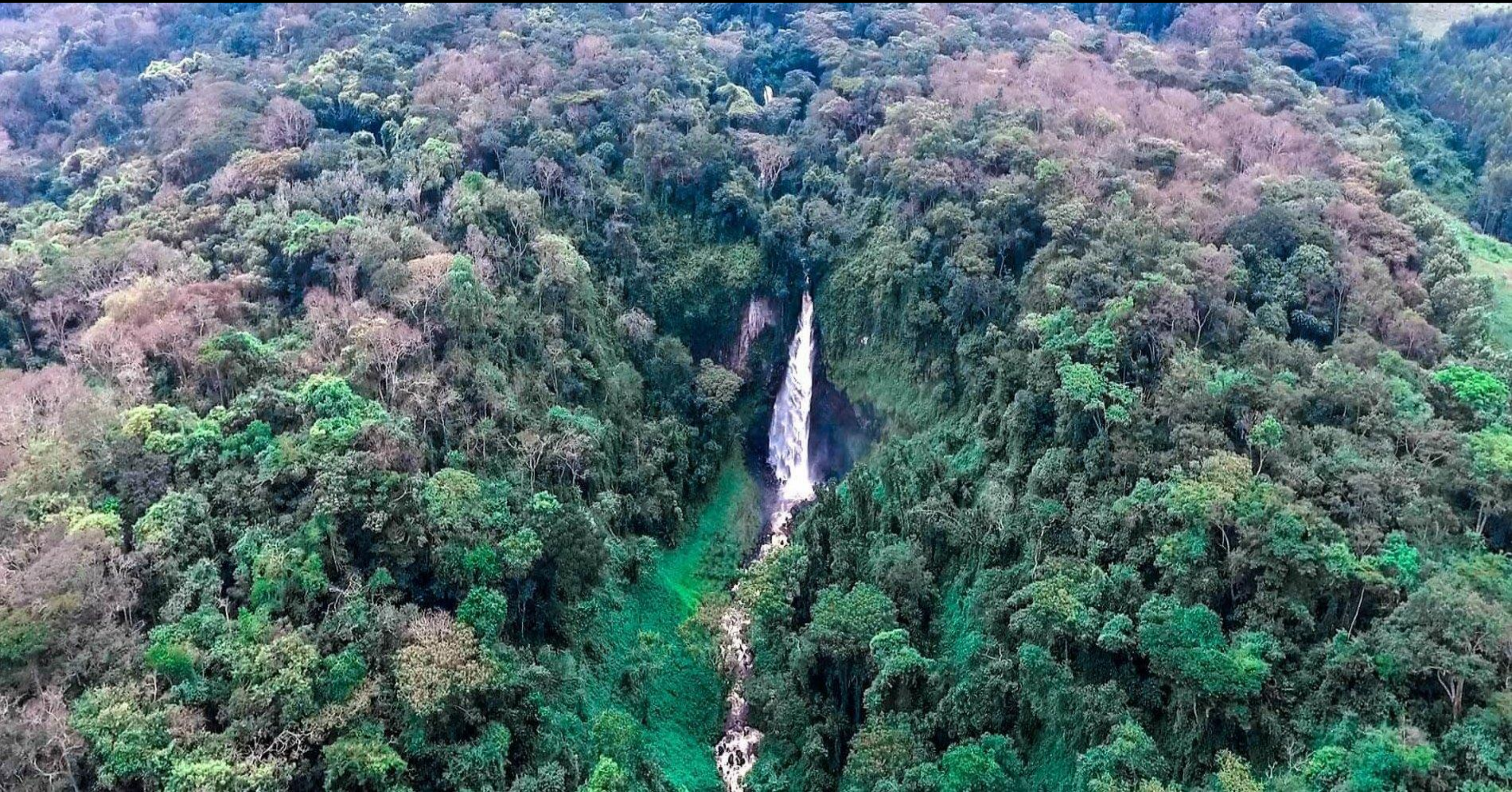
Elephants are very sensitive to high temperatures and make them susceptible to disease.



Asian elephants also have a low adaptive capacity due to a limited dispersal ability as most of its habitat is fragmented, slow reproductive rates and only moderate amounts of genetic variation within the species.

Of most concern for elephants is their need for high amounts of fresh water and the influence this has on their daily activities, reproduction and migration.

Huge vegetation change could affect Earth



BIODIVERSITY IMPACTS OF CLIMATE CHANGE





“Amphibians have been around for about 250 million years. They made it through when the dinosaurs didn’t. The fact that they’re cutting out now should be a lesson.”

David Wake

University of California, Berkeley

**We now risk
losing up to
50% of all
land-based
species
in this century**



The background of the slide is an underwater scene with blue water and light rays filtering down from the surface.

The world's oceans are now
30% more acidic,
on average, than they were
before the industrial revolution.

Bleached Coral, Great Barrier Reef



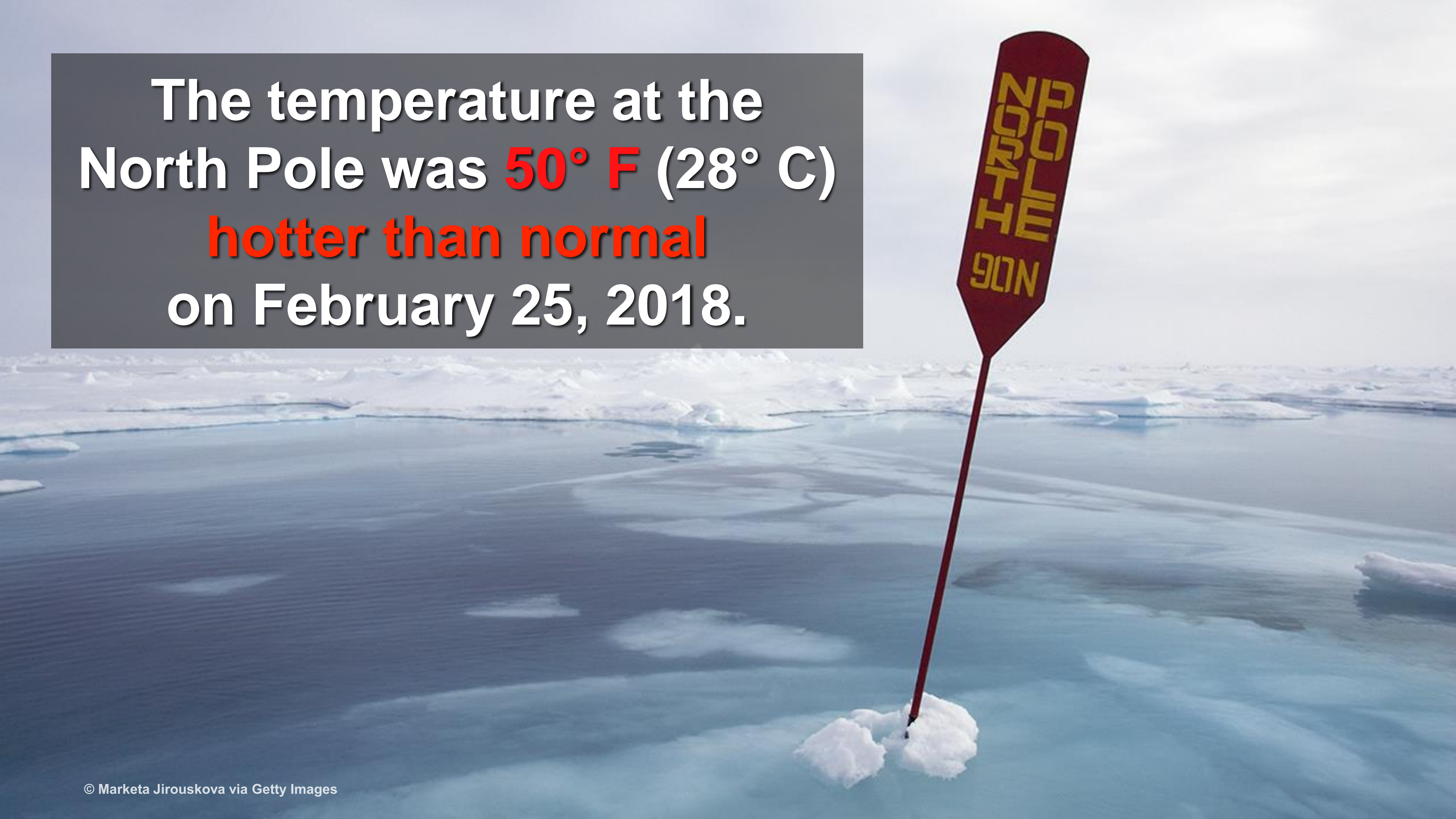
The Great Barrier Reef has lost half its coral cover in the last 30 years—and 30% just since 2016.

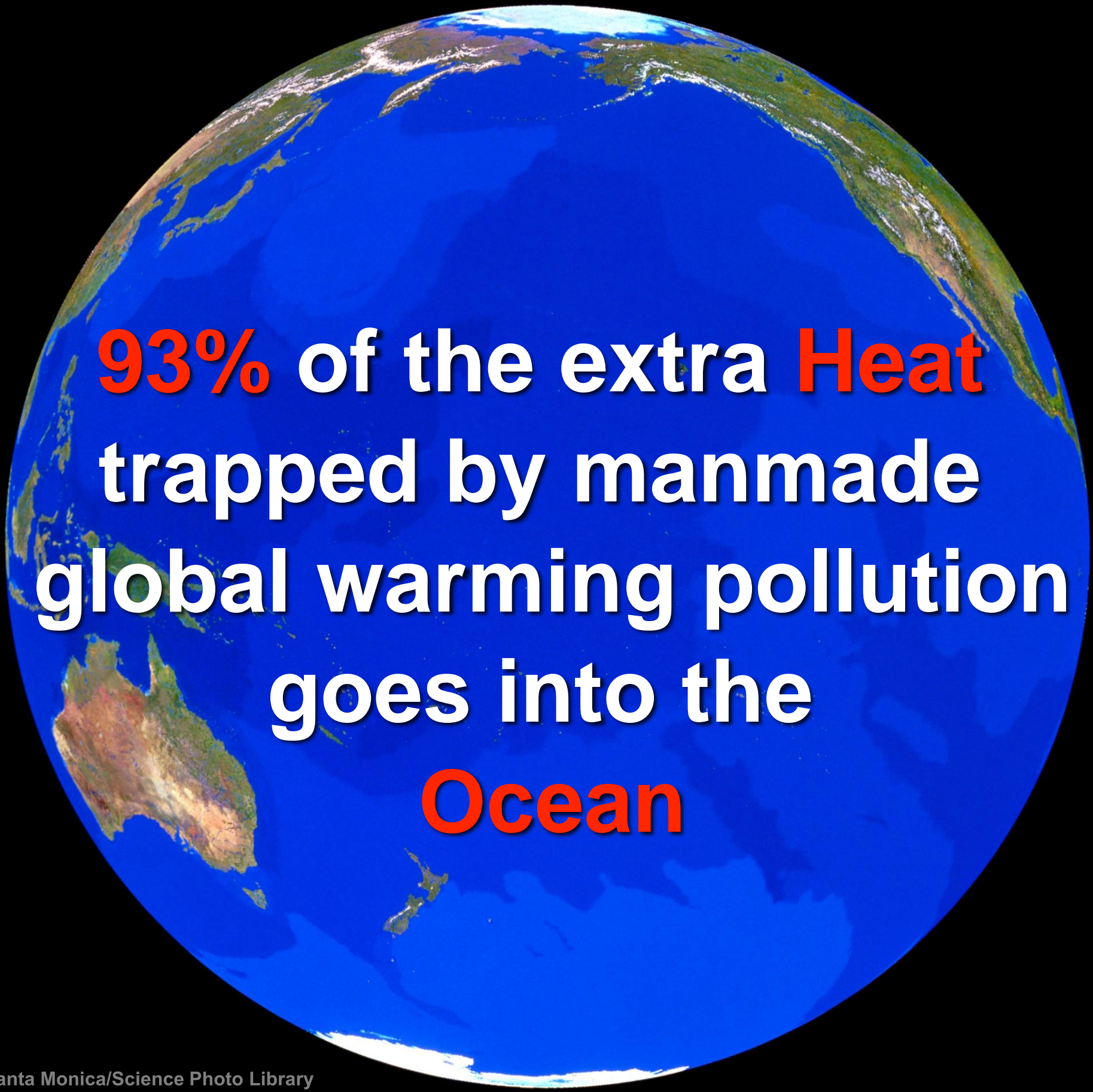


**Populations of marine vertebrates declined
49% on average from 1970 to 2012.**



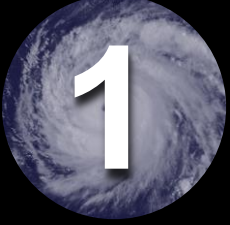

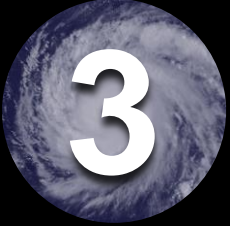
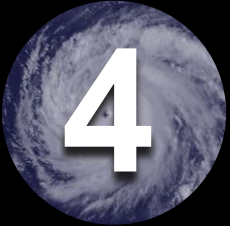
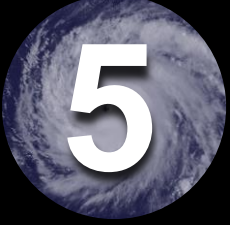
The temperature at the
North Pole was **50° F** (28° C)
hotter than normal
on February 25, 2018.

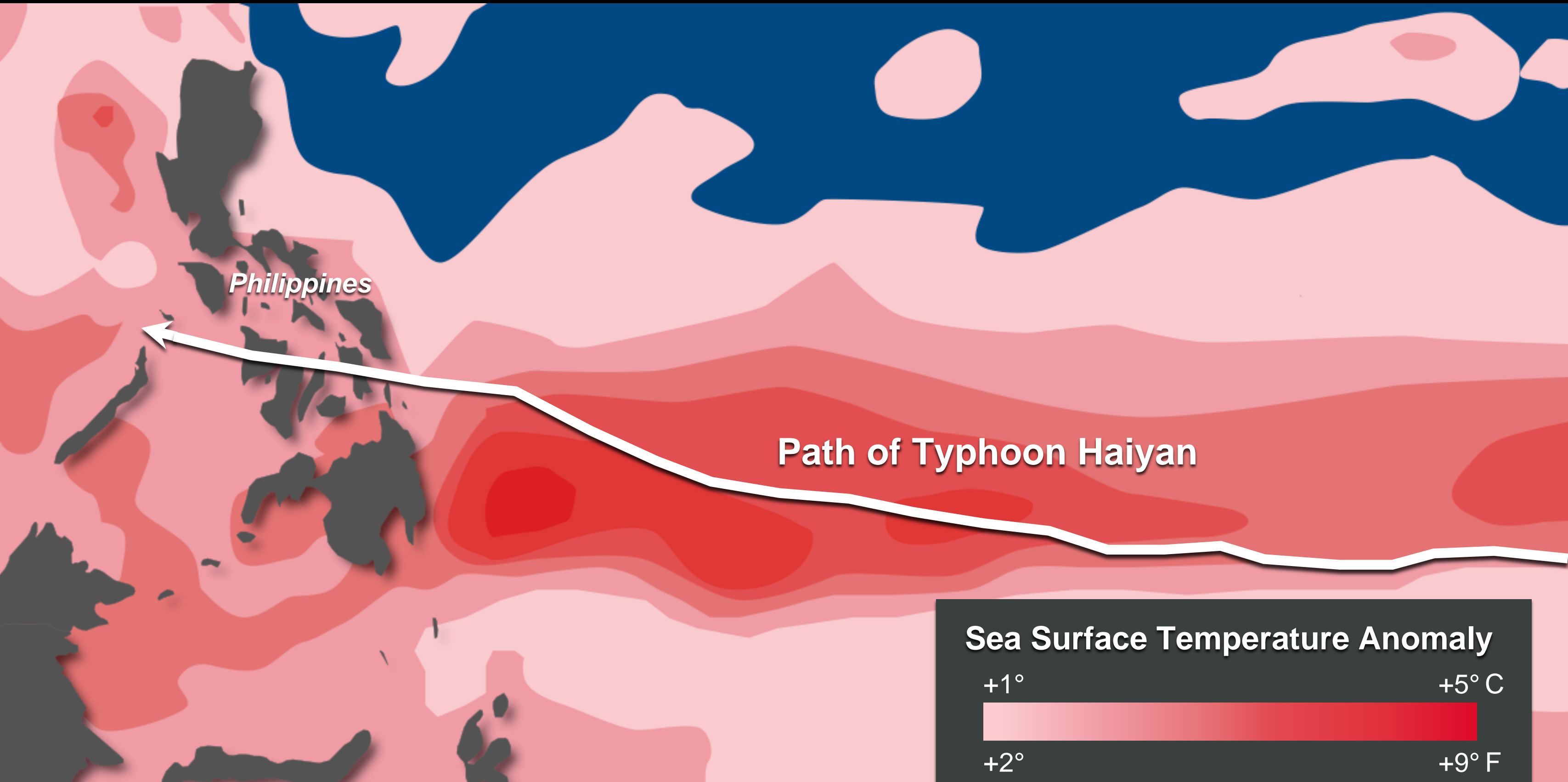




93% of the extra **Heat**
trapped by manmade
global warming pollution
goes into the
Ocean

How Does the Climate Crisis Impact Hurricanes?

-  **1 Warmer oceans lead to more intense hurricanes**
-  **2 Hurricanes intensify much more rapidly**
-  **3 Warmer air holds more moisture, leading to heavier downpours**
-  **4 Storm surge increases due to sea level rise**
-  **5 A “wavier” jet stream can hold storms in place longer**



With **each additional 1° (C)** of
Temperature, there is **an additional 5%** more water
vapor over the city cycle. **It holds** that there
is **at least only 30 years** of water supply
increases by 7%

So the downpours get bigger



**Globally, floods and
extreme rainfall events
now occur
four times more often
than in 1980.**

**Economic losses
from extreme weather
totaled \$653 billion over the
past two years alone.**

The 2006 – 2010 drought
turned **60%** of Syria's
fertile land into desert

...and drove
1.5 million people
into Syria's
already crowded cities



Tovarnik, Croatia

September 20, 2015

**“In future, the climate in large parts of
the Middle East and North Africa
could... render some regions
uninhabitable,
which will surely contribute to
the pressure to migrate.”**

Jos Lelieveld

The Max Planck Institute for Chemistry

May 2016

The **heat index** in
Bandar Mahshahr, Iran reached
165° F
(74° C) on July 31, 2015

**The world could see up to
1 billion climate migrants.**

The Lancet Countdown Report 2018



In India, Summer Heat May Soon Be Literally Unbearable

By Somini Sengupta

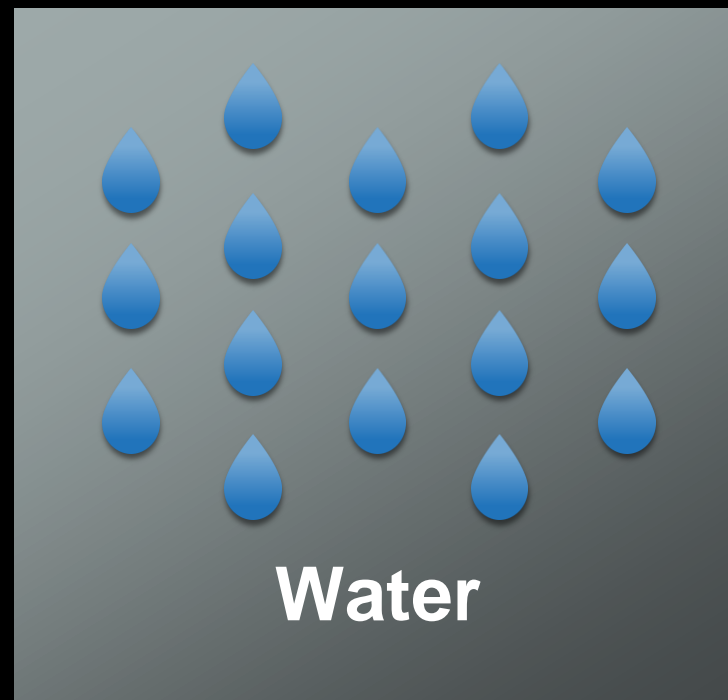
July 17, 2018



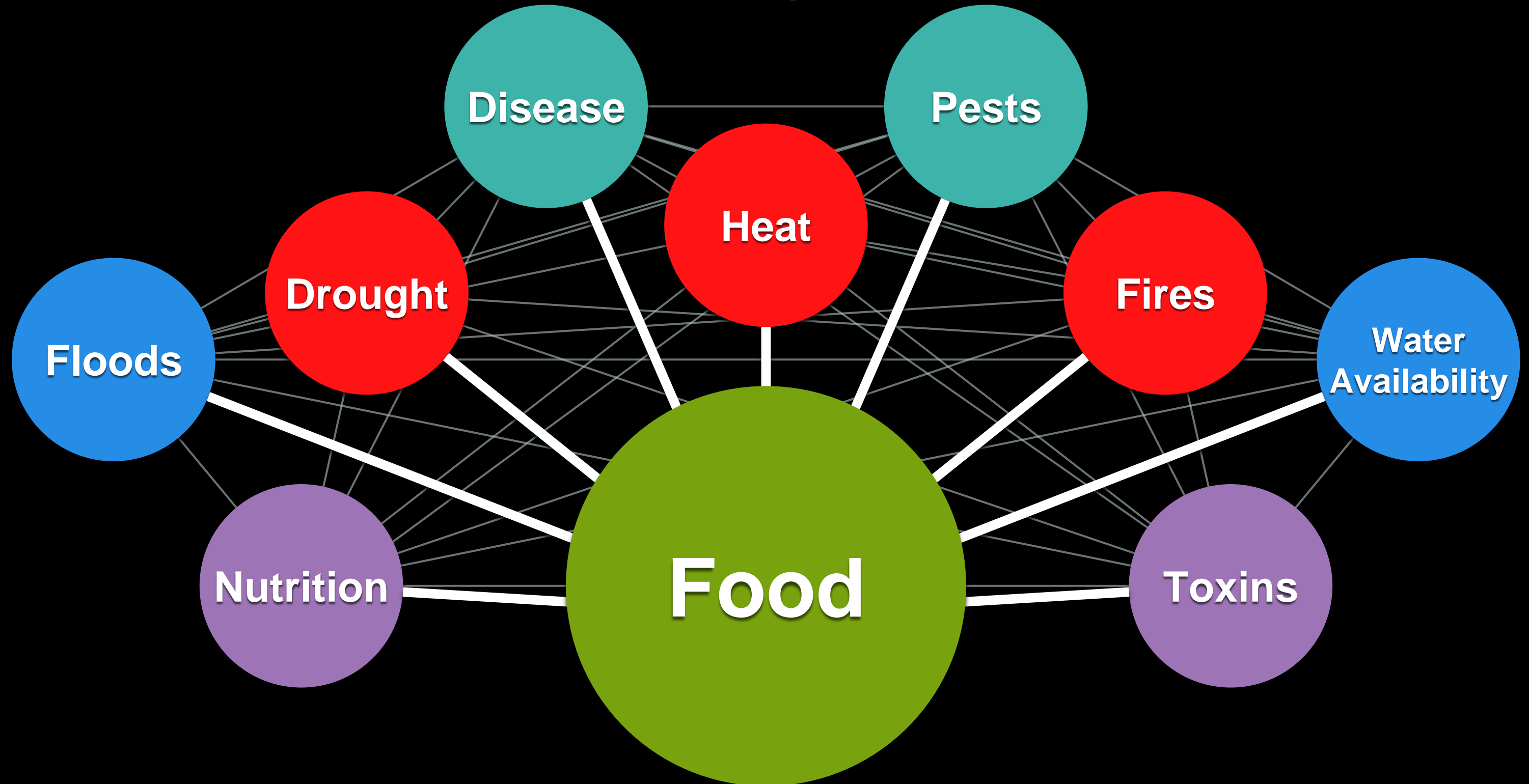
198

Global Systems Vulnerable to Climate

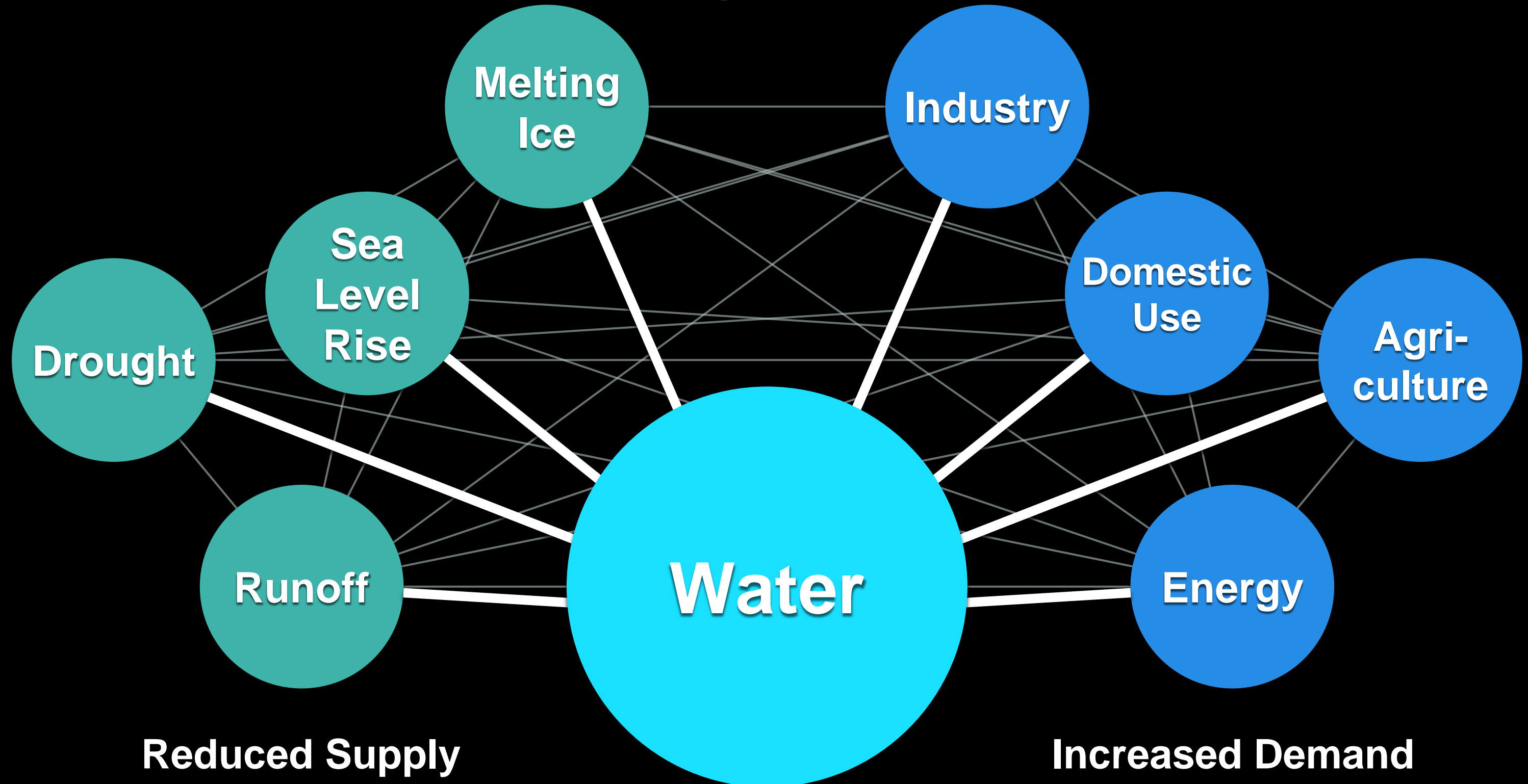
Disruptions May Lead to Political or Societal Instability



How Does Climate Change Affect Food Supply?



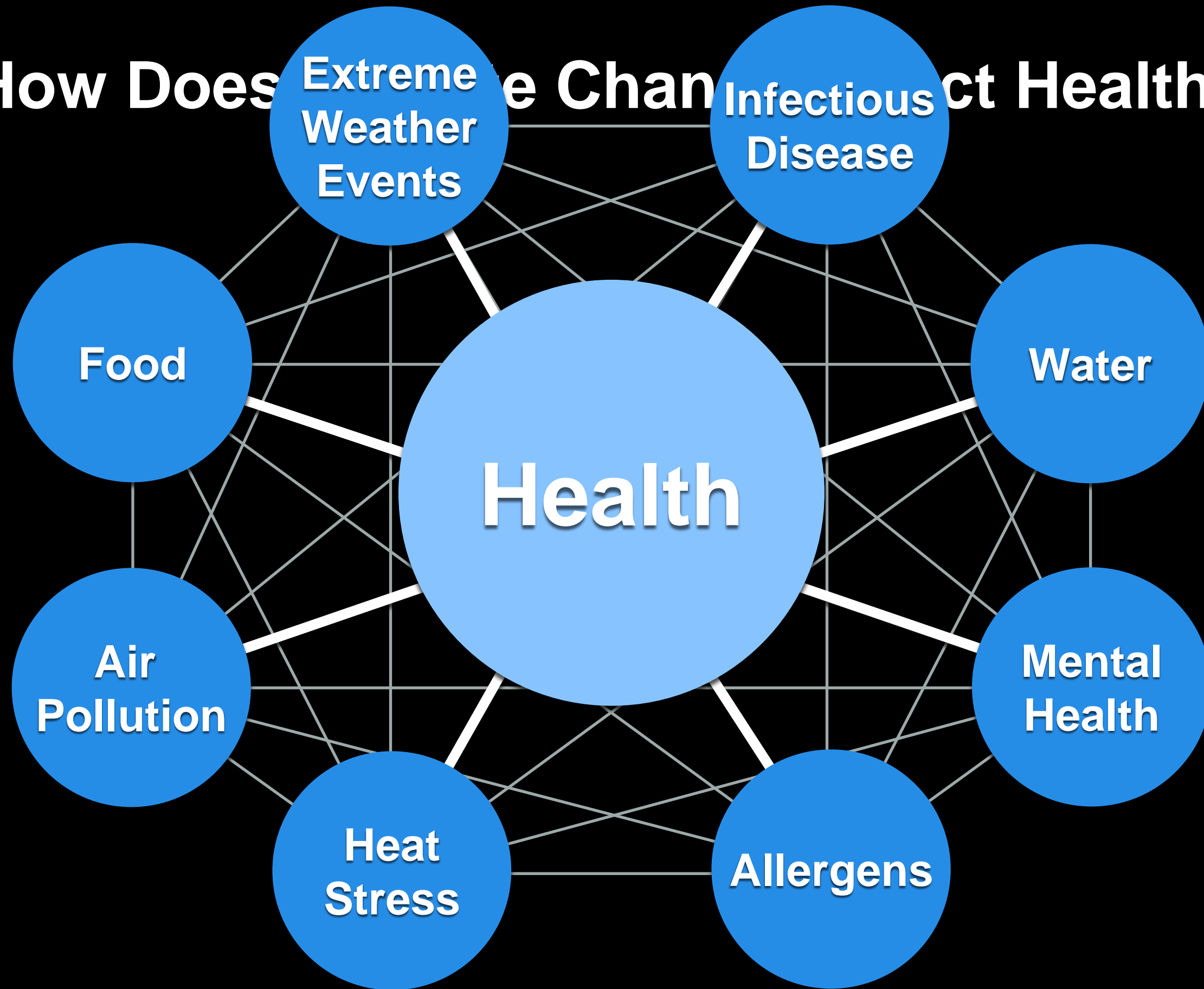
How Does Climate Change Affect Water Availability?



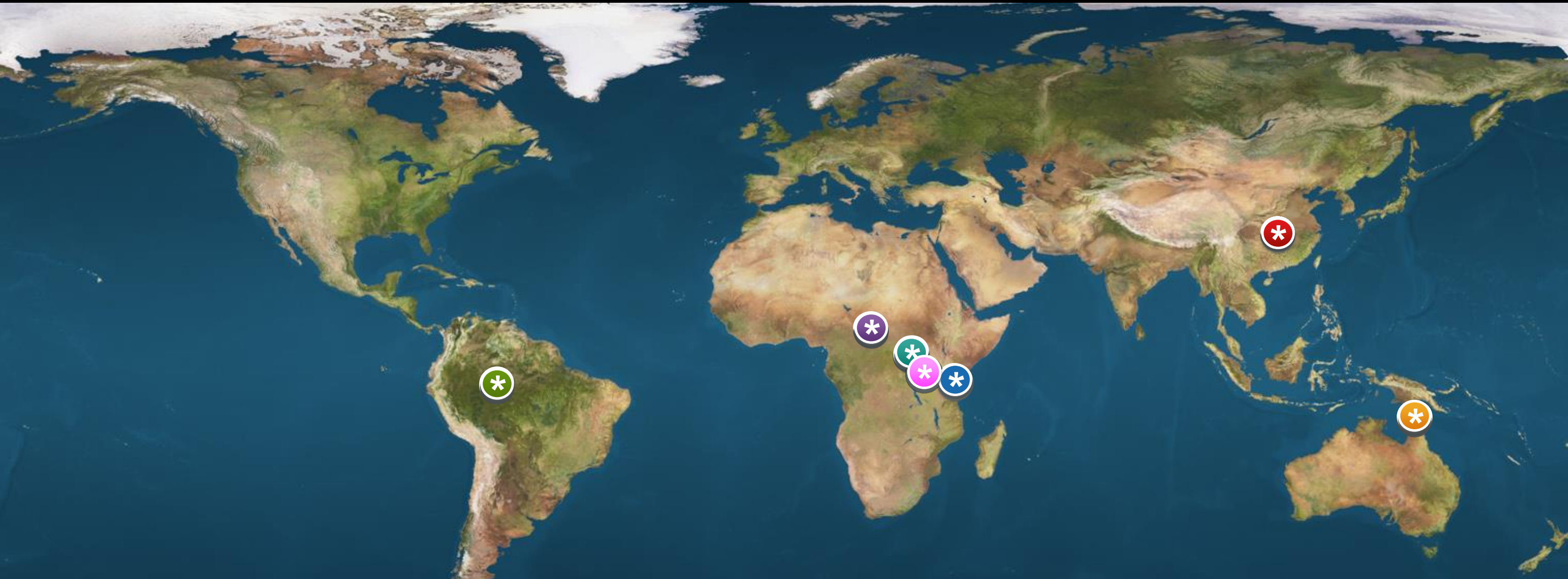
“Climate change is the biggest global health threat of the 21st century.”

**The 2018 Report of the Lancet Countdown
on Health and Climate Change**

How Does Climate Change Affect Health?



Tropical Diseases on the Move



West Nile Virus



Chikungunya



Cryptococcus Gattii Fungus



Zika Virus



Rift Valley Fever



Chagas Disease



Dengue Fever

**We have
the solutions
at hand...**

Green Energy Progress

How Do Projections Compare With Reality?

2000 Projection

**Worldwide
wind capacity
will reach 30
GW by 2010**

Reality

**By 2018 that goal
was exceeded by
a factor of**

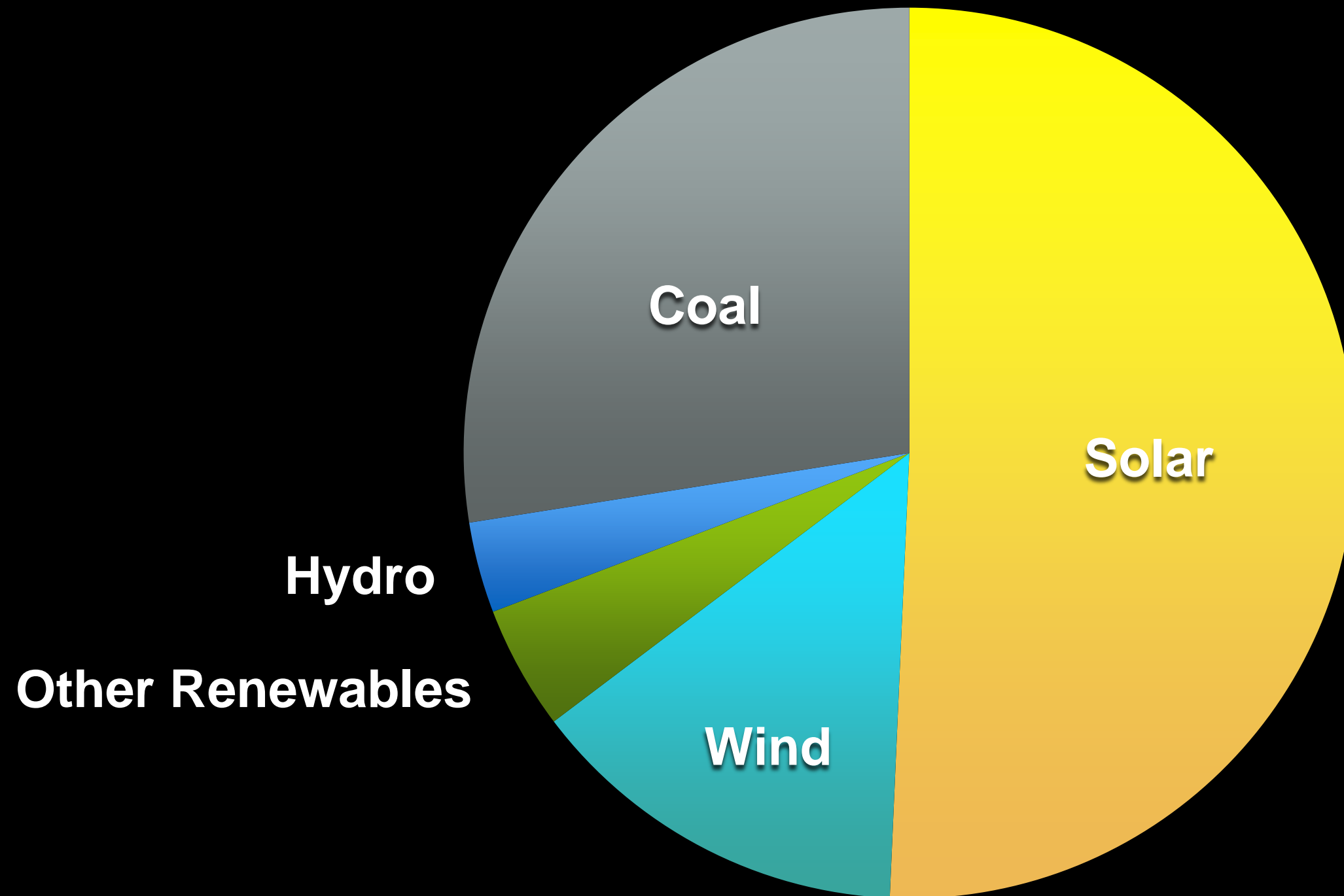
20 x

“Today more than two-thirds of the global population lives in countries where solar and wind are the cheapest sources of new bulk generation.”

Bloomberg New Energy Finance
New Energy Outlook 2019

**Globally, wind could supply
worldwide electricity consumption
40 times over**

New Electricity Capacity in India, 2018



65% of new capacity was from solar and wind.

Renewable Energy in India

Installed Capacity (GW)

62.5

50.0

37.5

25.0

12.5

0.0

62.5

50.0

37.5

25.0

12.5

0.0

2013

2015

2017

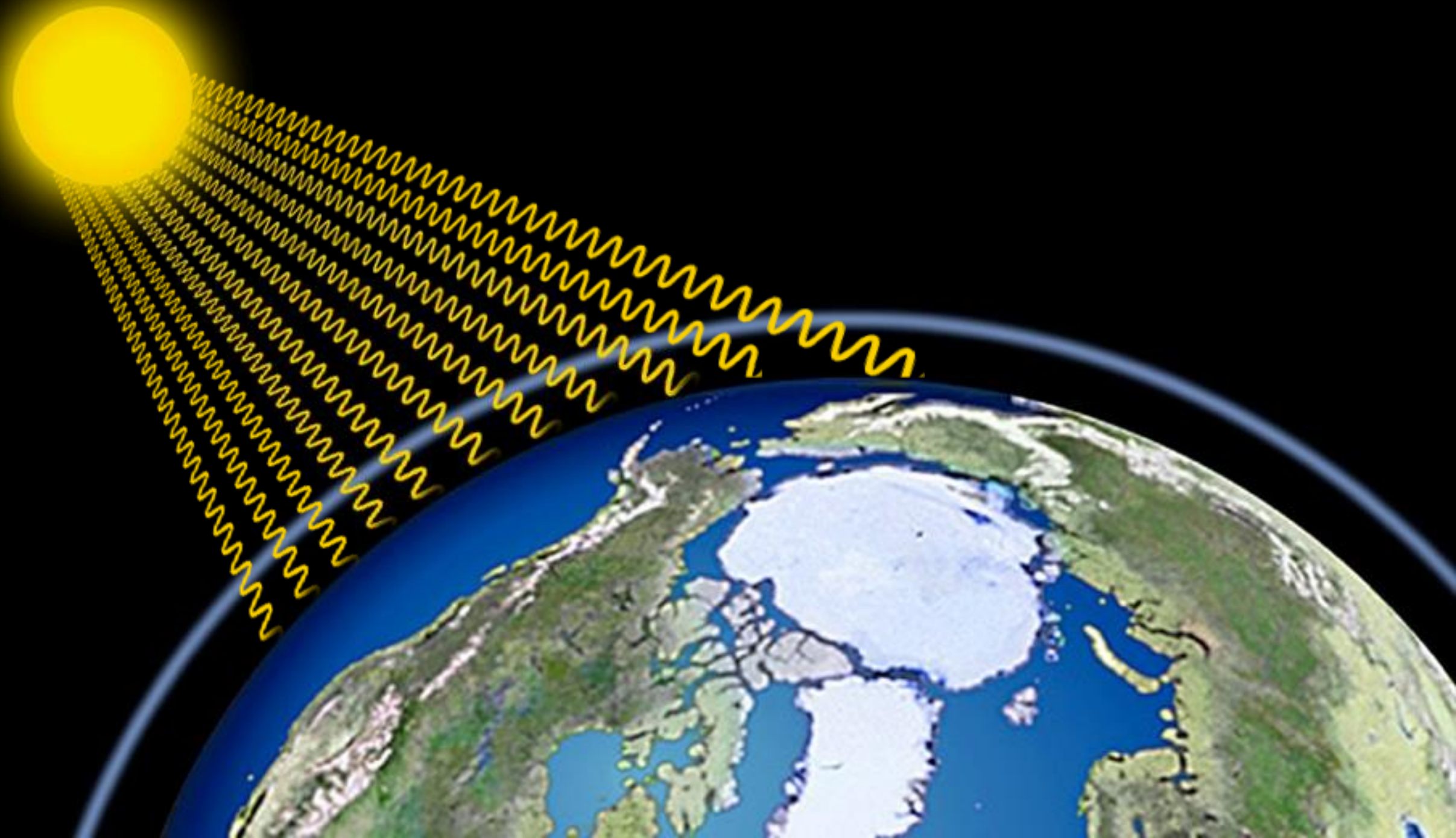
2022

Data: 2017 India's
Ministry of New
and Renewable
Energy (MNRE)

**In July 2018, India received
bids for solar power at
2.44 rupees per kilowatt-hour.**

**This is 24% lower than the average
cost for coal-fired electricity in India.**

Enough solar energy reaches Earth **every hour**
to fill all the world's energy needs **for a full year**



[News](#) » [Auto](#) » [Miscellaneous](#) » India aiming for all-electric car fleet by 2030, petrol and diesel to be tanked

India aiming for all-electric car fleet by 2030, petrol and diesel to be tanked

PTI | Updated: Apr 30, 2017, 06.26 PM IST



A-

A+

Countries Planning a Fossil Fuel Vehicle Phase-Out:

[illegible]

Auto Manufacturers Are Moving to Electric Vehicles

Companies with Electric Models in Production

Aixam	Chevy	GM	Mercedes-Benz	\$mart
Aston Martin	Citroën	Goupil	Mitsubishi	Subaru
Audi	Citydom GmbH	Honda	Mullen	Tata
BAIC	CODA	Hyundai	NIO	Tesla
BMW	Daimler	JAC	Nissan	Toyota
Bolloré	Exagon	Kandi	Opel	Trumpchi
Buddy Electric	Fiat	Kantanka	Peugeot	Venturi
BYD	Fisker	Kia	Qiantu	Volkswagen
ChangAn	Ford	Kyburz	Rayttle	Zotye
Chery	Geely	Mahindra	Renault	

27 cities have committed to buying only zero-emissions buses starting in 2025:

Auckland Barcelona Birmingham Cape Town Copenhagen
Heidelberg Honolulu London Los Angeles Manchester
Medellin Oslo Oxford Mexico City Milan Paris
Quito Rotterdam Rome Santa Monica Santiago Seattle
Seoul Tokyo Vancouver Warsaw West Hollywood

Shanghai and Shenzhen, China are already buying only electric buses.

Globally, **11 million** people work directly or indirectly in the renewable energy sector.



A photograph of a wind turbine technician standing on a large white blade. The technician is wearing a white hard hat, a dark jacket, blue jeans, and brown boots. They are positioned on a narrow walkway or platform on the blade. The blade itself is massive and tapers towards the tip. In the background, a vast, flat, open landscape stretches to the horizon under a clear sky. Several other wind turbines are visible in the distance, indicating a wind farm. The overall scene conveys a sense of scale and industrial activity in a natural setting.

“Solar installer”
is forecast to be the
fastest-growing job
category in the U.S.
through 2026, and
**“wind turbine service
technician” is second.**

*Colorado Highlands Wind Farm,
Fleming, Colorado*

A nighttime photograph of the Eiffel Tower in Paris, France, illuminated with golden lights. The tower stands prominently on the left side of the frame. In the foreground, the Seine River flows, with a bridge and several boats visible. The city lights and the Parisian skyline are visible in the background under a dark blue sky.

In the 2015 Paris Agreement,
every nation in the world agreed
to work together to achieve net zero
greenhouse gas emissions by mid-century.

The U.S. cannot legally
withdraw until the day after
the 2020 Presidential election.



Over 180 global companies have made
a commitment to go 100% renewable

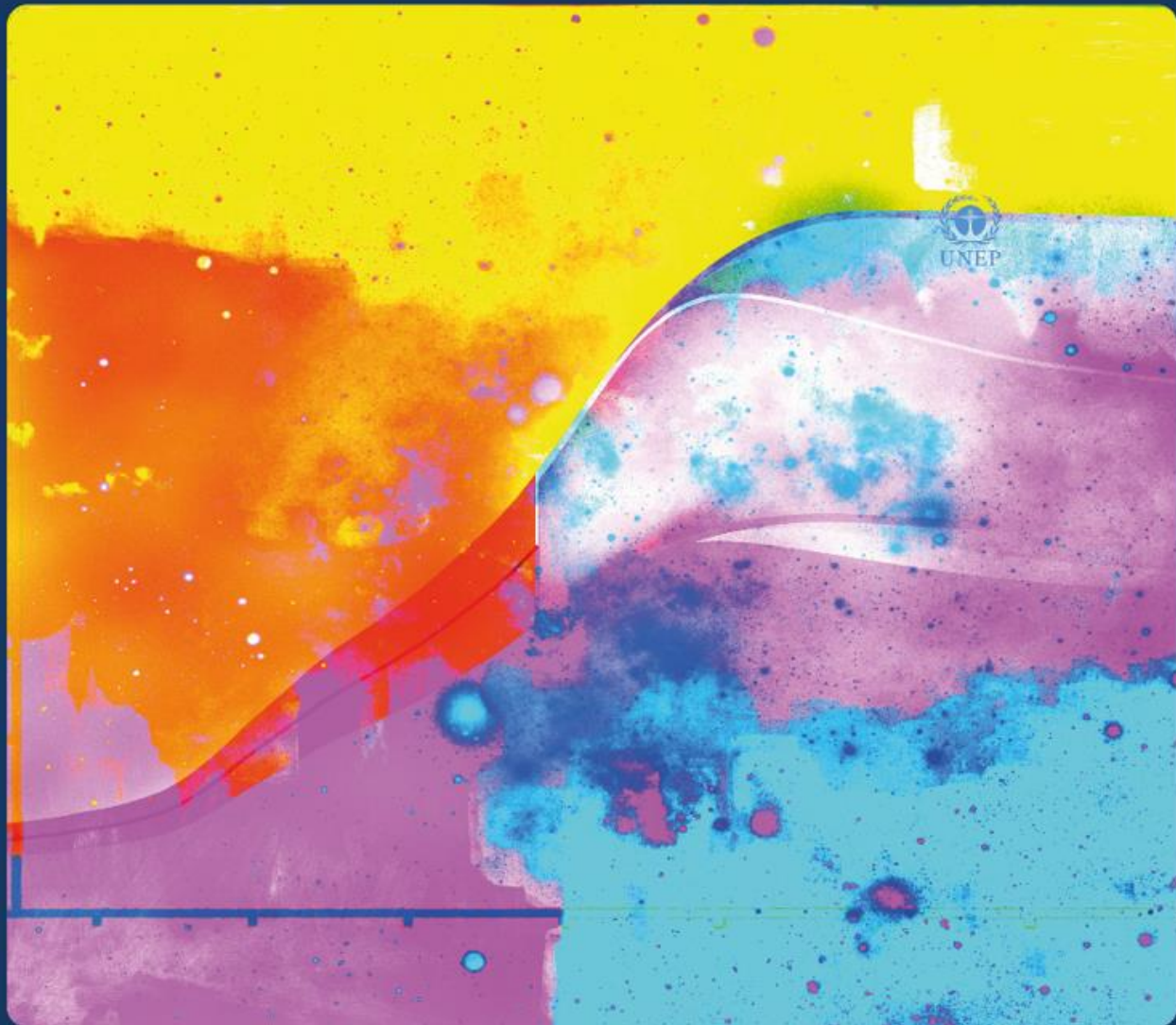
Gujarat, India

China and India
are **both on track** to
overachieve
their Paris
commitments.



Global Warming of 1.5°C

An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.



'12 Years to Act on Climate Change' (Now 11 Years)

The number began drawing attention in 2018, when the United Nations' Intergovernmental Panel on Climate Change released a report describing what it would take to keep global temperatures from rising more than 1.5 degrees Celsius, a goal of the Paris climate agreement.

The report explained that countries would have to cut their anthropogenic carbon dioxide emissions, such as from power plants and vehicles, to net zero by around 2050.

To reach that goal, it said, CO2 emissions would have to start dropping "well before 2030" and be on a path to fall by about 45 percent by around 2030 (12 years away at that time).



SKOLSTREJK
FÖR
KLIMATET



There is no Planet B!

There is no Planet B!

There is no Planet B!

THERE'S NO PLANET B

We will go to Mars if you keep the planet

DAS IST LETZTE CHANCE

Change the SYSTEM not the CLIMATE!

the climate is CHANGING why aren't WE?

I believe more in

WE HAVE TO ACT

PLANET PROFIT

GRÜNER IST BESSER

FUTURE ACTION

PIZZA!

MAKE GREAT AGAIN

KLIMAHANDEL

University of

A high-angle, wide shot of a massive crowd of people gathered for a climate strike. The crowd is dense, filling the lower two-thirds of the frame. Many individuals are holding up handmade signs and banners of various colors and messages. In the background, the dark silhouettes of trees and the upper portion of a large, gothic-style building with arched windows are visible against a bright sky. The overall atmosphere is one of a large-scale public demonstration.

GLOBAL CLIMATE STRIKE

20-27 SEPT



*“The Greatest
threat to the
planet is the
belief that
someone else
will save it”*

- Robert Swan,
OBE



Source: NASA