

Environmental scarcity and change



POLS3033 Environment, Human Security, and Conflict, Week 4

Dr. Richard Frank

Image source: National Geographic (<https://www.nationalgeographic.com/environment/2019/02/antarctic-greenland-ice-melt-less-bad/#>)

2. Living in the Anthropocene



Image source: The Atlantic (<https://www.theatlantic.com/photo/2018/11/camp-fire-ravages-paradise-california/575461/>)





Resource depletion



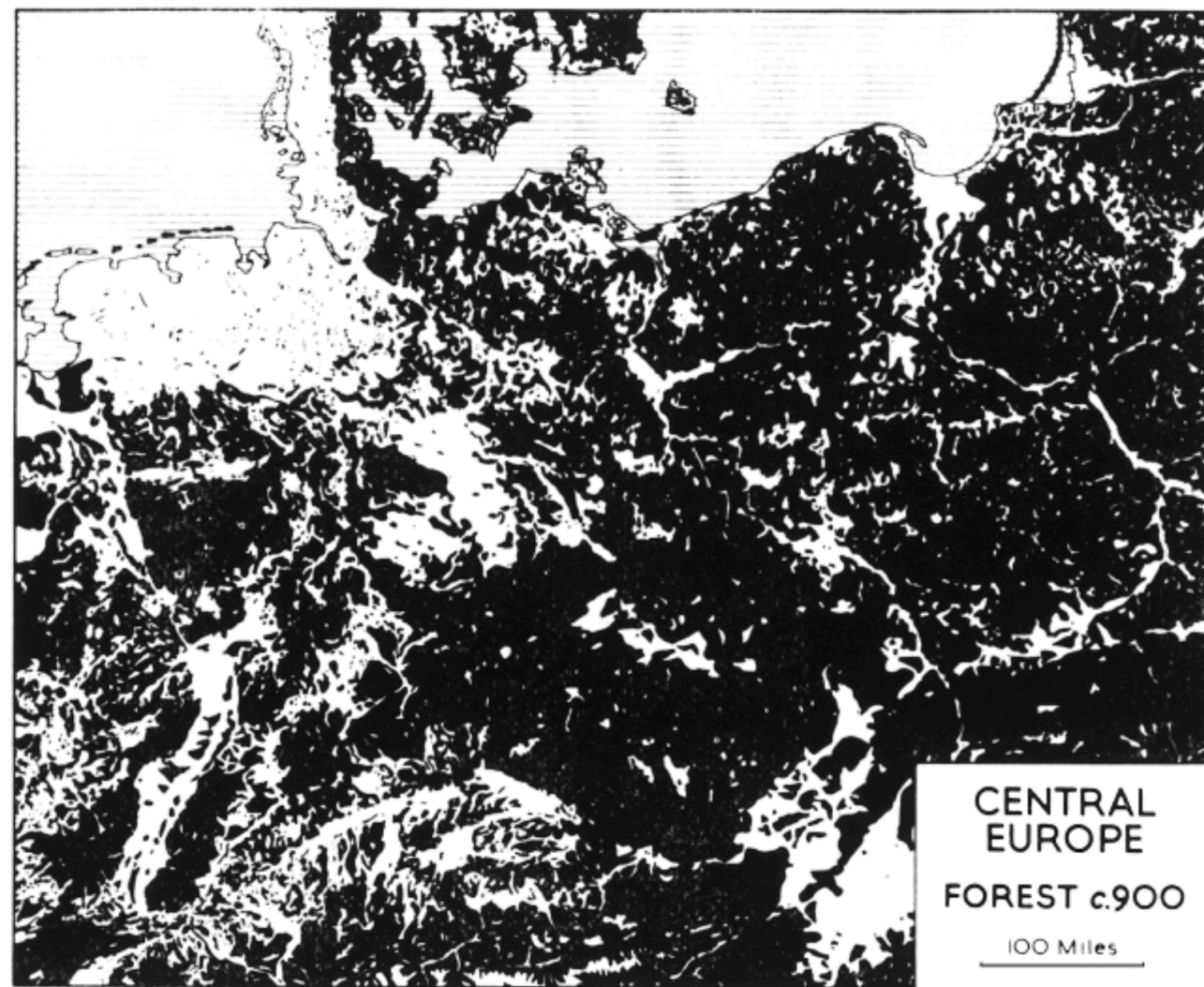


Figure 3. The extent of forest in central Europe, AD 900. Source: H. C. Darby, The clearing of the woodland in Europe, in W. L. Thomas (Ed.), *Man's Role in Changing the Face of the Earth* (Chicago 1956) 98–9, based on O. Schlüter, *Die Siedlungsräume Mitteleuropas in frugeschtlicher Zeit: Part 1—Forschungen zur Deutschen Landeskunde*, Vol. 61 (Hamburg 1952). Reproduced with the permission of Chicago University Press.

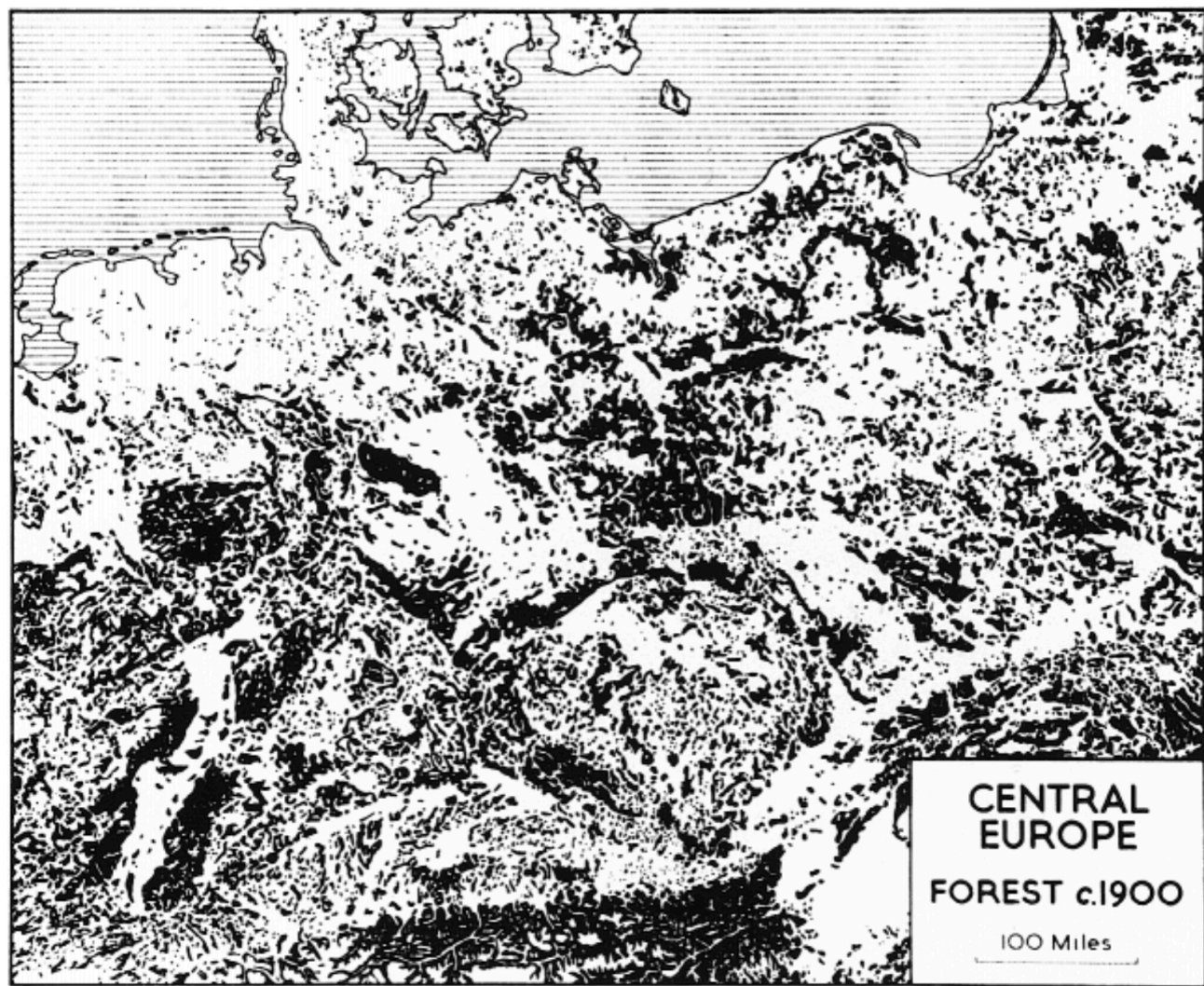

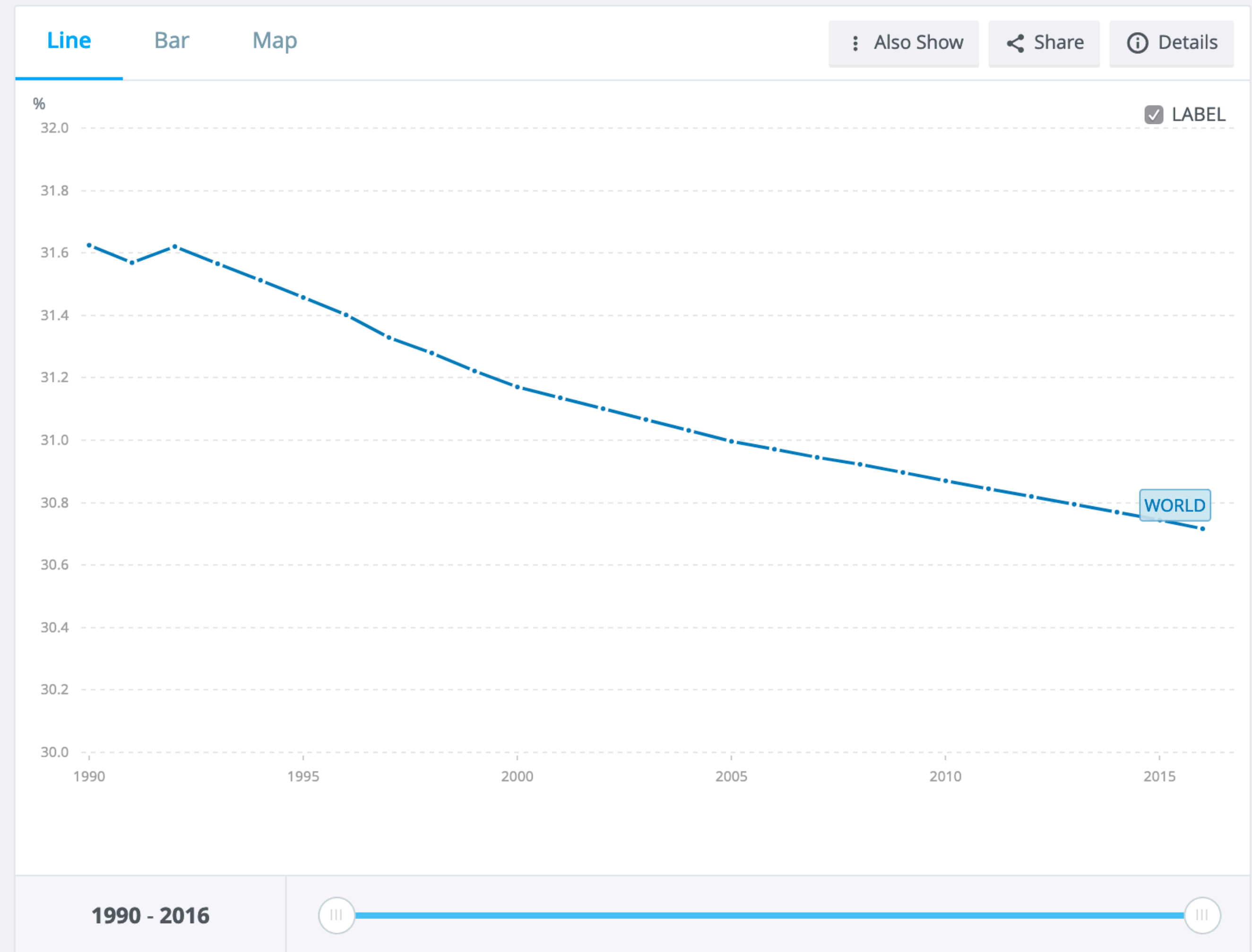


Figure 4. The extent of forest in central Europe, AD 1900. Source: H. C. Darby, The clearing of the woodland in Europe, in W. L. Thomas (Ed.), *Man's Role in Changing the Face of the Earth* (Chicago 1956) 98–9, based on O. Schlüter, *Die Siedlungsräume Mitteleuropas in frugeschtlicher Zeit: Part 1—Forschungen zur Deutschen Landeskunde*, Vol. 61 (Hamburg 1952). Reproduced with the permission of Chicago University Press.

Forest area (% of land area) - World

Food and Agriculture Organization, electronic files and web site.

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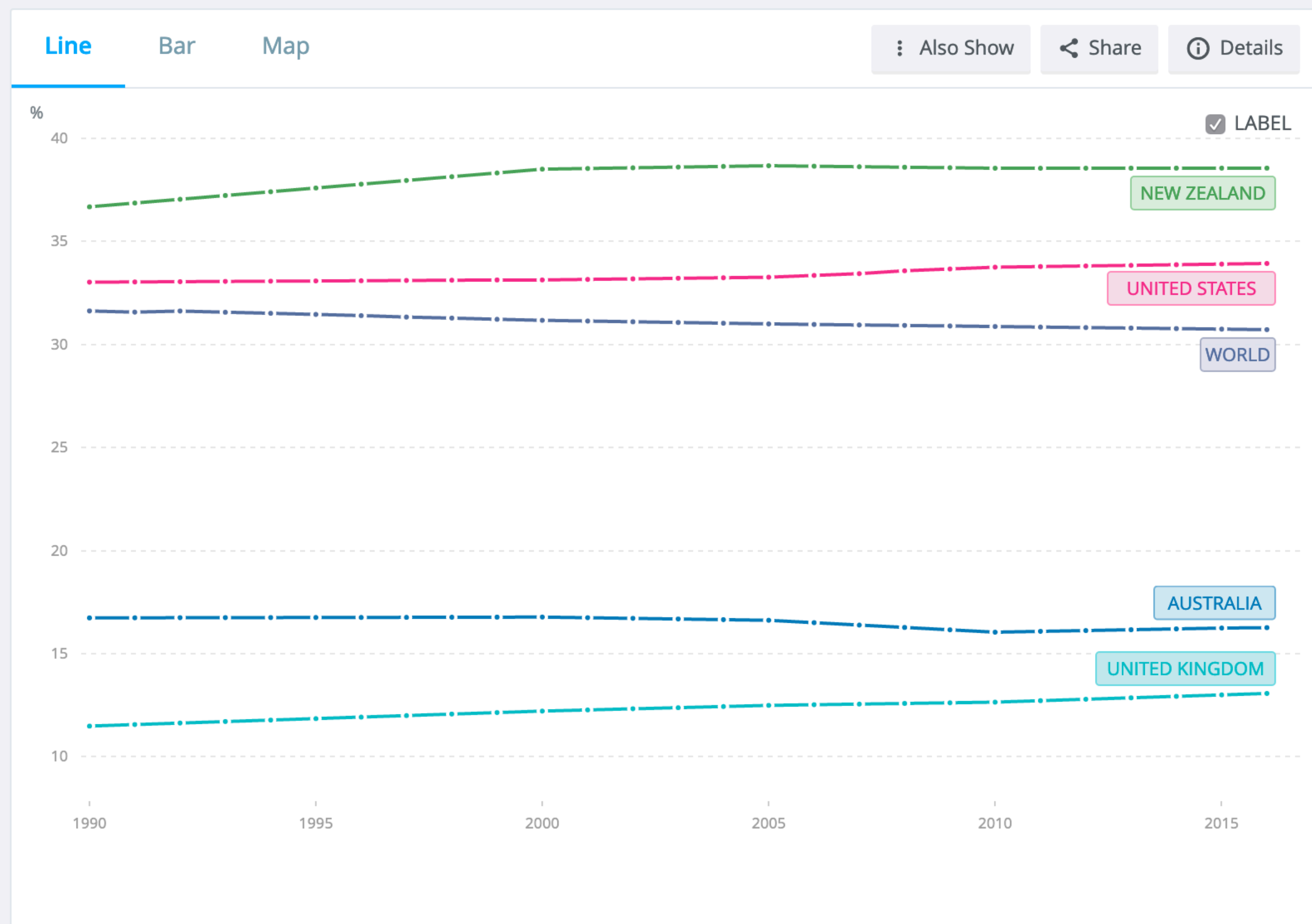
Forest area (% of land area) × Australia × New Zealand × World × United States ×

United Kingdom × Search data e.g. GDP, population, Indonesia

Forest area (% of land area) - Australia, New Zealand, World, United States

Food and Agriculture Organization, electronic files and web site.

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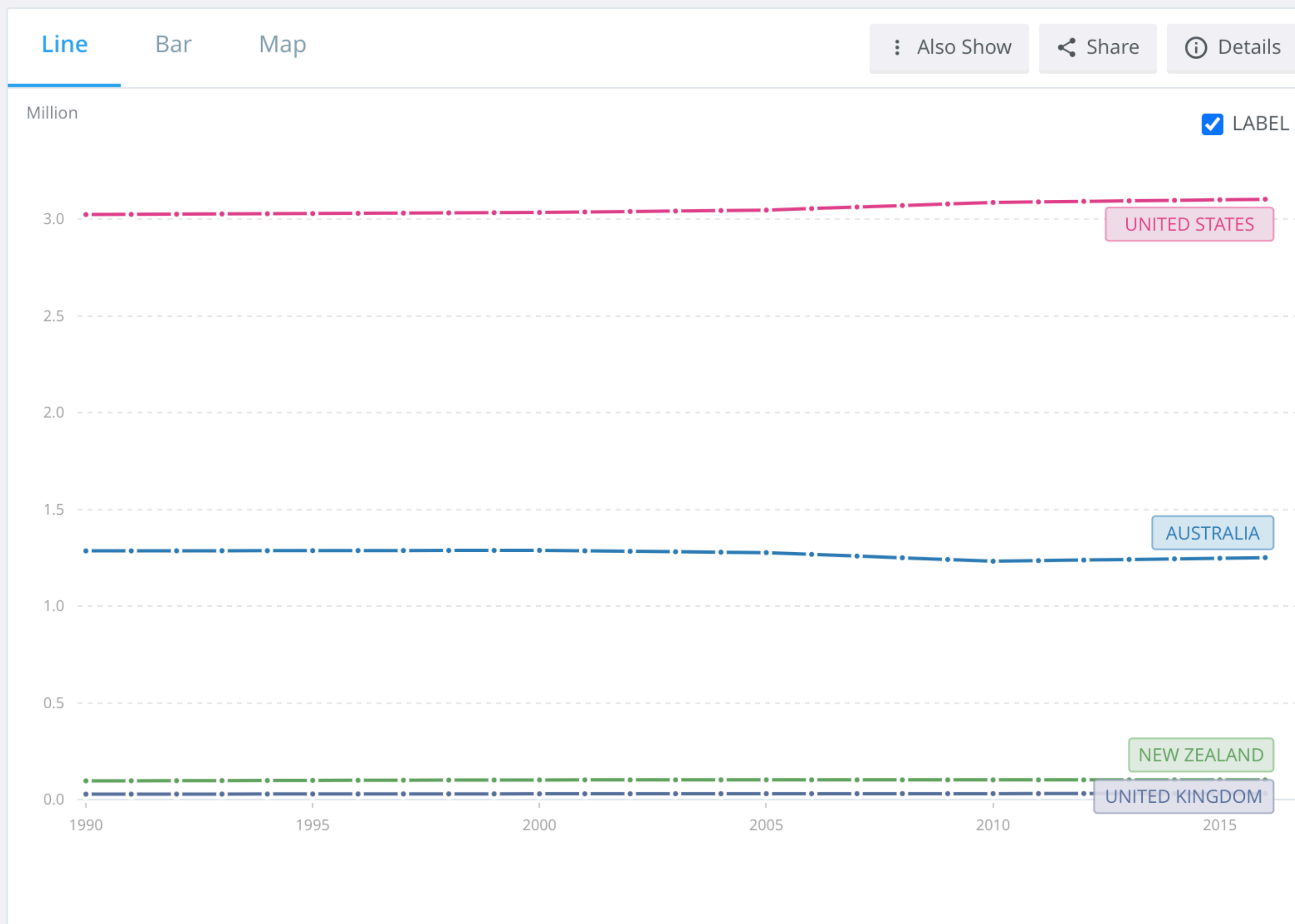


Forest area (sq. km) × Australia × New Zealand × United Kingdom × United States × Search ×

Forest area (sq. km) - Australia, New Zealand, United Kingdom, United States

Food and Agriculture Organization, electronic files and web site.

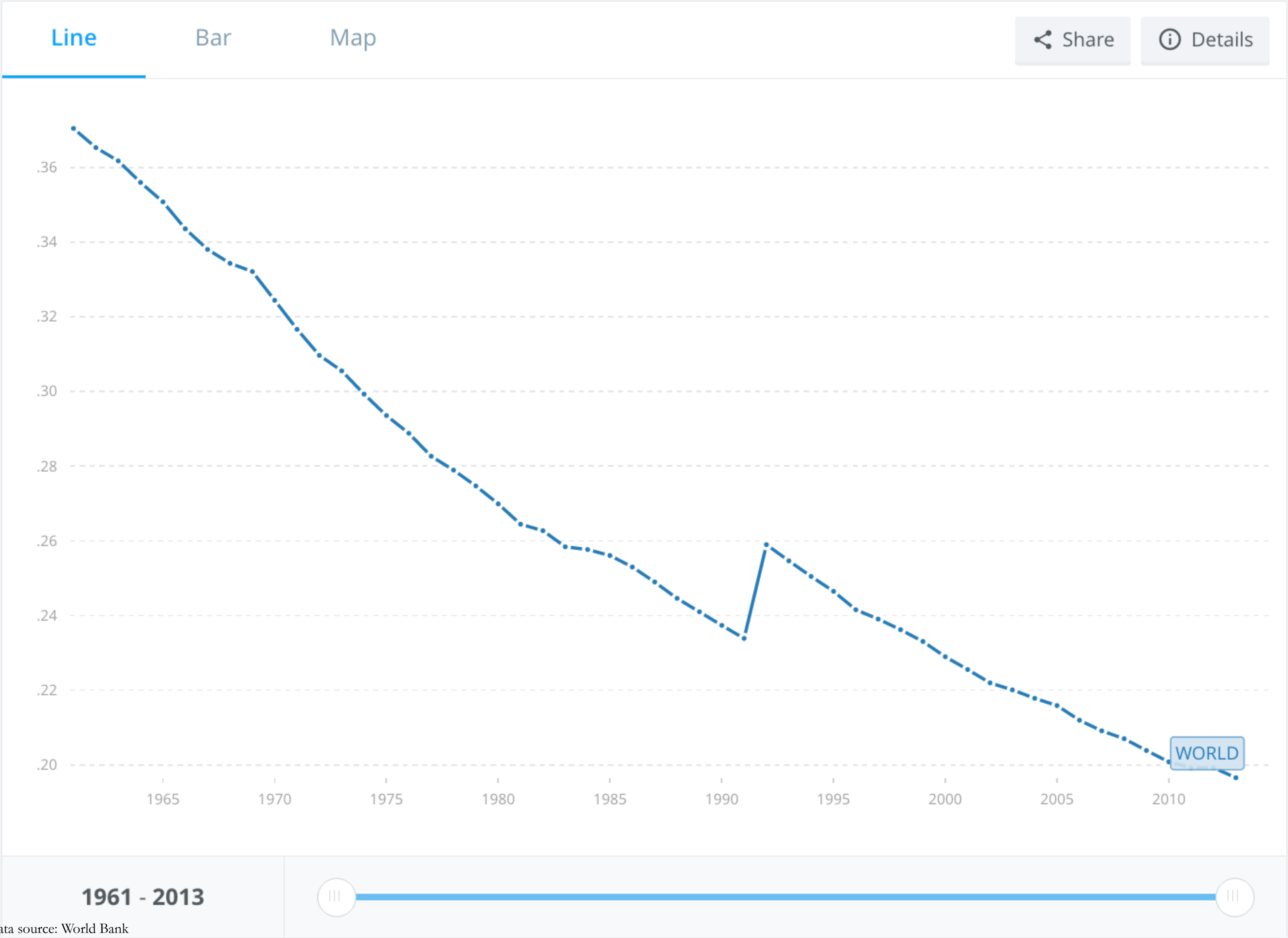
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Arable land (hectares per person)

Food and Agriculture Organization, electronic files and web site.

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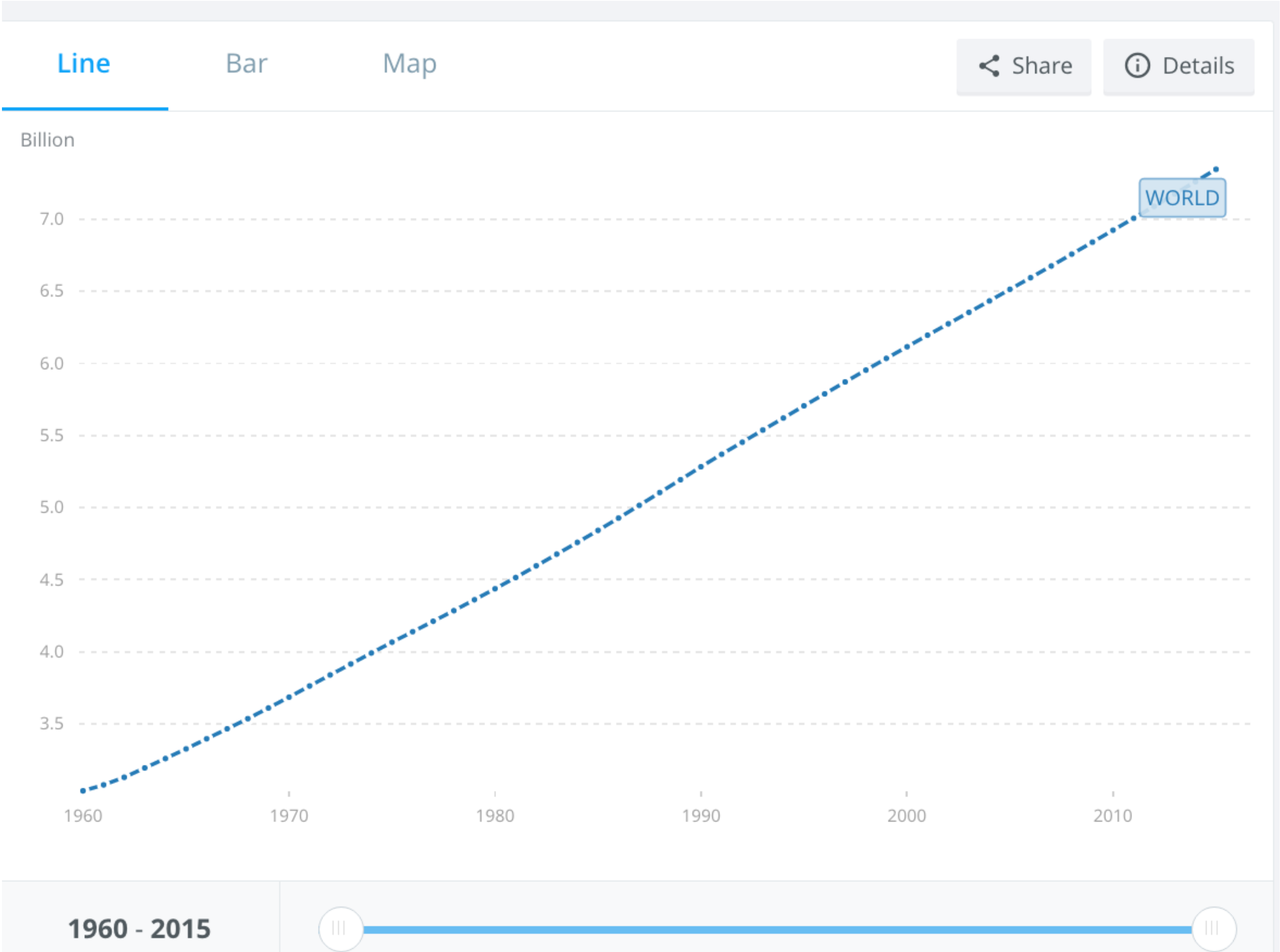


Agricultural employment



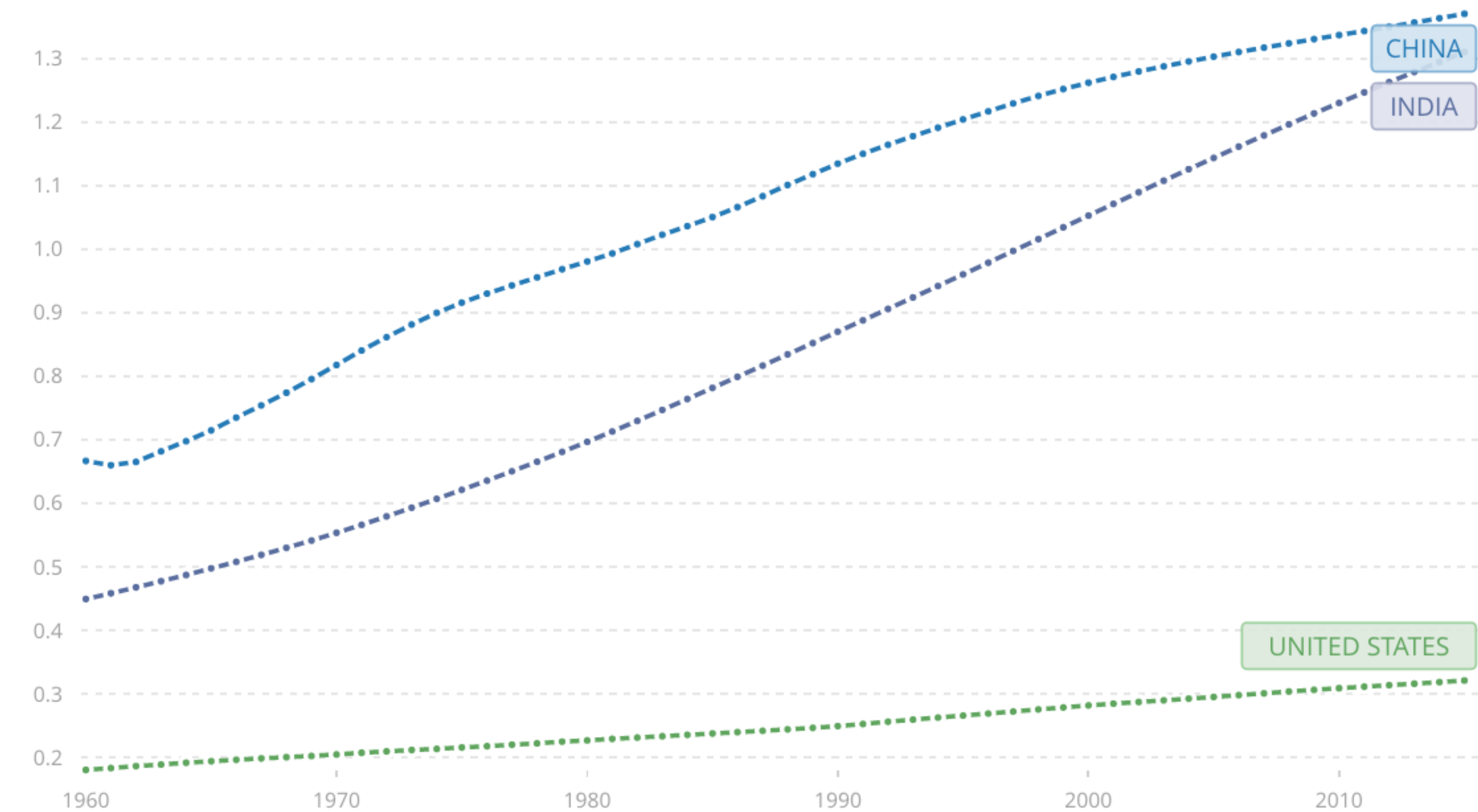
Image source: <https://www.businessinsider.com.au/people-calling-911-from-worlds-biggest-corn-maze-2014-11>

Global population

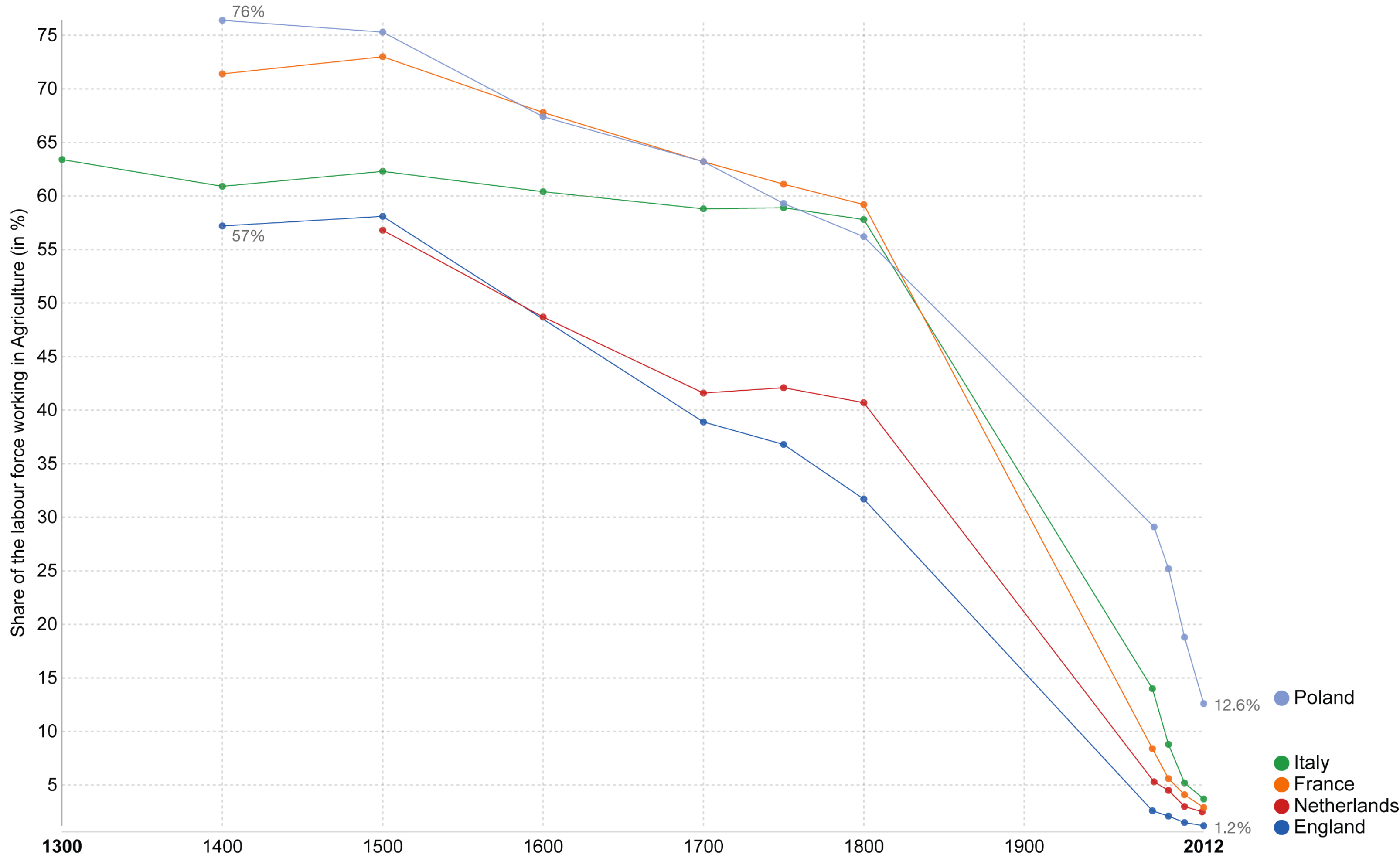


Population growth

Billion



Share of the labor force working in agriculture, since 1300 – By Max Roser



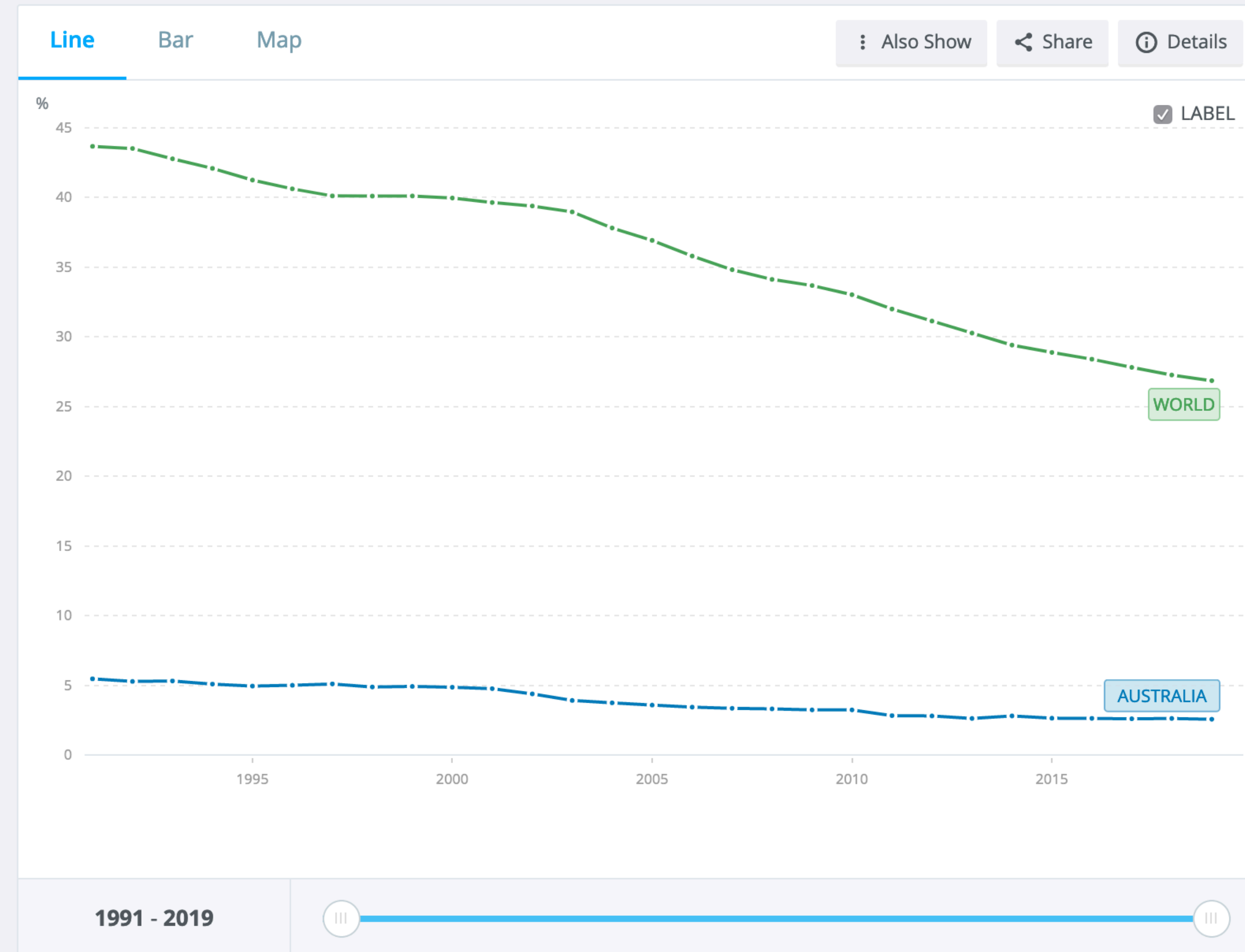
Data source: Pre 1800 is from Allen (2000), "Economic Structure and Agricultural Productivity in Europe, 1300-1800". Newer data from the World Bank.
The interactive data visualization is available at [OurWorldinData.org](https://ourworldindata.org). There you find the raw data and more visualizations on this topic. Licensed under [CC-BY-NC-SA](https://creativecommons.org/licenses/by-nc-sa/4.0/) by the author Max Roser.

📊 Employment in agricultur...
📍 Australia
📍 World
Search data e.g. GDP, population, Indonesia
✕
▼

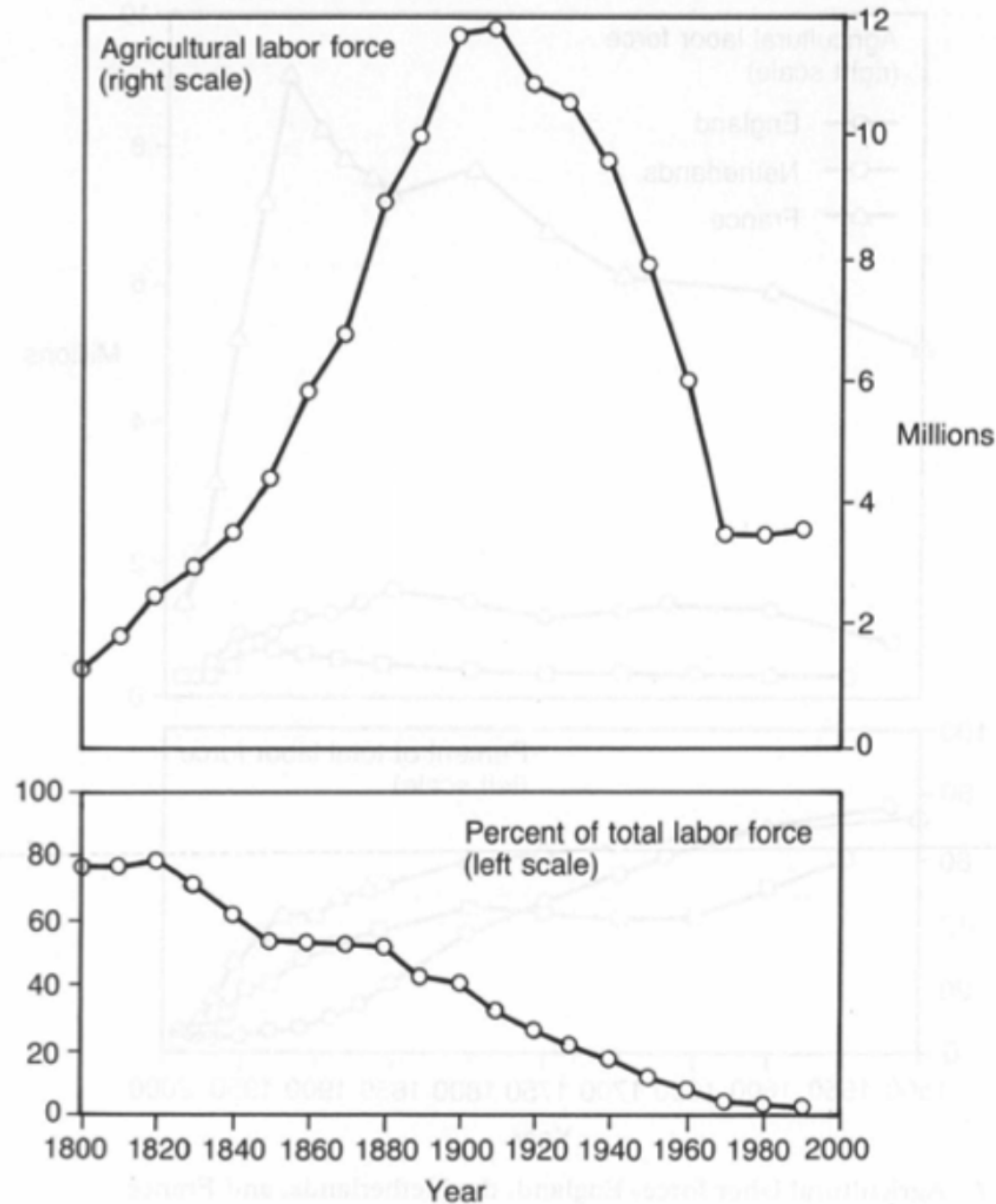
Employment in agriculture (% of total employment) (modeled ILO estimate) - Australia, World

International Labour Organization, ILOSTAT database. Data retrieved in June 21, 2020.

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United States



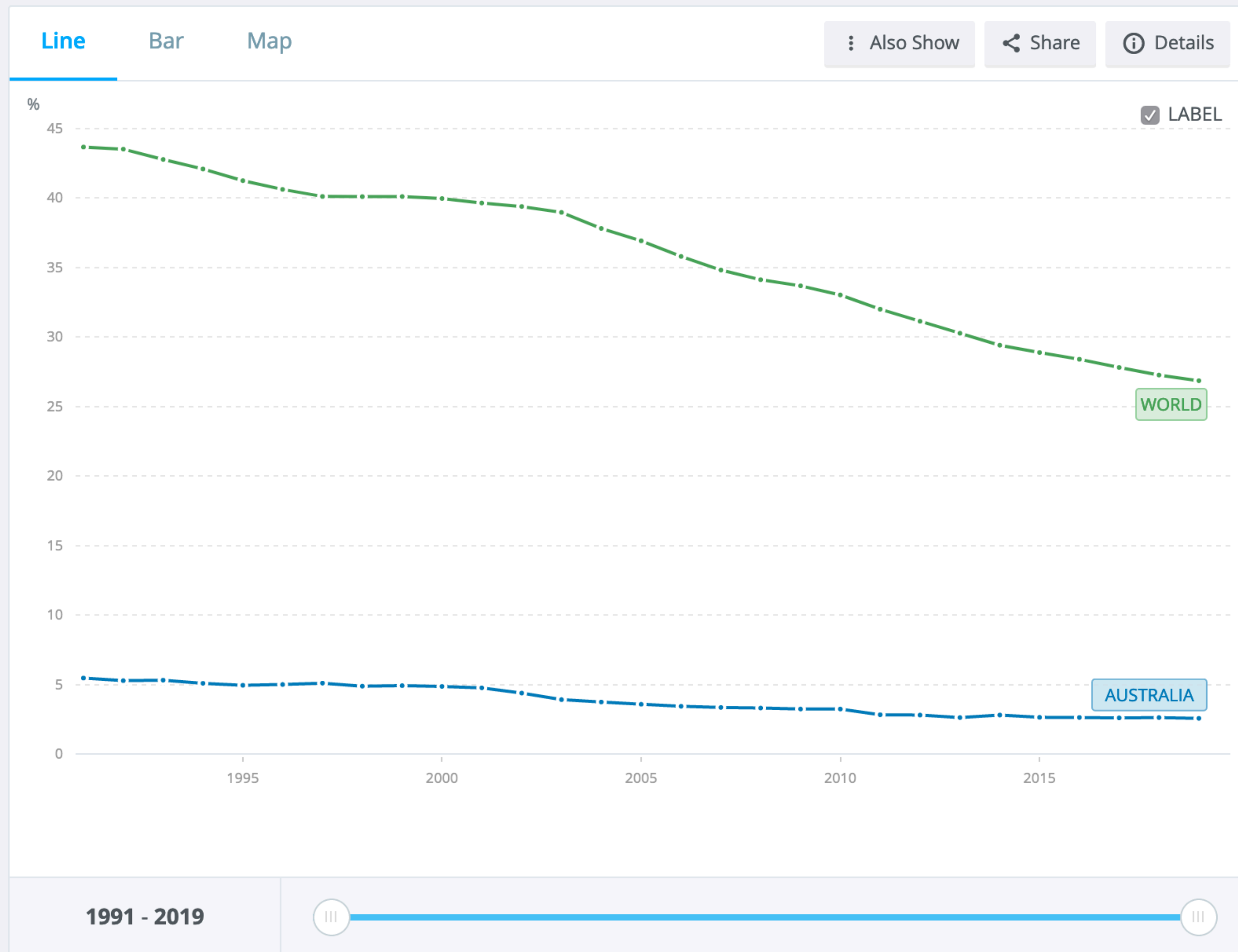
📊 Employment in agricultur... ✕
📍 Australia ✕
📍 World ✕

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Employment in agriculture (% of total employment) (modeled ILO estimate) - Australia, World

International Labour Organization, ILOSTAT database. Data retrieved in June 21, 2020.

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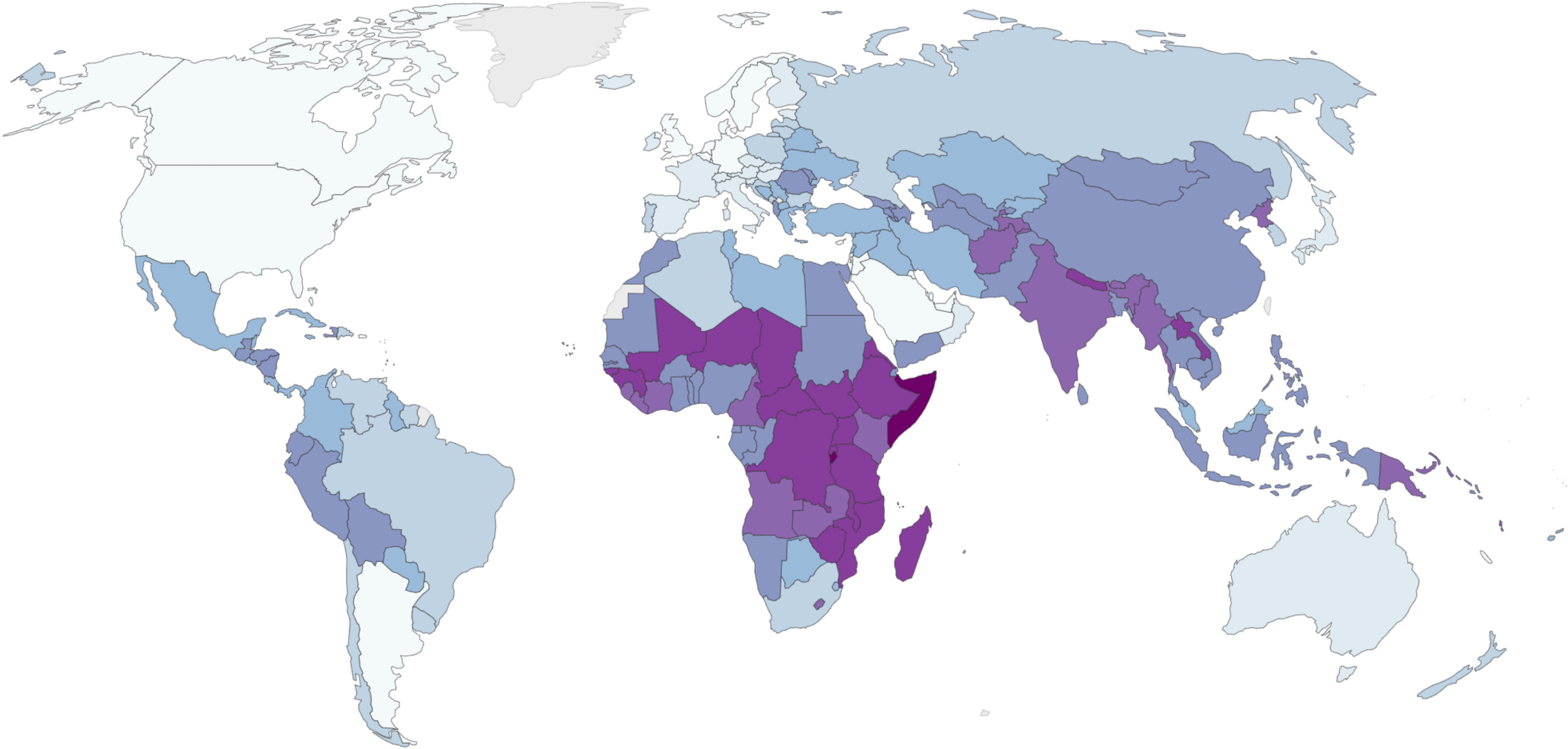


Share of the labor force employed in agriculture, 2019

Share of people of working age who were engaged in any activity to produce goods or provide services for pay or profit in the agriculture sector (agriculture, hunting, forestry and fishing).

Our World
in Data

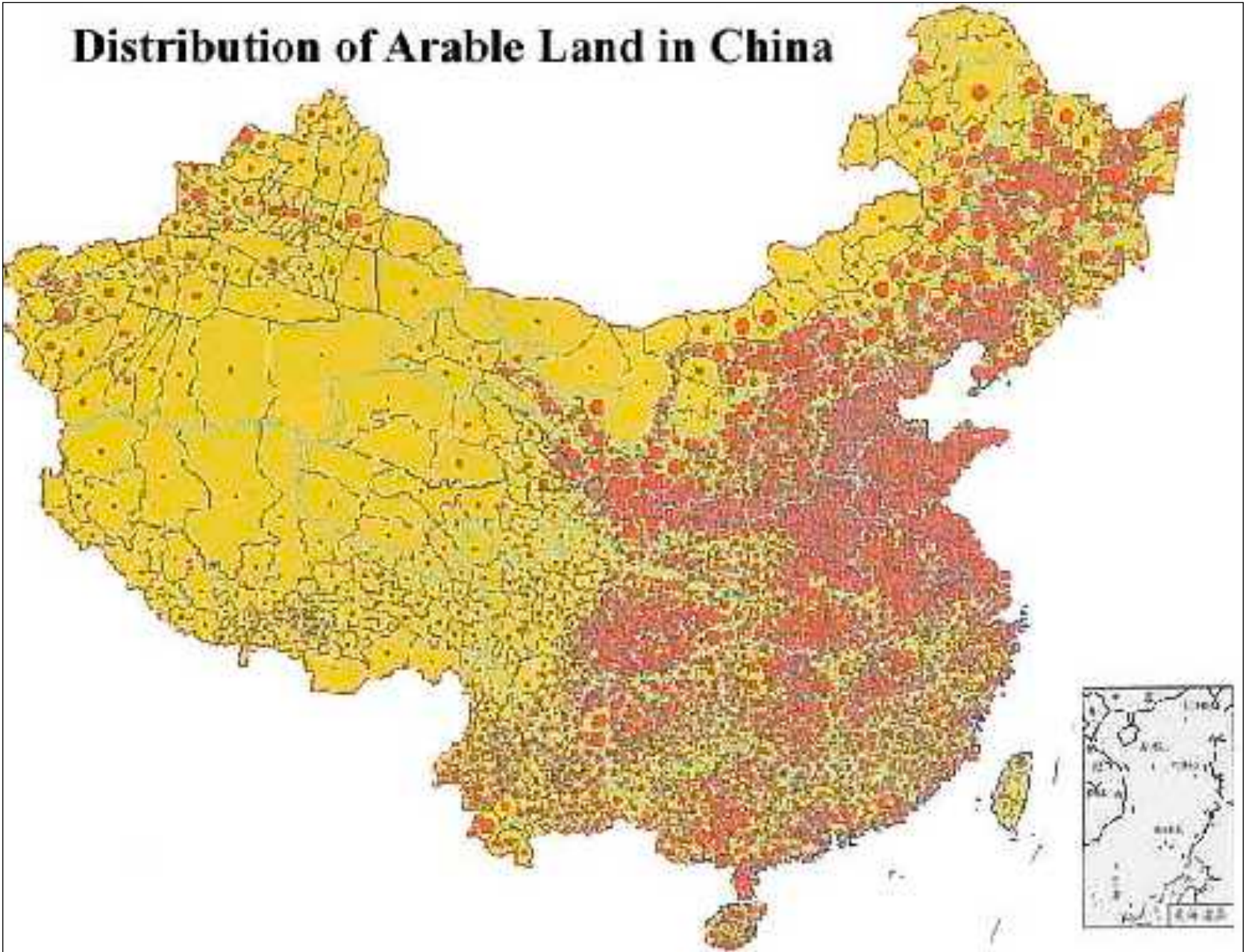
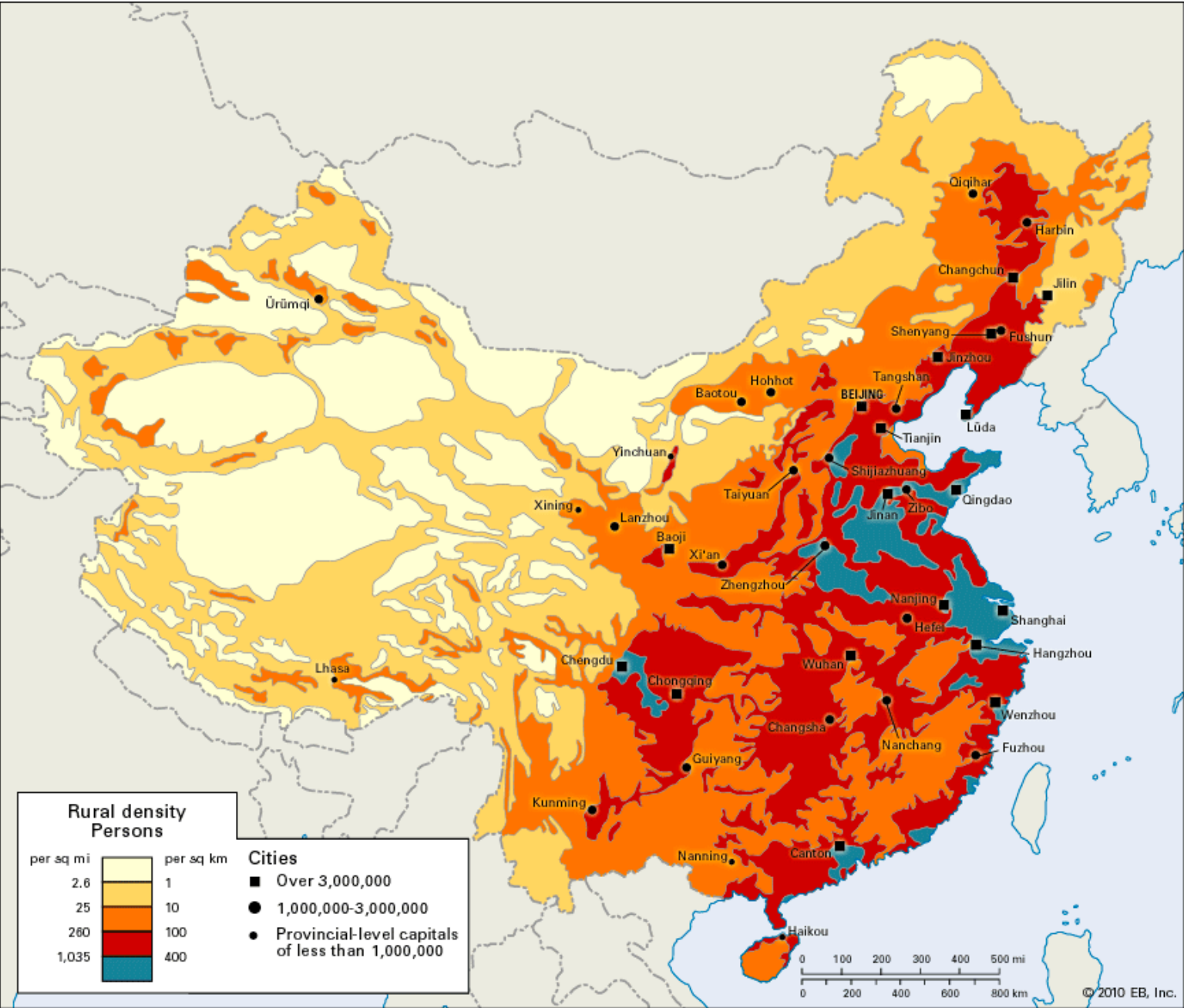
World



Source: Our World in Data based on International Labor Organization (via the World Bank) and historical sources

OurWorldInData.org/employment-in-agriculture • CC BY

Arable land and population growth



Resource depletion



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POLLUTION

How much is pollution costing China's economy?

Pollution issues took center stage at China's recent National People's Congress, with Beijing pledging to come to grips with the problem. But how is this affecting the economy? DW speaks to the ADB's Qingfeng Zhang.



"The Chinese government is determined to tackle smog and pollution," said Premier Li Keqiang after the conclusion of the National People's Congress on March 15, adding that the government would work to fully implement the amended Environmental Protection Law, which allows for greater fines against polluters and has drawn praise from environmental advocates.



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Resource depletion's economic costs in China

60% of underground water is polluted.

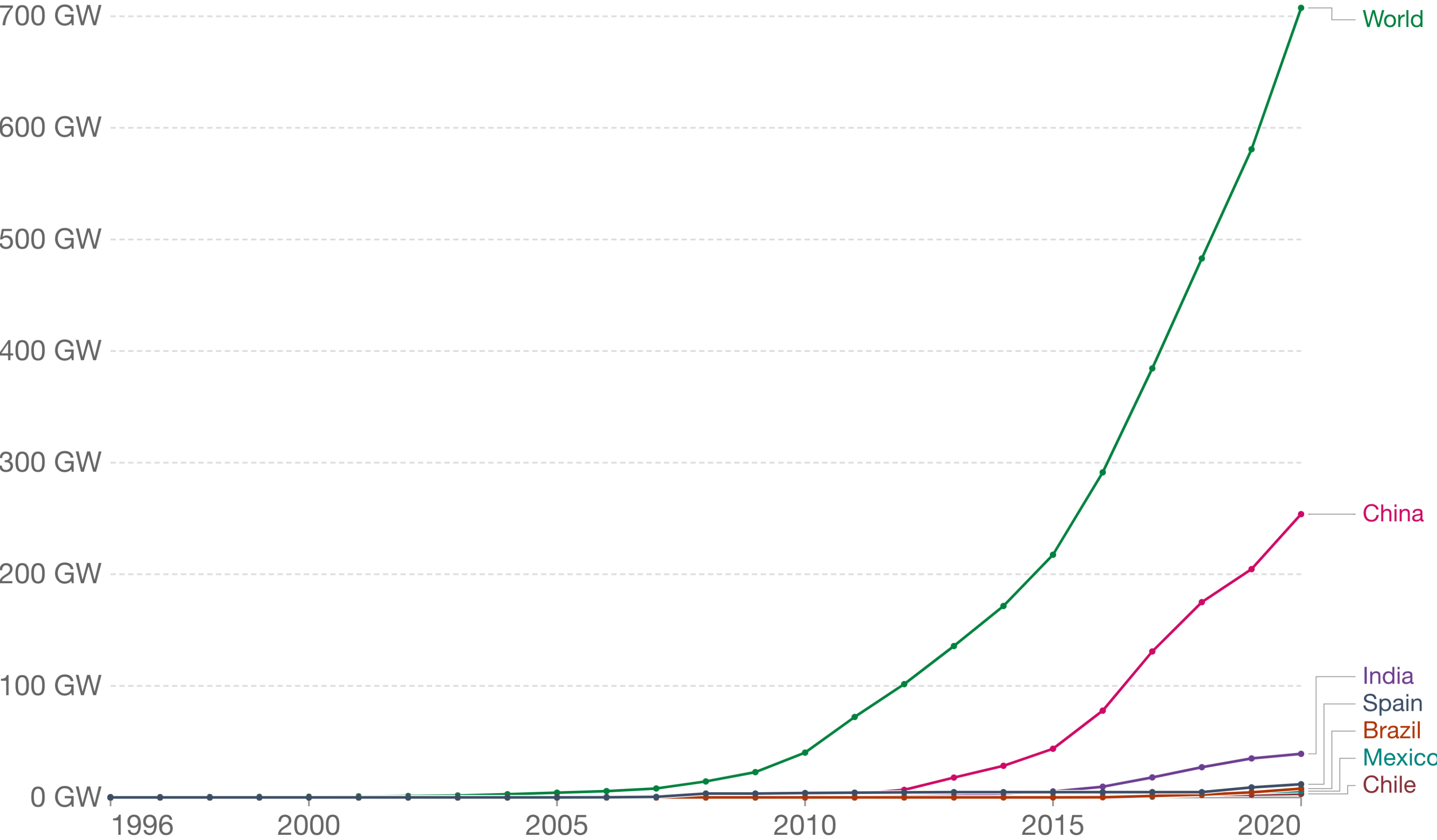
Air and water pollution cost 3-6% of GDP in 2008 (Ministry of Environmental Protection (MEP))

Resource and environmental costs 13.5% of GDP in 2005
(Chinese Academy of Sciences)

Air pollution contributed to 1.2 million premature deaths in China in 2010.

Installed solar energy capacity

Cumulative installed solar capacity, measured in gigawatts (GW).



Source: Statistical Review of World Energy - BP (2021)

Lecture question #1

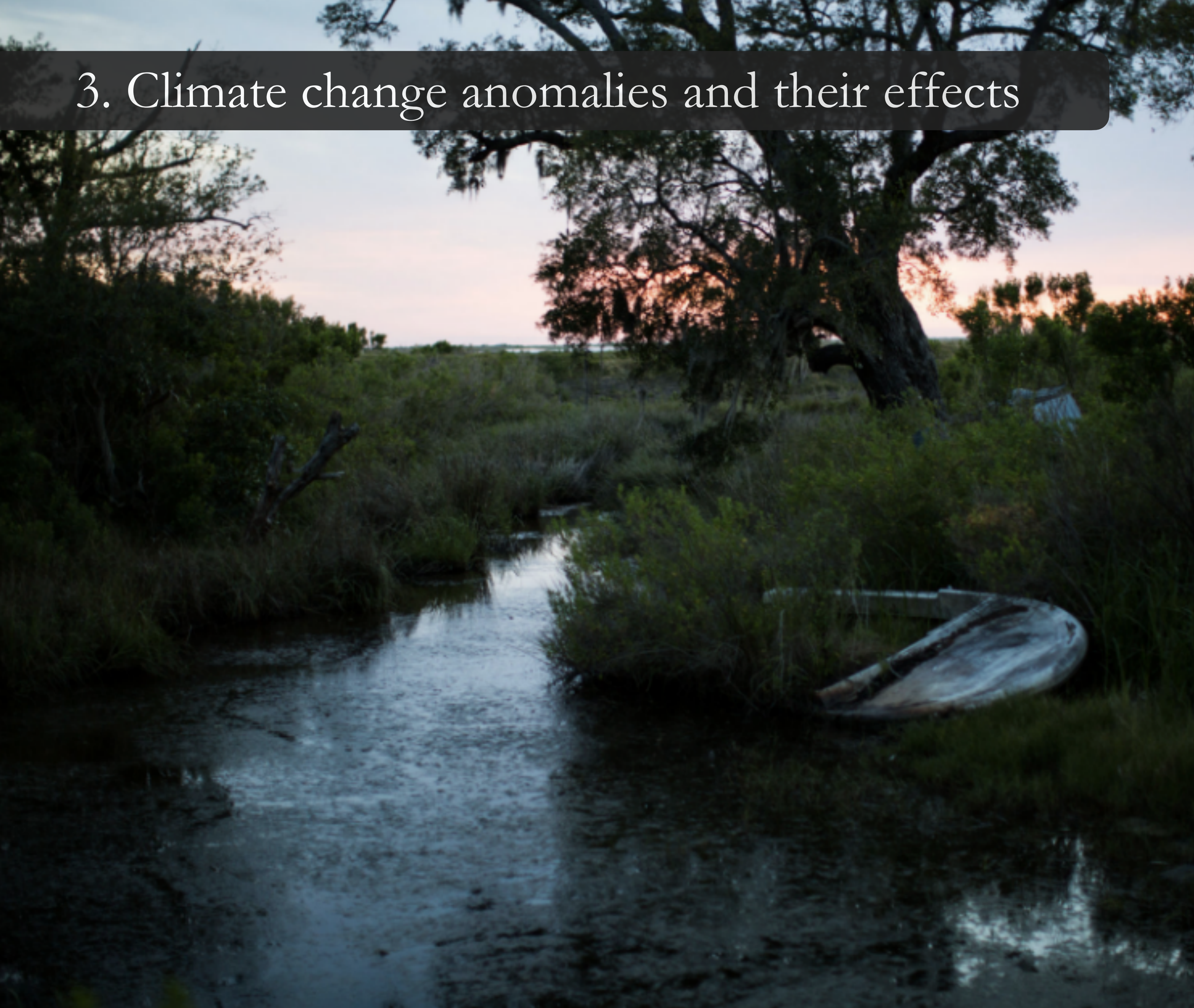
What changes do you think either a decline in **agricultural work** or **resource depletion** has on the probability of civil war?

2. Living in the Anthropocene



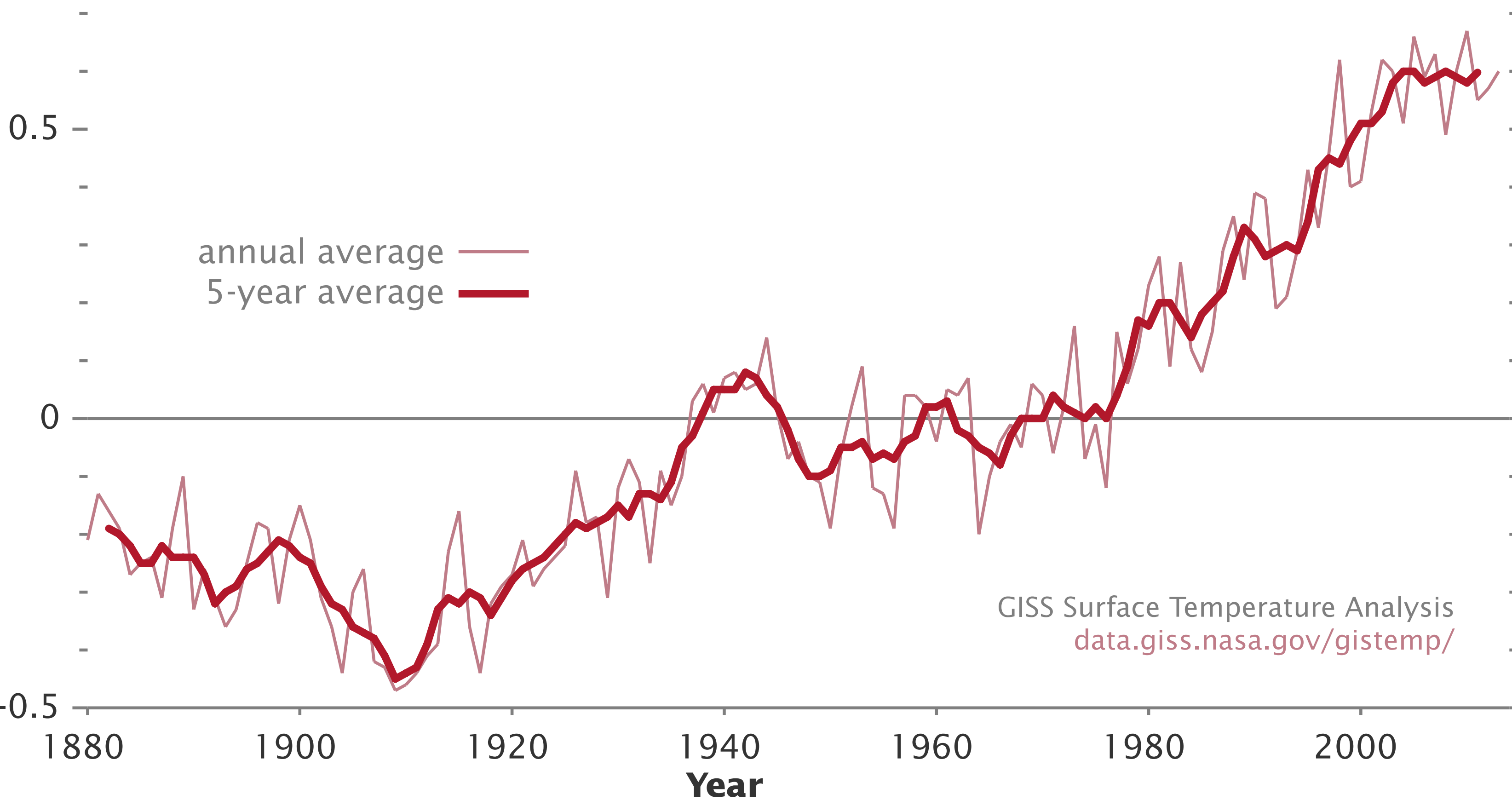
Image source: The Atlantic (<https://www.theatlantic.com/photo/2018/11/camp-fire-ravages-paradise-california/575461/>)

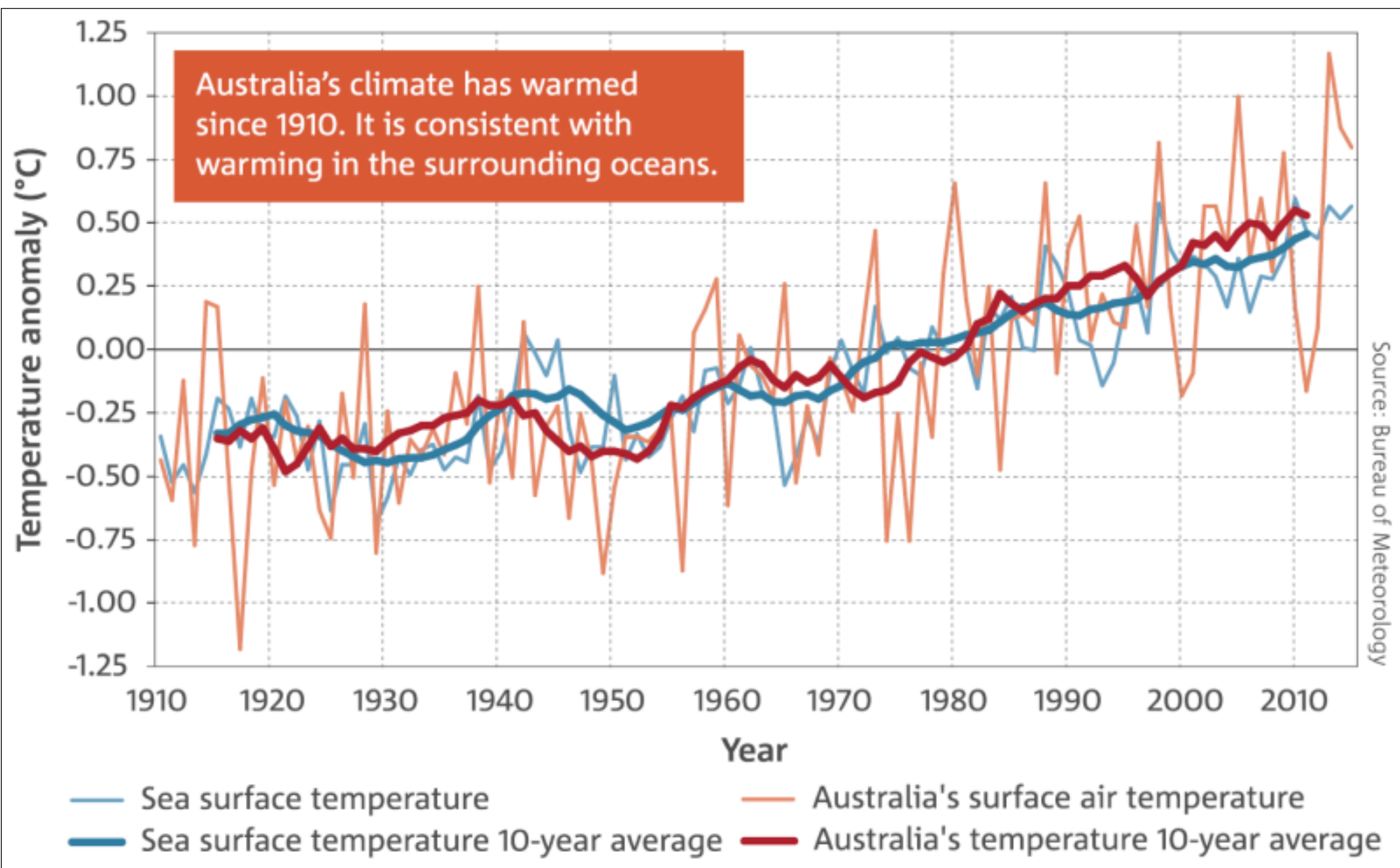
3. Climate change anomalies and their effects



Global Temperature Anomaly

Difference from 1951–1980 average, °C







PROJECTIONS
FOR SELECTED AUSTRALIAN CITIES



CANBERRA

These projections are based on average results for the cluster in which Canberra is located (See Figure 1). Projected changes presented here will be applicable to all other cities and sites in the cluster.

- Average temperatures will continue to increase in all seasons (*very high confidence*).
- More hot days and warm spells are projected with *very high confidence*. Fewer frosts are projected with *high confidence*.
- By late in the century (2090), less rainfall is projected during the winter and spring with *high confidence*.
- There is *medium confidence* that summer and autumn rainfall will remain unchanged.
- Increased evapotranspiration is projected (*high confidence*).
- Extreme daily rainfall intensity is projected to increase, with *high confidence*.
- A harsher fire-weather climate in the future (*high confidence*).
- On annual and decadal basis, natural variability in the climate system can act to either mask or enhance any long-term human induced trend, particularly in the next 20 years and for rainfall.

TABLE A: PROJECTED CHANGES FOR 2030 AND 2090 FOR AVERAGE TEMPERATURE, RAINFALL, EVAPOTRANSPIRATION, WIND SPEED, SOLAR RADIATION AND RELATIVE HUMIDITY FOR THE CLUSTER IN WHICH CANBERRA IS LOCATED, RELATIVE TO THE 1986-2005 AVERAGE. THE PROJECTIONS HAVE BEEN DERIVED FROM THE AVAILABLE GLOBAL CLIMATE MODEL SIMULATIONS IN THE CMIP5 ARCHIVE (UP TO 40 MODELS) DRIVEN BY RCP4.5 AND RCP8.5 (INTERMEDIATE AND HIGH EMISSION SCENARIOS FOR GREENHOUSE GASES AND AEROSOLS). FOR 2030, RESULTS FOR ALL RCP’S ARE SIMILAR SO ONLY RCP4.5 VALUES ARE SHOWN. THE MEDIAN PROJECTION IS SHOWN WITH THE 10TH TO 90TH PERCENTILE RANGE IN BRACKETS.

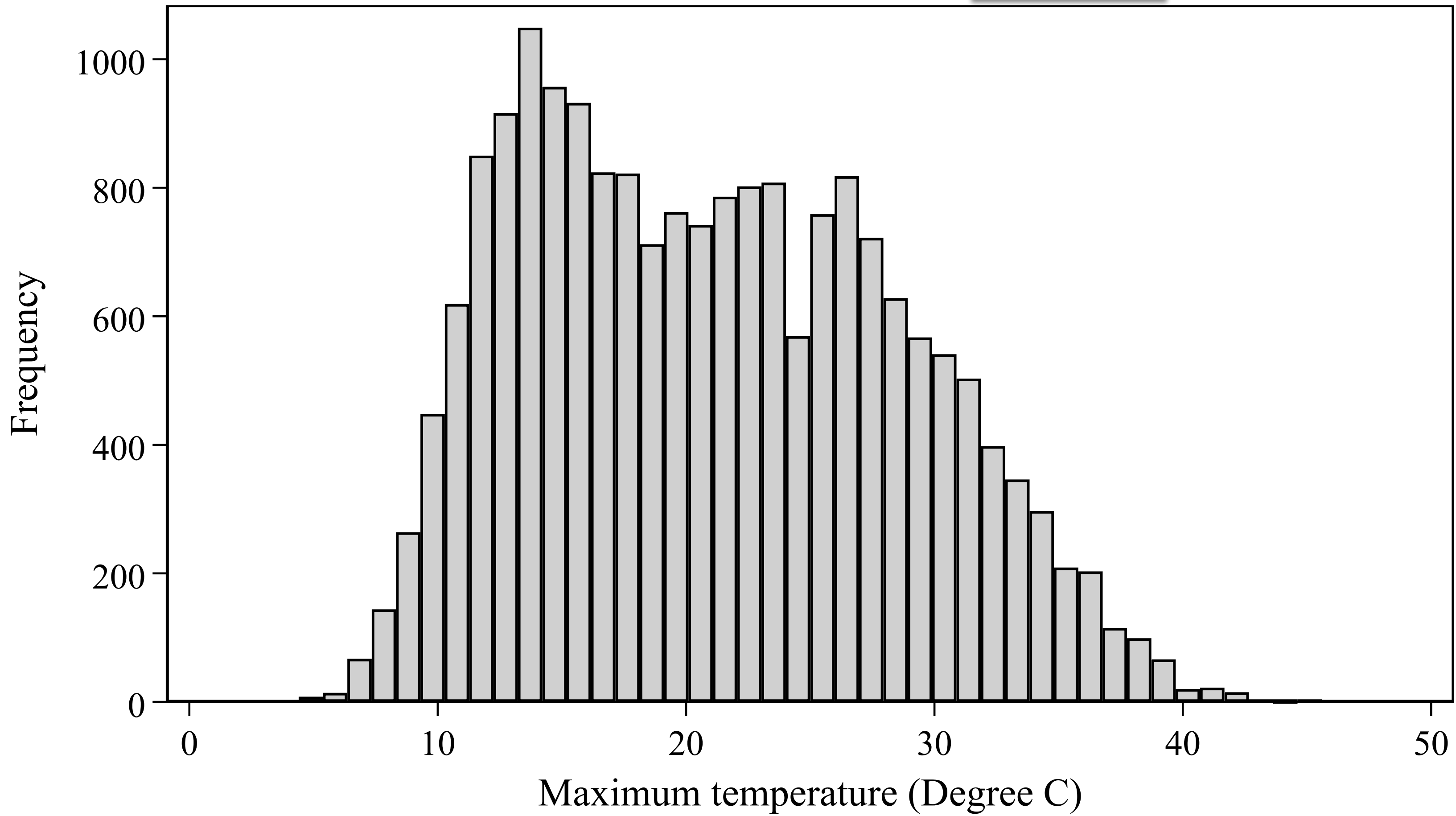
VARIABLE	SEASON	2030 RCP4.5	2090 RCP4.5	2090 RCP8.5
Temperature (°C)	Annual	0.8 (0.6 to 1.1)	1.8 (1.3 to 2.4)	3.8 (2.7 to 4.5)
Rainfall (%)	Annual	-2 (-9 to +5)	-6 (-16 to +4)	-5 (-27 to +9)
	Summer	0 (-15 to +13)	-2 (-17 to +10)	+6 (-13 to +27)
	Autumn	-1 (-24 to +12)	-3 (-23 to +18)	0 (-29 to +26)
	Winter	-3 (-15 to +8)	-8 (-21 to +7)	-13 (-38 to +4)
	Spring	-3 (-16 to +12)	-11 (-28 to +5)	-12 (-48 to +6)
Evapotranspiration (%)	Annual	2.6 (1 to 4.5)	5.4 (2.9 to 8.5)	12 (7.6 to 18.1)
Wind speed (%)	Annual	-1 (-2.9 to +1.5)	-1.3 (-4.6 to +0.8)	-0.6 (-5 to +2.6)
Solar radiation (%)	Annual	+0.7 (-0.1 to +1.7)	1.5 (0.1 to 3.2)	+2.2 (0 to +4.9)
Relative humidity (%) (absolute)	Annual	-0.7 (-1.6 to +0.5)	-1.6 (-4.1 to -0.3)	-2.7 (-5.8 to -0.8)

TABLE B: CURRENT AVERAGE (1981–2010) ANNUAL NUMBER OF DAYS ABOVE 35 AND 40 °C AND BELOW 2 °C (FROST RISK) FOR CANBERRA (AIRPORT). ESTIMATES FOR 30-YEAR PERIODS CENTRED ON 2030 (RCP4.5) AND 2090 (RCP4.5 AND RCP8.5) ARE DERIVED BY APPLYING THE MEDIAN, 10TH AND 90TH PERCENTILE PROJECTIONS TO OBSERVED DAILY TEMPERATURE DATA FOR 1981-2010 (ACORN-SAT).

THRESHOLD	CURRENT	2030 RCP4.5	2090 RCP4.5	2090 RCP8.5
Over 35 °C	7.1	12 (9.4 to 14)	17 (13 to 23)	29 (22 to 39)
Over 40 °C	0.3	0.6 (0.4 to 0.8)	1.4 (0.8 to 2.8)	4.8 (2.3 to 7.5)
Below 2 °C	91	81 (87 to 76)	68 (75 to 61)	43 (52 to 35)

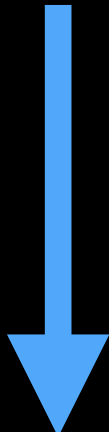
Burrinjuck Dam

Daily max. temperature (1965- August 2020)

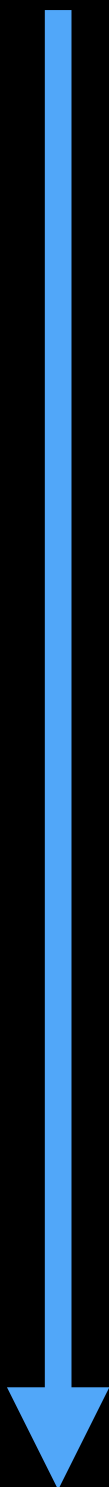


tab Year if MaximumtemperatureDegreeC >40 & Max~=.

Year	Freq.	Percent	Cum.
1968	1	1.96	1.96
1973	1	1.96	3.92
1982	1	1.96	5.88
1990	1	1.96	7.84
2001	2	3.92	11.76
2003	2	3.92	15.69
2005	2	3.92	19.61
2006	2	3.92	23.53
2007	1	1.96	25.49
2009	6	11.76	37.25
2010	1	1.96	39.22
2013	3	5.88	45.10
2014	7	13.73	58.82
2016	1	1.96	60.78
2017	4	7.84	68.63
2018	1	1.96	70.59
2019	10	19.61	90.20
2020	5	9.80	100.00
Total	51	100.00	



4 days before 2000
(35 years)



46 days 2001-2020
(20 years)

The Australian National University

Burrinjuck Dam, New South Wales 2582

Add destination

Leave now

OPTIONS

Send directions to your phone

via Barton Hwy/A25 and Burrinjuck Rd

1 h 32 min

118 km

Fastest route

DETAILS

via Hume Hwy/M31

1 h 58 min

154 km

Explore Burrinjuck Dam

Groceries

Hotels

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Parking Lots

More

The map displays two primary driving routes from The Australian National University in Canberra to Burrinjuck Dam. The first route, highlighted in blue, is the fastest, taking 1 hour and 32 minutes for a distance of 118 km. It follows the Barton Highway (A25) and the Burrinjuck Road. The second route, shown in grey, takes 1 hour and 58 minutes for 154 km, utilizing the Hume Highway (M31) and the Murrumbidgee River crossing. The map includes various geographical features such as the Murrumbidgee River, Lake George, and several national parks including Brindabella, Namadgi, and Tinderry. Numerous towns and localities are labeled, such as Yass, Gungahlin, and Canberra. A satellite view inset is located in the bottom left corner of the map area.

A solid dark grey vertical bar spanning the full height of the page on the right side.

5 January 2020



Glacier Bay, 1984



Source: NASA
(<https://earthobservatory.nasa.gov/images/147110/grand-plateau-glacier>)

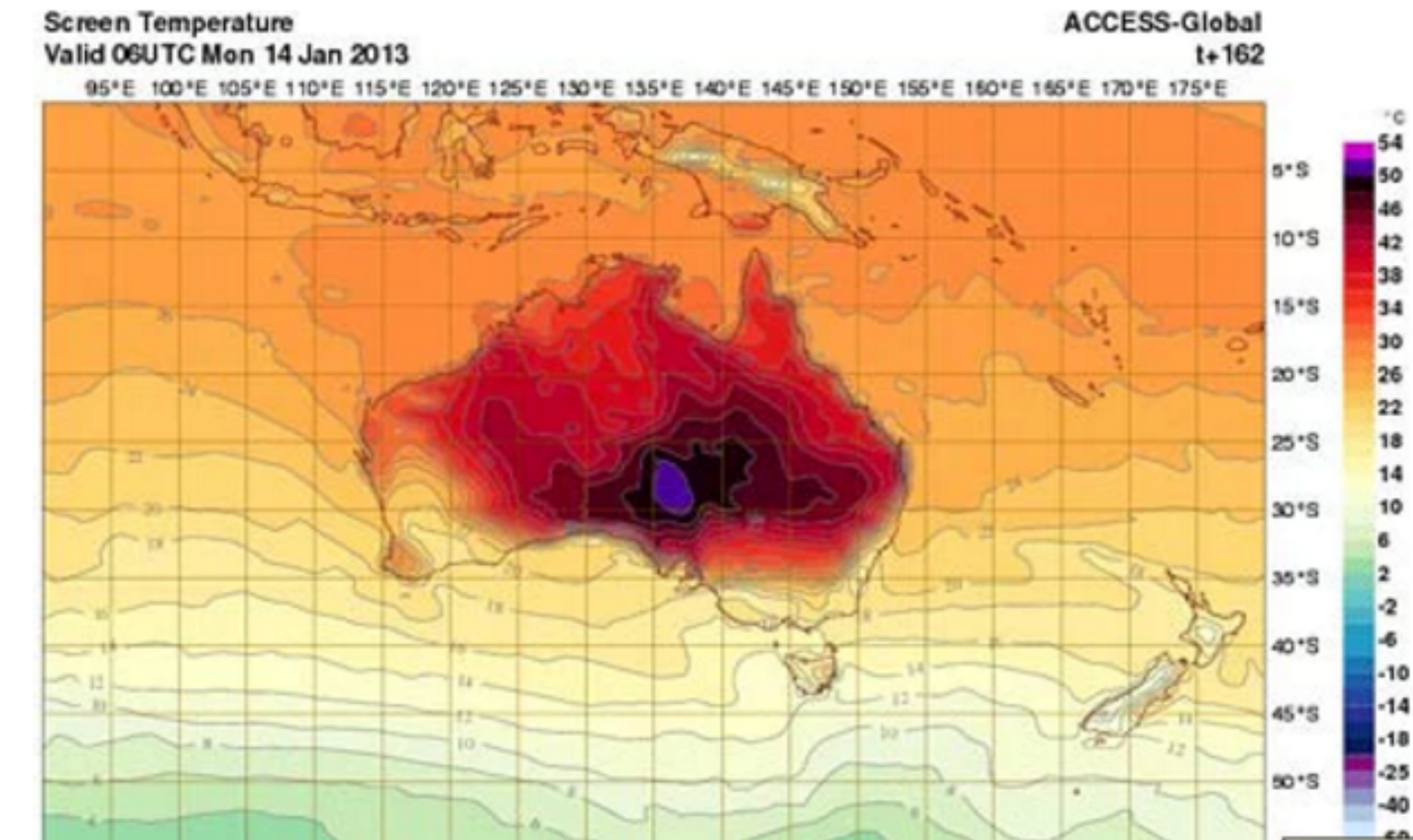
Glacier Bay, 2019



Australia adds new colour to temperature maps as heat soars

Forecast temperatures are so extreme that the Bureau of Meteorology has had to add a new colour to its scale. It is a sign of things to come

- [Australian project simulates effects of runaway climate change](#)
- [Deadly heatwaves will be more frequent in coming decades](#)



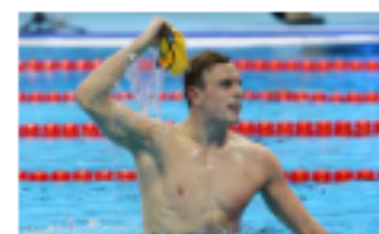
📷 Australian Bureau of Metereology temperature map - with a new colour for 52-54C. Photograph: BOM. Click the image to see a larger version

Global warming is turning the volume of extreme weather up, [Spinal-Tap-style](#), to 11. The [temperature forecast](#) for next Monday by Australia's Bureau of Meteorology is so unprecedented - over 52C - that it has had to add a new colour

Most popular in Australia



'People have self-immolated to get to Australia' - immigration minister's response to



Rio day five: Australia's Chalmers wins gold as Phelps edges Lochte - as it happened



Donald Trump calls Obama the 'founder of Isis'



The 9 most overrated foods: a grumpy man's guide | Adam Liaw



Scott Morrison blocks

Heat wave strikes Kuwait, Middle East



KUWAIT: A record heat wave struck Kuwait and the Middle East region, bringing the maximum temperatures to over 50 Degrees Celsius. The heat wave will last for 52 days, from mid-July until late-August. The term ‘Jamarat Al-Gaith,’ roughly translated to heated coal, usually describes the unbearable weather during this time of the year. – KUNA

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Middle East

An epic Middle East heat wave could be global warming’s hellish curtain-raiser



Iraqis jump off the ruins of an old building into the Tigris River to beat the heat in Baghdad on Aug. 1. The temperature in Baghdad reached 117 degrees. (Ali Abdul Hassan/AP)

By **Hugh Naylor** August 10 at 4:00 AM

BAGHDAD — Record-shattering temperatures this summer have [scorched countries from Morocco to Saudi Arabia](#) and beyond, as climate experts warn that the severe weather could be a harbinger of worse to come.

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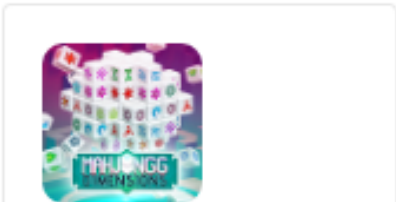
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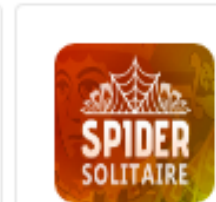
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Our Online Games

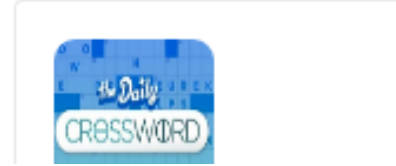
Play right from this page



Mahjongg Dimensions
Strategy game



Spider Solit
Card game



53.9C

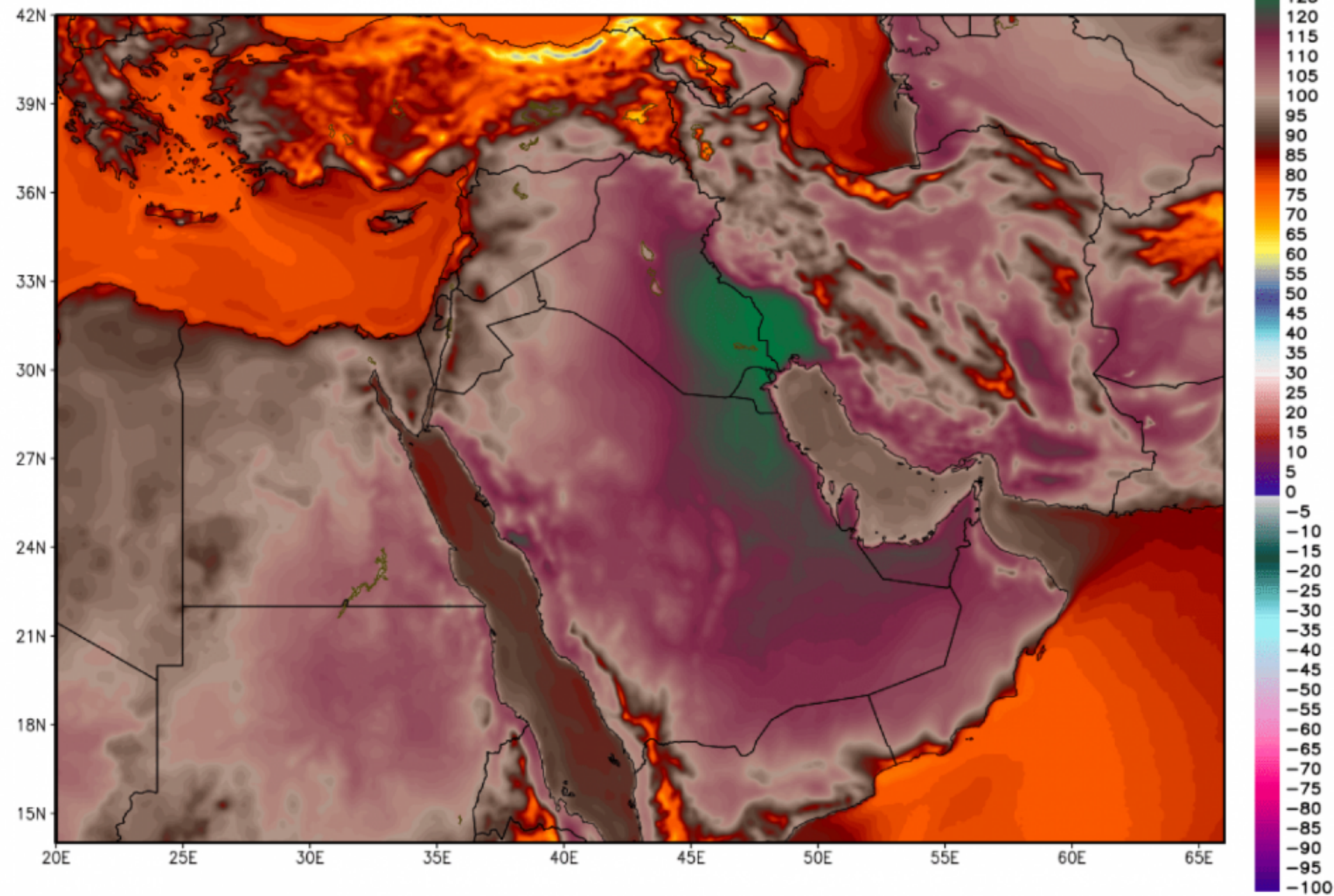
Capital Weather Gang

Two Middle East locations hit 129 degrees, hottest ever in Eastern Hemisphere, maybe the world

By Jason Samenow July 22

NCEP GFS 2-meter MAXIMUM TEMPERATURE [°F]
Init: 00Z22JUL2016 -- [12] hr --> Valid Fri 12Z22JUL2016

Domain Min/Max 49.9° - 128.7°F



WXBell°

Temperatures simulated by the GFS model in the Middle East on Friday reached 129 degrees (54 Celsius). (WeatherBell.com)




This story has been updated.




The temperature in Mitribah, Kuwait, surged Thursday to [a blistering 129.2 degrees \(54 Celsius\)](#). And on Friday in Basra, Iraq, the mercury [soared to 129.0 degrees \(53.9 Celsius\)](#). If confirmed, these incredible measurements would represent the two hottest temperatures ever recorded in the Eastern Hemisphere, according to Weather Underground meteorologist Jeff Masters and weather historian Christopher Burt, [who broke the news](#).

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- 4 WikiLeaks offers reward for help finding DNC staffer's killer
- 5 The Perseid meteor shower could be twice as awesome this year. Here's how to watch.

At a Glance

Thu.	Fri.	Sat.
		
79° / 97°	77° / 94°	78° / 91°
20%	30%	40%

Sun.	Mon.	Tue.
		
79° / 94°	77° / 91°	78° / 91°
40%	40%	40%

Forecast by National Weather Service

National Airport

Dulles

Right Now

82.0 °
(27.8° C)

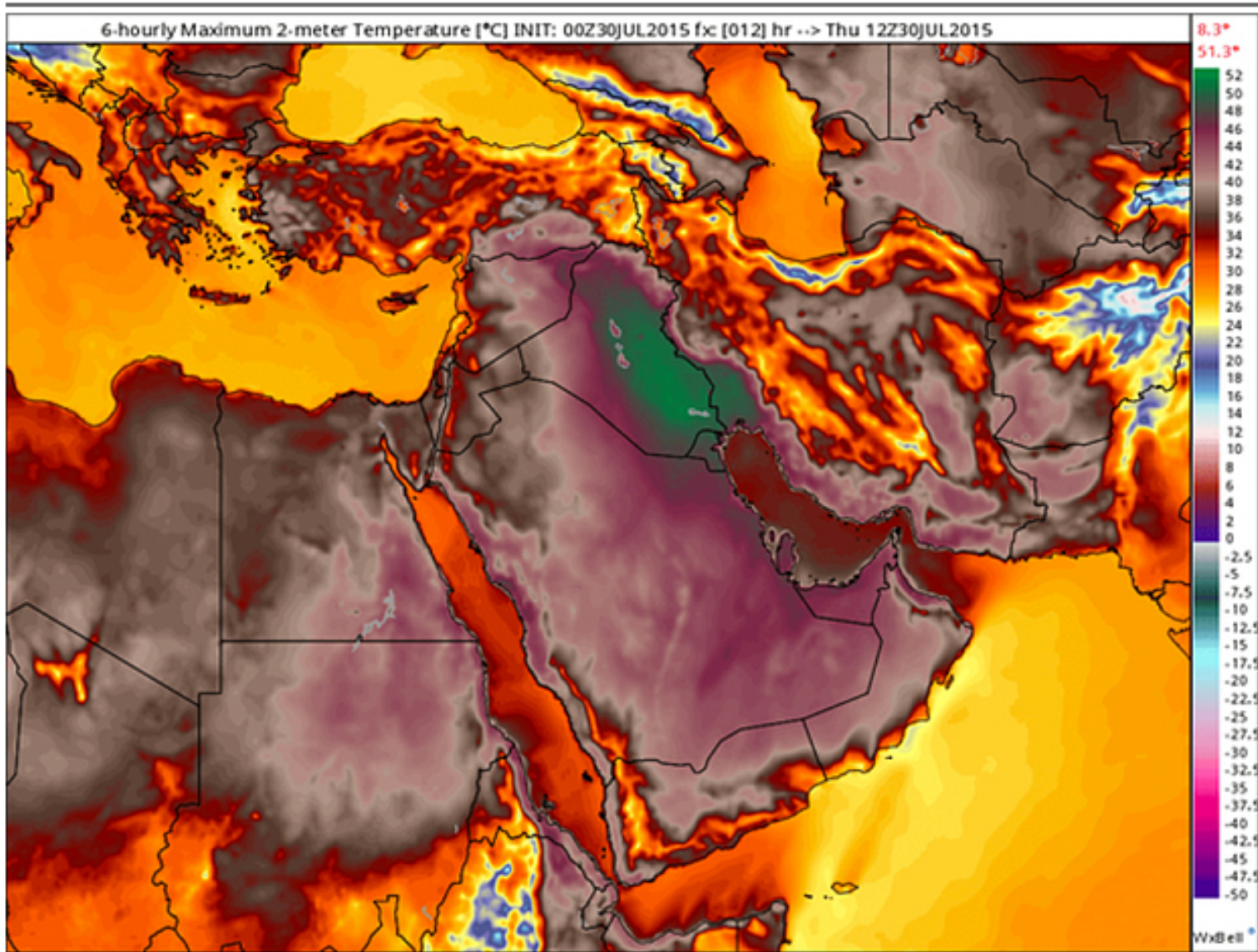


HOME » NEWS » WORLD NEWS » MIDDLE EAST » IRAN

Scorching 'heat dome' over Middle East makes it feel like 162F in Iran

Iran is enduring a "heat index" of nearly 72C while Iraq has called a public holiday due to the sweltering temperatures

1K 0 38 1K Email



A graphic showing temperatures on Thursday Photo: Via @RyanMaue



By James Rothwell

4:37PM BST 01 Aug 2015

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Iran is buckling under the pressure of a massive heatwave passing across the Middle East, with temperatures feeling like more than 70C.

Scorching heat levels of 50C have already paralysed nearby Iraq, where officials were forced to call a four day public holiday because it was too hot to work.

In coming decades, U.N. officials and climate scientists predict that the region's mushrooming populations will face extreme water scarcity, temperatures almost too hot for human survival and other consequences of global warming.

If that happens, conflicts and refugee crises far greater than those now underway are probable, said Adel Abdellatif, a senior adviser at the U.N. Development Program's Regional Bureau for Arab States who has worked on studies about the effect of climate change on the region.

"This incredible weather shows that climate change is already taking a toll now and that it is — by far — one of the biggest challenges ever faced by this region," he said.

Climate-exodus expected in the Middle East and North Africa

2 May 2016



Plagued by heat and dust: Desert dust storms such as here in Kuwait could occur more often in the Middle East and North Africa as a result of climate change. In addition, temperatures on very hot days could rise to 50 degrees Celsius on average in the region (approximately 122 degrees Fahrenheit) by the end of the century.

Credit: Molly John, Flickr, Creative Commons

environmental conditions could become intolerable and may force people to migrate.

More than 500 million people live in the Middle East and North Africa - a region which is very hot in summer and where [climate change](#) is already evident. The number of extremely [hot days](#) has doubled since 1970. "In future, the climate in large parts of the Middle East and North Africa could change in such a manner that the very existence of its inhabitants is in jeopardy," says Jos Lelieveld, Director at the Max Planck Institute for Chemistry and Professor at the Cyprus Institute.

Lelieveld and his colleagues have investigated how temperatures will develop in the Middle East and North Africa over the course of the 21st century. The result is deeply alarming: Even if Earth's temperature were to increase on average only by two degrees Celsius compared to pre-industrial times, the temperature in summer in these regions will increase more than twofold. By mid-century

States' buffering capacity









Resettling the First American ‘Climate Refugees’

By CORAL DAVENPORT and CAMPBELL ROBERTSON



NY subway system after Hurricane Sandy (2012)





cities project

NPR'S SERIES ON URBAN LIFE IN THE 21ST CENTURY



6:35

+ Queue

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Transcript

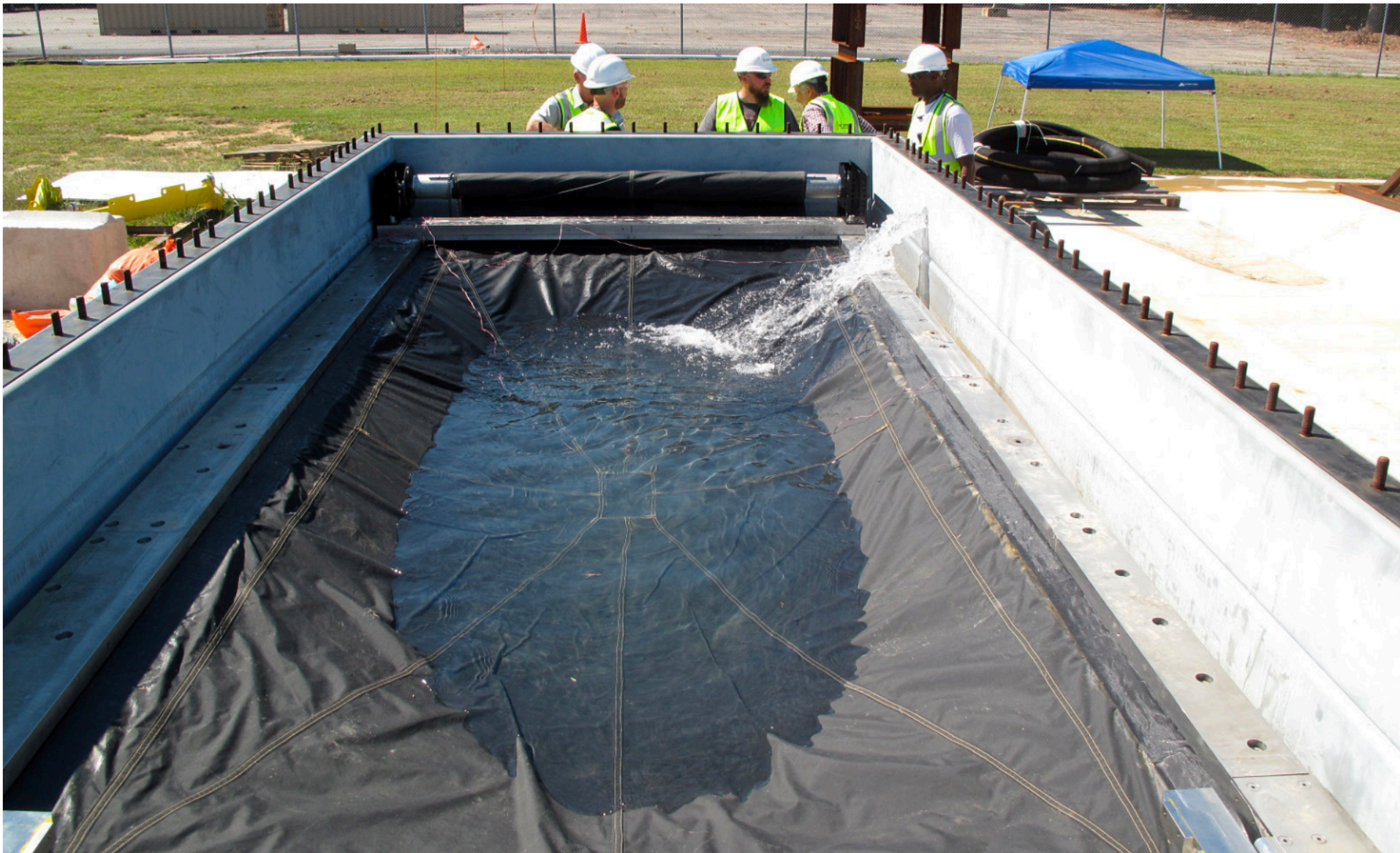


To Flood-Proof Subways, N.Y. Looks At Everything From Plugs To Sheets

October 8, 2015 · 4:46 AM ET

Heard on [Morning Edition](#)

JOEL ROSE



Engineers test the Flex-Gate, a big sheet of waterproof fabric designed to cover subway entrances and keep water out. Its creation was inspired in part by roll-up metal doors used to cover store entrances.

Joel Rose/NPR

New York City may have dodged a major storm recently when Hurricane Joaquin headed out to sea, but it was an unwelcome reminder of what happened three years ago when the city suffered catastrophic flooding during Superstorm Sandy. Now, the New York subway system is racing to get new flood-proofing technologies ready in time for the next big storm.

Or
n.



Putin Accuses Ukraine of
Plotting Terrorist Attacks
in Crimea



MEMO FROM POLAND
'We Don't Need to Be
Alone': A Political Shift
Has Poland Assessing Its...



Brussels Airport Lifts
Emergency Precautions
After Bomb Scare

EUROPE

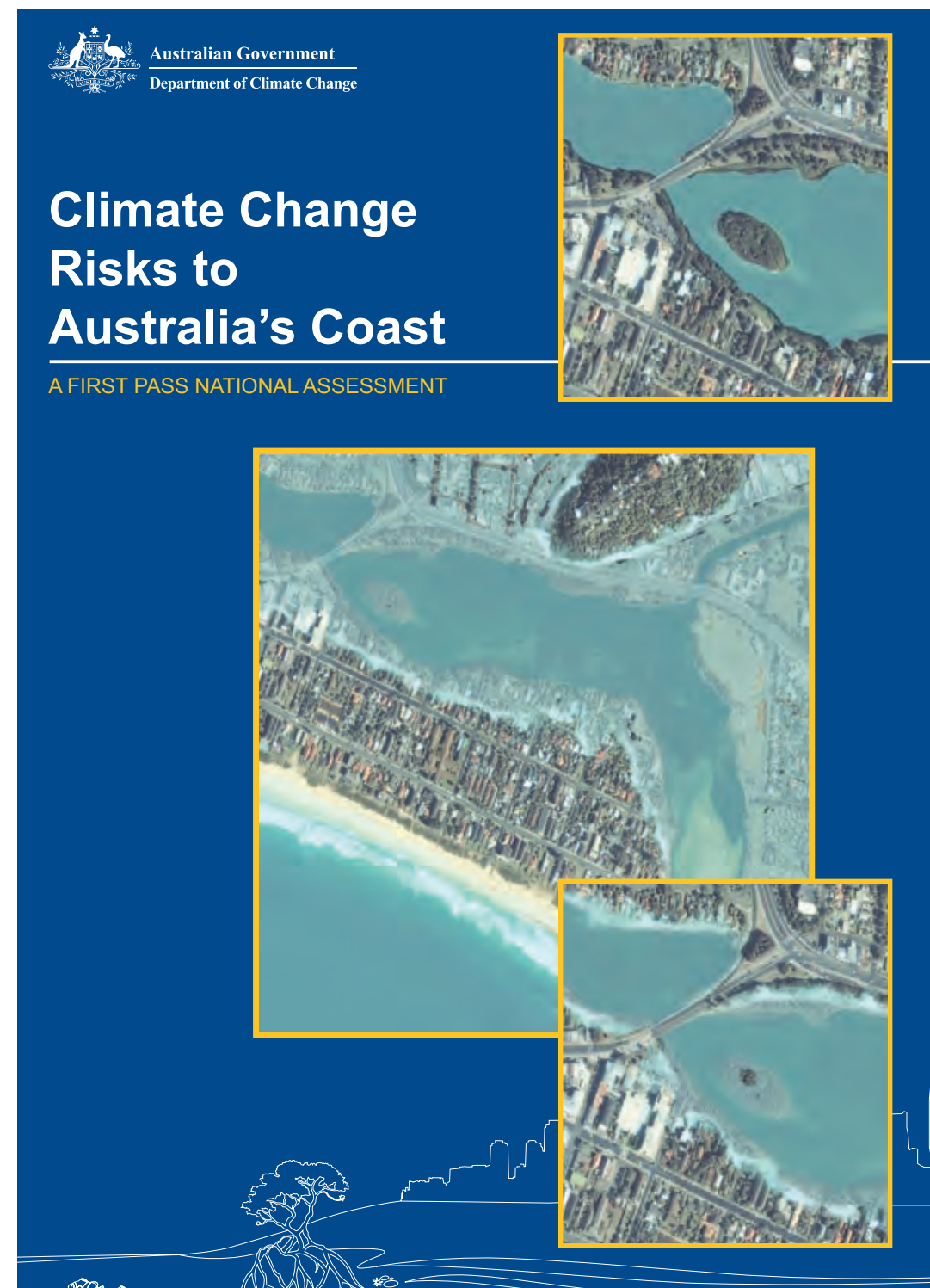
Lessons for U.S. From a Flood-Prone Land

By ANDREW HIGGINS NOV. 14, 2012



The Netherlands has invested heavily in flood control projects like the Maeslantkering.
Ily Njiokiktjien for The New York Times

LELYSTAD, the Netherlands — Entrusted with ensuring that the central Netherlands never suffers a calamity like the one visited on New York by [Hurricane Sandy](#), Willem van Dijk, guardian of the dikes in Flevoland, a Dutch province that is more than 12 feet below sea level, sends out 11 men each morning to combat a grave menace to the world’s most advanced



“[A]s of October 2009, there are 711,000 addresses sited within 3km and under 6 metres elevation of Australia’s cost.” (Department of the Environment and Energy 2009: 73)

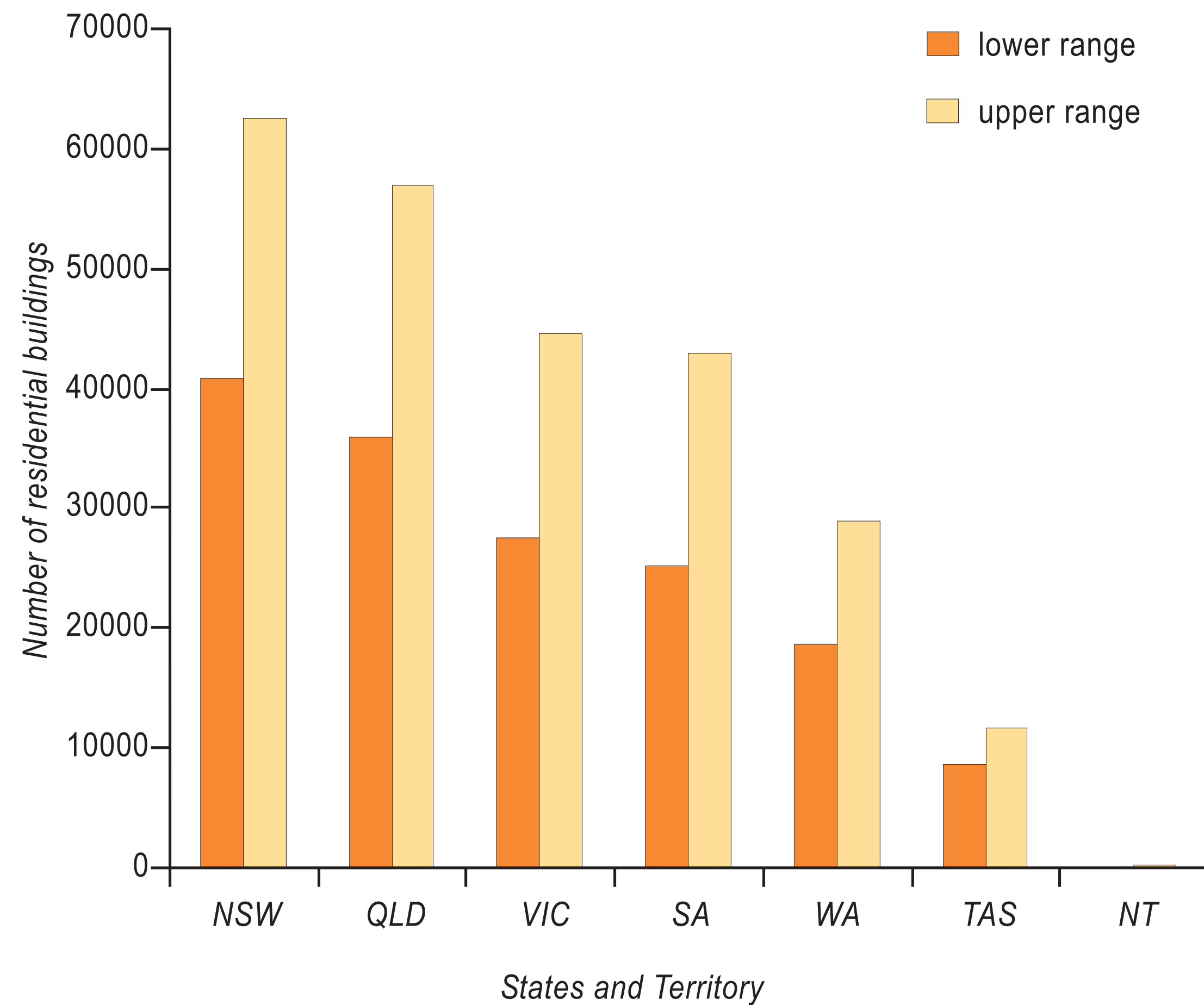


Figure 5.6 Estimated number of existing residential buildings at risk of inundation from a sea-level rise of 1.1 metres (including 1-in-100 storm tide for New South Wales, Victoria and Tasmania, and high tide event for other states and the Northern Territory).

Est. # of existing residential buildings at risk of flooding from a 1.1m sea level rise & a 1-in-100 year storm surge

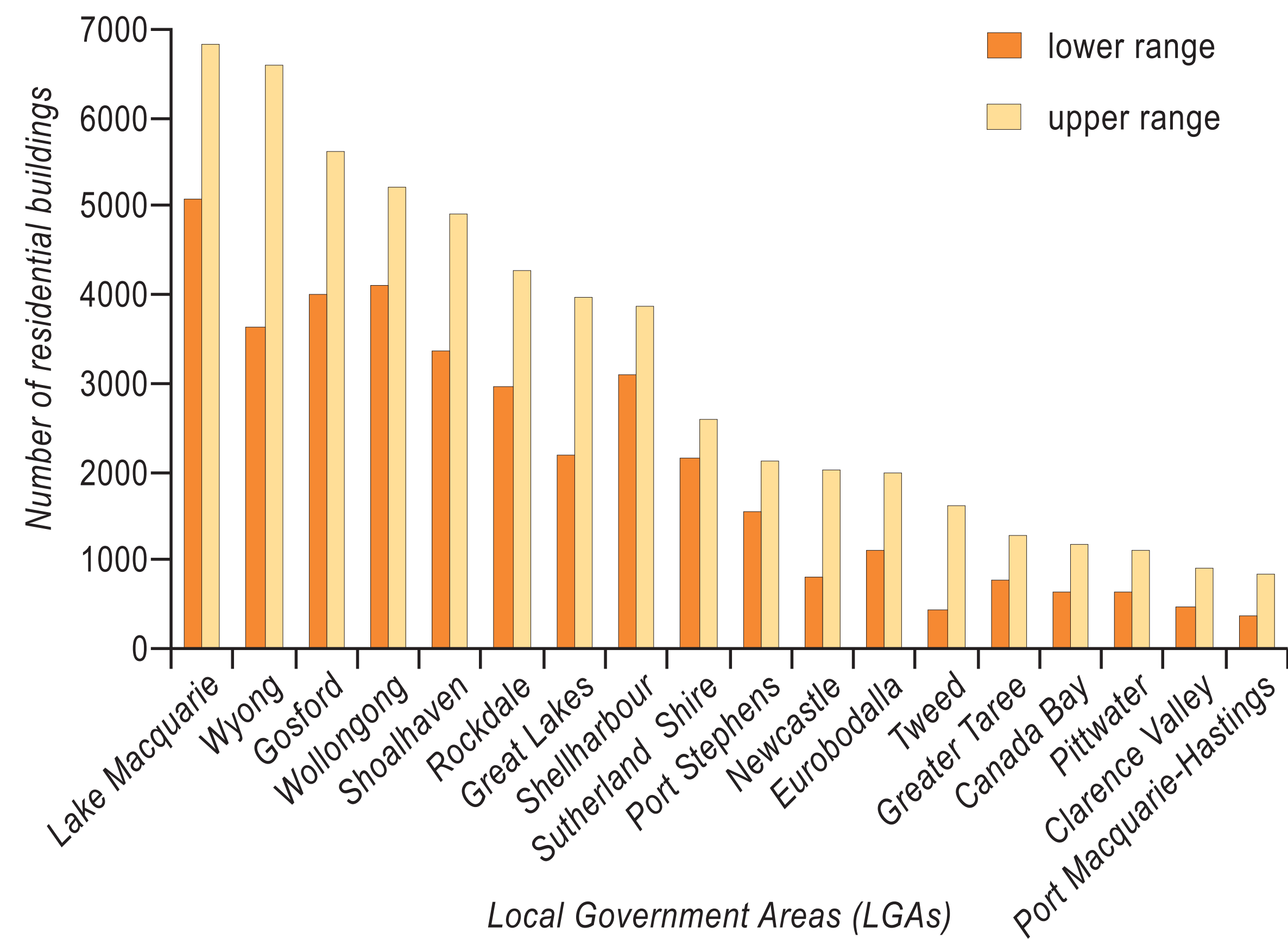


Figure 5.9 Estimated number of existing residential buildings in New South Wales at risk of inundation from a sea-level rise of 1.1 metres and a 1-in-100 year storm tide.

Box 5.5 Sydney Coastal Councils Group

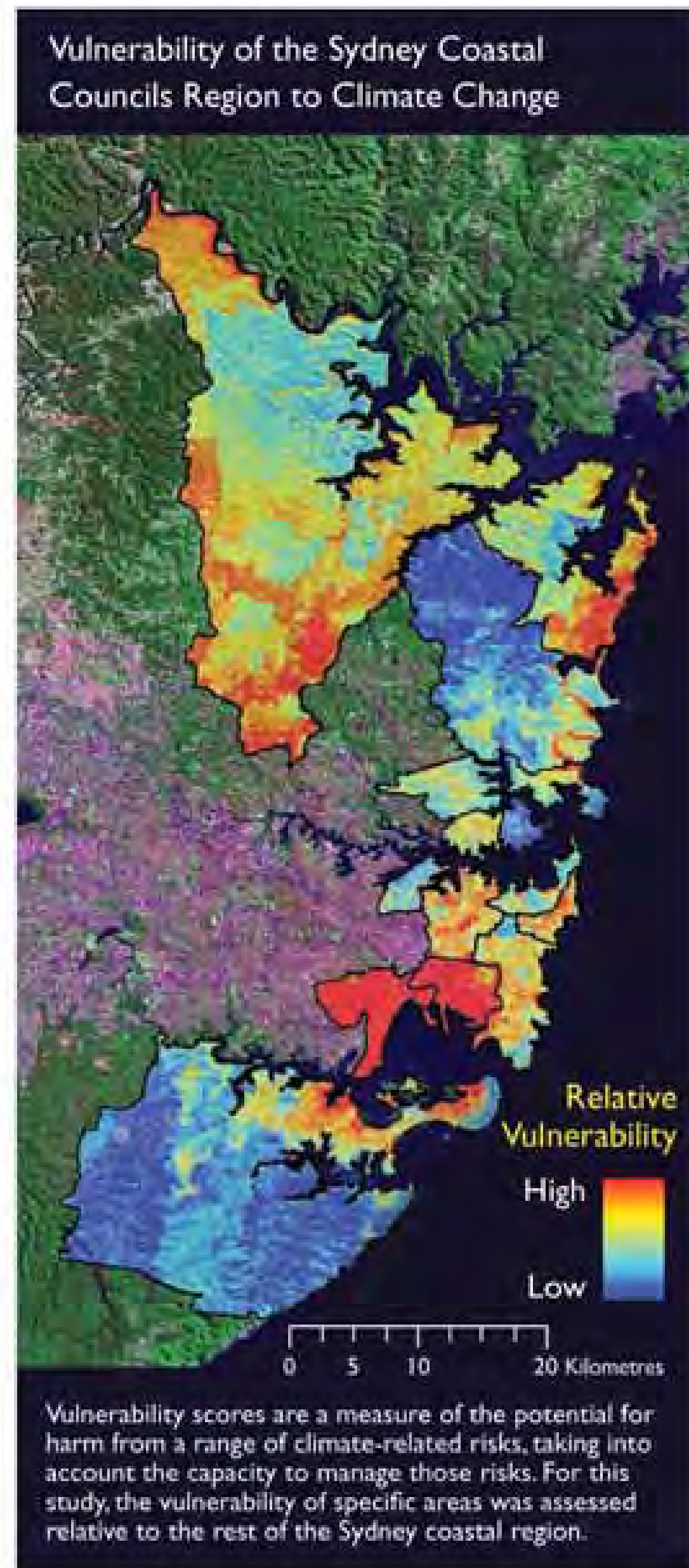
The *Systems approach to regional climate change adaptation strategies in metropolises* project focussed on the capacity of 15 Sydney coastal councils to adapt to climate change. Stage 1 of the project involved the assessment and mapping of climate change vulnerability throughout the region. The assessment was based on potential climate impacts including:

- sea-level rise and coastal hazards
- extreme rainfall and urban stormwater management
- extreme heat and human health effects
- bushfire
- natural ecosystems and assets.

These were assessed against three main groups of exposure, sensitivity and adaptive capacity indicators. The study found that overall the inner city councils of Botany Bay, Leichhardt, North Sydney, Randwick, Rockdale and Sydney, had the highest levels of climate change vulnerability. Sea-level rise was a key driver of risk for the Botany Bay, Leichhardt, Manly, Rockdale and Sydney councils, all of which were considerably more vulnerable than the average.

The vulnerability for each local government was spatially variable because of different levels of climate exposure, higher sensitivity to damage and/or a limited capacity to adapt with almost every Council having at least one impact area to which it had a high degree of vulnerability. Interestingly the study found that demographics, socio-economic conditions and response capabilities are often equally, if not more, important than biophysical hazards, in determining the level of vulnerability to climate change and the potential for harm.

The study identified that the most common barriers



This project was recently awarded the 2009 Eureka

Box 5.6 Tropical cyclone and storm tide risk in Cairns

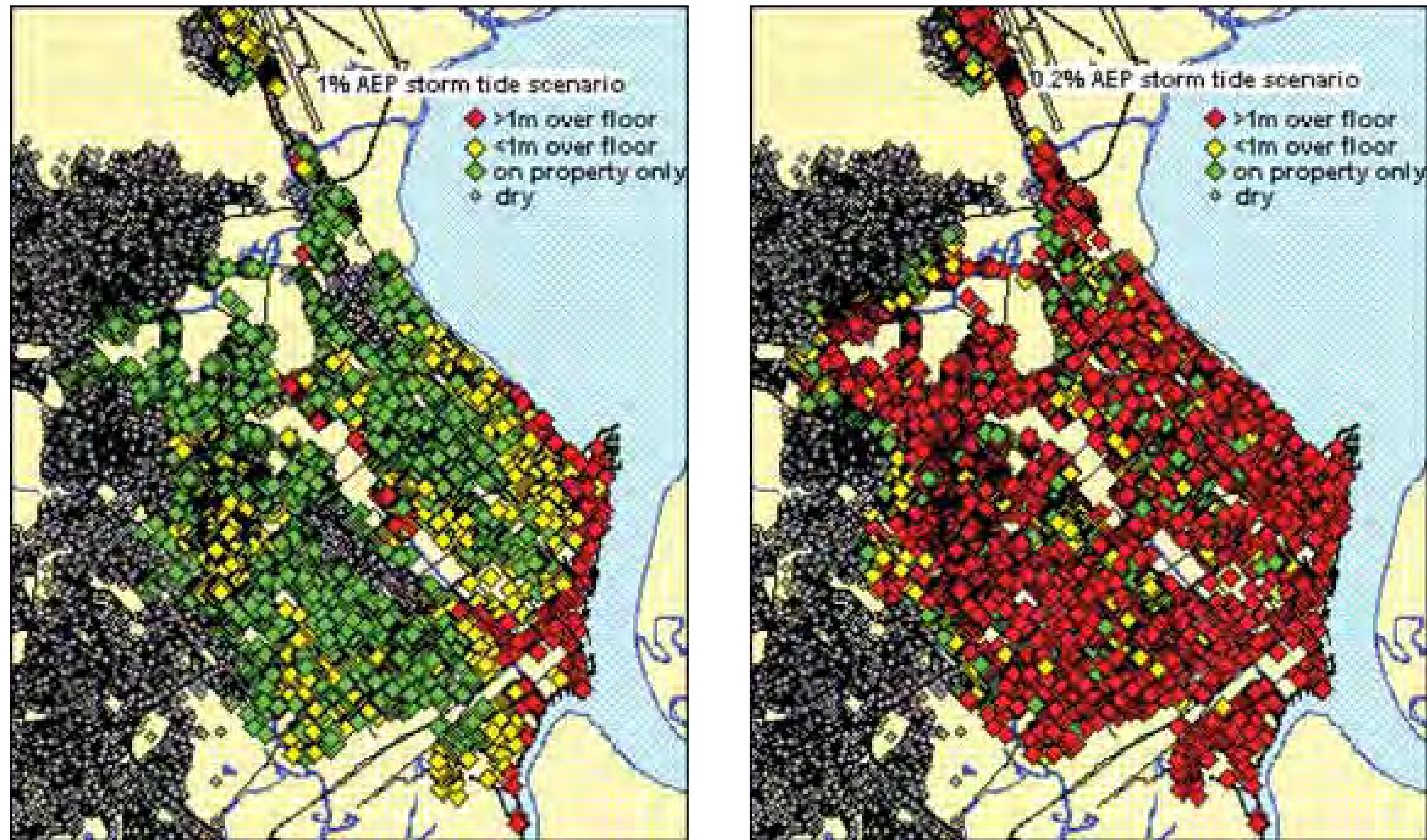
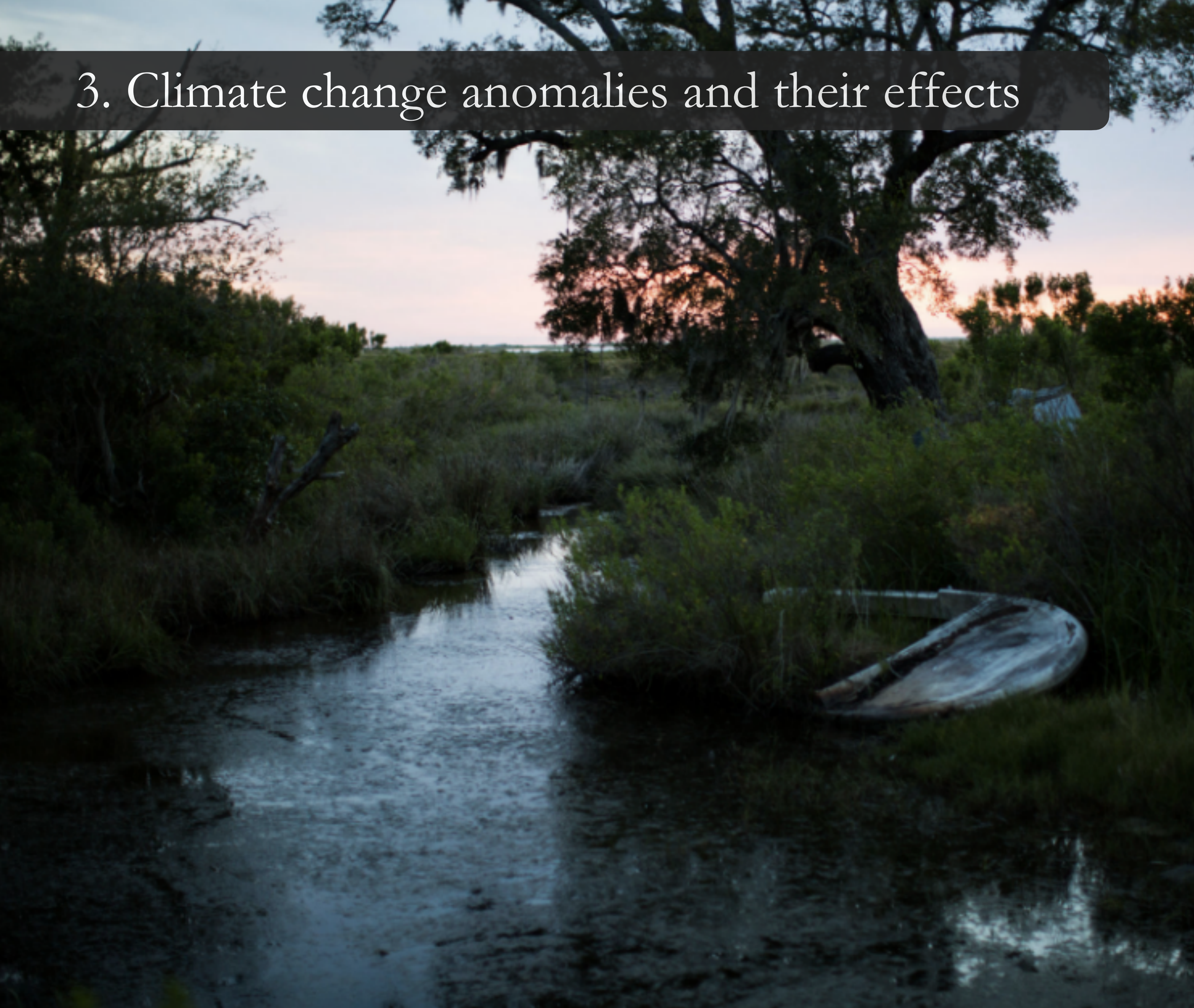


Figure 5.20 Modelled impact of a 1 per cent AEP (left) and 0.2 per cent AEP storm tide scenario (right). Source: Granger et al 1999.⁵⁸

3. Climate change anomalies and their effects



4. Environmental change and conflict



Image source: *Military Times*
(<https://www.militarytimes.com/news/your-military/2020/02/12/us-army-africa-commander-were-not-walking-away-from-africa/>)

MINISTERS

NAVY

ARMY

AIR FORCE

Australian Government

Department of Defence

Department of Defence

Home

South Pacific

Indo Pacific

Middle East Region

Global

Domestic

Operations

The Government has deployed Australian Defence Force personnel to operations overseas and within Australia to protect Australia and its national interests. ADF members are actively protecting Australia's borders and offshore maritime interests.

CURRENT OPERATIONS

CEASED OPERATIONS

NUMBER OF PERSONNEL

SHOW ALL

SOUTH PACIFIC

INDO PACIFIC

MIDDLE EAST REGION

GLOBAL

DOMESTIC

Enhanced Regional Engagement

South West Pacific

Indo-Pacific Endeavour

Indo-Pacific Region

Operation Accordion

Middle East Region

Operation Argos

North East Asia

Operation Aslan

South Sudan

Operation COVID-19 Assist

Australia

Operation Dyurra

Space

Operation Gateway

South East Asia

Operation Linesmen

South Korea

Operation Manitou

Middle East Region Maritime

Operation Mazurka

Egypt

Operation Okra

Iran

Operation Orenda

Mali

Operation Paladin

Israel

Operation Render Safe

South West Pacific

Operation Resolute

Australian Maritime Interests

Operation Solania

Pacific Region

Operation Southern Discovery

Antarctic Region

Operation Steadfast

Iran

Operation Augury

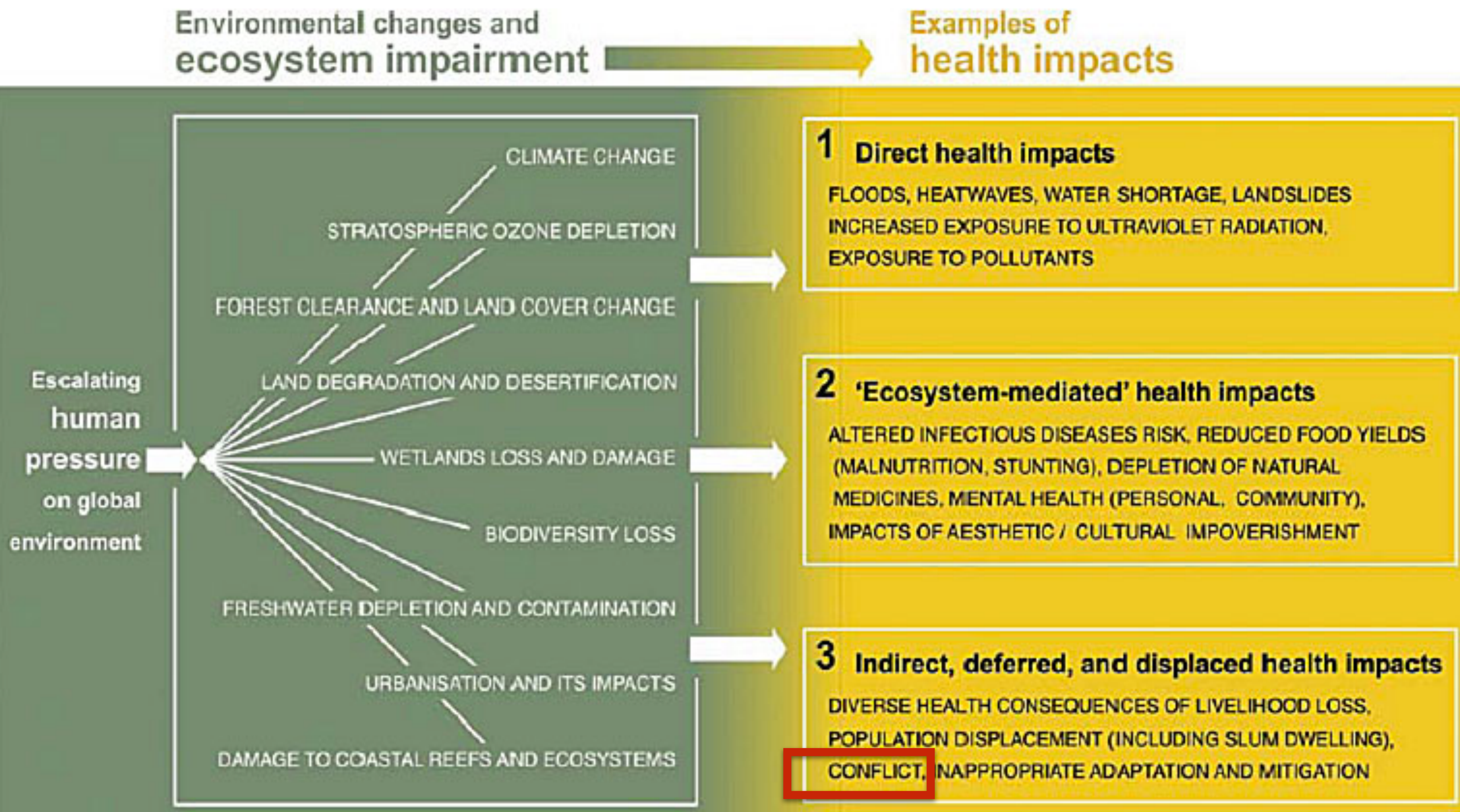
Global

CURRENT OPERATIONS	CEASED OPERATIONS	NUMBER OF PERSONNEL
Number of Defence personnel on operation		
Operation & Location	Personnel *	
<u>Accordion</u> Middle East Region	Variable	
<u>Aslan</u> South Sudan	20	
<u>Manitou</u> Middle East Region Maritime	5	
<u>Mazurka</u> Egypt	27	
<u>Okra</u> Middle East Region and Iraq	Variable	
<u>Orenda</u> Mali	1	
<u>Paladin</u> Israel	14	
<u>Resolute</u> Australian Maritime Interests	600	
<u>Enhanced Regional Engagement</u> Southwest Pacific	Variable	
<u>Indo-Pacific Endeavour</u> Indo-Pacific Region	Variable	
<u>Argos</u> North East Asia	Variable	
<u>COVID-19 Assist</u>	Variable	
<u>Dyurra</u>	Variable	
<u>Gateway</u>	20	
<u>Linesman</u> South Korea	3	
<u>Render Safe</u>	Variable	
<u>Solania</u> Pacific Region	Variable	
<u>Southern Discovery</u> Antarctic	15	
<u>Steadfast</u> Iraq	2	

Source: <https://www.defence.gov.au/Operations/>

Week	Summary
Section 1: Defining terms, actors, and interests	
Week 1	Introduction, course overview, and conflict
Week 2	Economic development and economic instability
Week 3	Political institutions and instability
Week 4	Environmental change and scarcity
Section 2: Causes	
Week 5	Population
Week 6	Migration
	<i>Teaching break (no class)</i>
Week 7	Water
Week 8	Food
Week 9	Natural resources
Week 10	Natural disaster
Section 3: Responses	
Week 11	Domestic responses
Week 12	International cooperation

Environmental change (WHO diagram)



Homer-Dixon (1994)

Environmental Scarcities and Violent Conflict

Evidence from Cases

Thomas F.
Homer-Dixon

Within the next fifty years, the planet’s human population will probably pass nine billion, and global economic output may quintuple. Largely as a result, scarcities of renewable resources will increase sharply. The total area of high-quality agricultural land will drop, as will the extent of forests and the number of species they sustain. Coming generations will also see the widespread depletion and degradation of aquifers, rivers, and other water resources; the decline of many fisheries; and perhaps significant climate change.

If such “environmental scarcities” become severe, could they precipitate violent civil or international conflict? I have previously surveyed the issues and evidence surrounding this question and proposed an agenda for further research.¹ Here I report the results of an international research project guided by this agenda.² Following a brief review of my original hypotheses and the project’s research design, I present several general findings of this research that led me to revise the original hypotheses. The article continues with an account of empirical evidence for and against the revised hypotheses, and it concludes with an assessment of the implications of environmentally induced conflict for international security.

Thomas F. Homer-Dixon is Assistant Professor of Political Science and Director of the Peace and Conflict Studies Program at the University of Toronto. From 1990 to 1993, he was co-director and lead researcher of the Project on Environmental Change and Acute Conflict.

Portions of this article have been drawn from Thomas Homer-Dixon, Jeffrey Boutwell, and George Rathjens, “Environmental Scarcity and Violent Conflict,” *Scientific American*, February 1993; and from Homer-Dixon, “Environmental Scarcity and Global Security” *Headline Series* (New York: Foreign Policy Association, 1993). The author thanks the participants in the Project on Environmental Change and Acute Conflict, especially project co-directors Jeffrey Boutwell and George Rathjens. The Donner Canadian Foundation funded the article’s preparation.

1. Thomas Homer-Dixon, “On the Threshold: Environmental Changes As Causes of Acute Conflict,” *International Security*, Vol. 16, No. 2 (Fall 1991), pp. 76–116.
2. The three-year Project on Environmental Change and Acute Conflict brought together a team of thirty researchers from ten countries. It was sponsored by the American Academy of Arts and Sciences and the Peace and Conflict Studies Program at the University of Toronto.



Homer-Dixon's (1994) causes of conflict

1. **Greenhouse**-induced climate change
2. Stratospheric **ozone depletion**
3. Degradation and loss of good **agricultural land**
4. Degradation and removal of **forests**
5. Depletion and pollution of **fresh water** supplies
6. Depletion of **fisheries**

Homer-Dixon's expected relationships

H1 (**simple-scarcity wars**): Decreasing supplies of physically controllable environmental resources will lead to conflict.

H2 (**group-identity conflicts**): Large population movements caused by environmental stress will lead to conflict.

H3 (**deprivation conflicts**): Environmental scarcity will lead to increased economic deprivation and disruption social institutions which will lead to conflict

Homer-Dixon's (1994) sources of renewable resource scarcity

Environmental change shrinks the resource pie.

Population growth divides the pie into smaller slices.

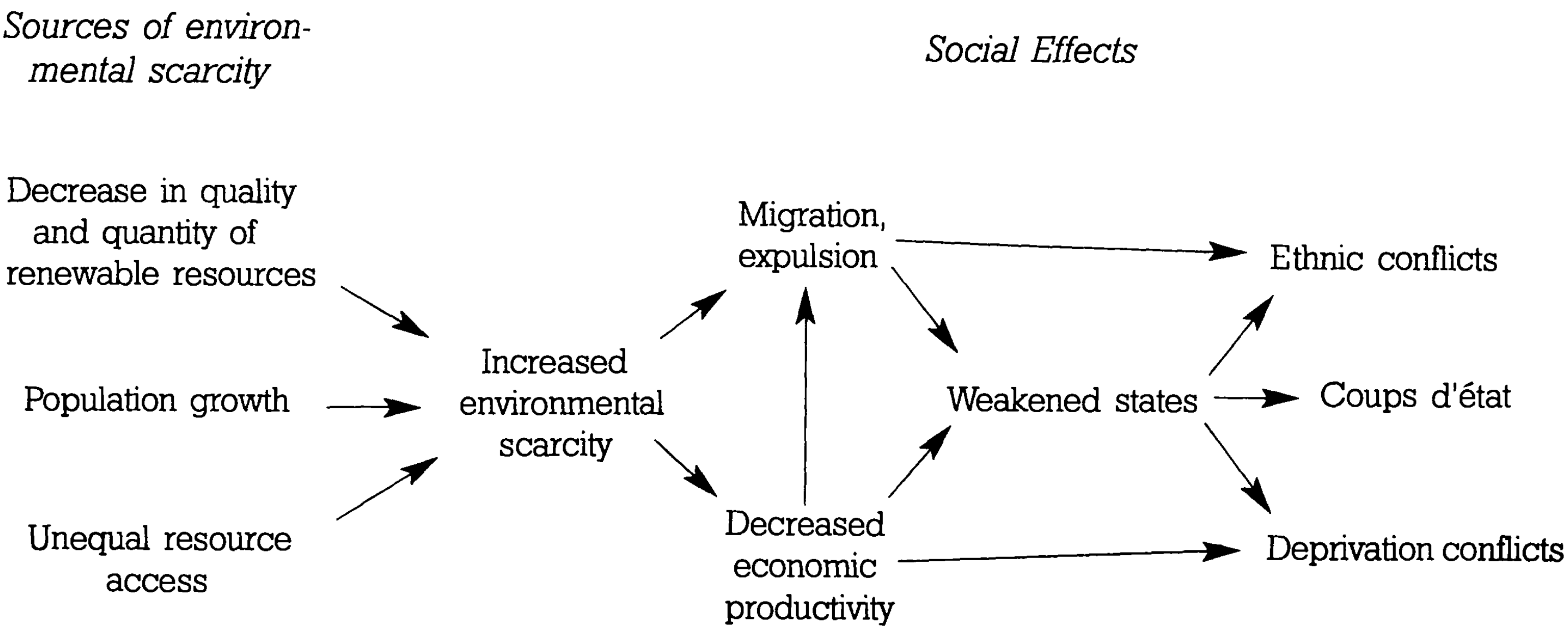
Unequal resource distribution means that some groups get disproportionately large slices.



Unequal resource distribution (a.k.a. the Gini index)



Figure 2. Some Sources and Consequences of Environmental Scarcity.



Source: Homer-Dixon (1994: 31)

Is Homer-Dixon's (1994) case selection process useful in reaching generalisable conclusions?

Env.t'l scarcity	Conflict		
		Yes	No
	Yes		
	No		

Lecture question #2

What are a few costs and benefits of only looking at cases where there is both environmental scarcity and conflict?

4. Environmental change and conflict



Image source: *Military Times*
(<https://www.militarytimes.com/news/your-military/2020/02/12/us-army-africa-commander-were-not-walking-away-from-africa/>)

5. Climate, resources, and conflict



Image source: <https://medium.com/@unclearn/4-climate-change-dynamics-that-might-contribute-to-existing-or-future-conflicts-8e8d48ba76c1>

Examples of int'l/domestic resource conflicts

War/conflict/crisis	Primary commodities
American revolution	trade routes & commodities
American civil war	cotton & other agricultural commodities, slave labor
Chile-Bolivia's War of the Pacific, 1879-83	nitrate
Finnish-Soviet war	nickel
Iraq's invasion of Kuwait	oil
Liberia	timber
Sierra Leone	diamonds
Côte d'Ivoire	cocoa
South China Sea dispute	oil

Why are non-renewable resources more likely to cause conflict?

Non-renewables like oil and mineral resources can be more easily converted into state **power**.

States that are more **dependent on non-renewables** are poorer.



Manantali Dam, Mali



FROM THE ARCHIVES

U.S. Aid Worker, Daughter Wounded

October 19, 2001

Deep Scars Left by Senegal's Conflict With Neighboring Mauritania : West Africa: New shopkeepers take over in Dakar. But the impact is devastating along the frontier river.

April 5, 1990

COLUMN ONE : Africa's Holy Men of Politics : Senegal's marabout religious leaders wield unique secular authority. But this is beginning to strain relations with their followers.

March 1, 1990

Victimized by Drought, Locusts : Senegal's Farmers Cling to Land Cursed by Nature

December 13, 1988

MORE STORIES ABOUT

Blacks -- Mauritania

Mauritanian

Dakar

In Senegal and Mauritania, Ethnic Conflict Rages Amid Talk of War

June 03, 1989 | RONE TEMPEST | Times Staff Writer



0



0

DAKAR, Senegal — For as long as anyone can remember, the so-called white Moors from neighboring Mauritania sold engraved silver jewelry and ornate wooden lockboxes in a tree-shaded marketplace near the center of this West African capital.

These days, the Courtyard of the Moors, as the marketplace is called, is deserted except for a few scavengers sifting through the dirt and debris for valuables buried or dropped by the Moors, who not long ago departed hastily in the face of angry Senegalese mobs.

In Mauritania, the vast desert country to the north, black Africans, mainly from Senegal, were until recently the fishermen, skilled workmen and a key part of the professional-intellectual class of that country.

Thousands Deported Back

But as a result of one of those violent, ethnically based population expulsions that have characterized the history of post-colonial Africa, thousands of blacks have been deported back here to Senegal, even though many came from families that had lived for generations in Mauritania.

In all, a Western diplomat here estimates, as many as 170,000 people have in recent weeks been caught up in this massive population shift between the two countries. More than 250 people have been killed in violence, on both sides of the border.

Meanwhile, the Senegalese and Mauritanian armies are poised on opposite banks of the Senegal River, which forms the border.

Domain

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Rent

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Sold

Commercial

News ▾

Advice ▾

Agents

M

[Home](#) > [News](#) > [Latest](#) > [Canberra's light rail could drive up property values along tram line](#)

Canberra's light rail could drive up property values along tram line

EMMA KELLY | MAY 18, 2016



A number of suburbs set to reap the benefits of Canberra's light rail route have already experienced a spike in value.



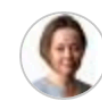
The ACT government's Capital Metro line from Gungahlin Town Centre to the city is expected to drive more buyers to properties along the transport corridor and potentially boost home values, experts say.



Home / News / Latest News

JUNE 22 2019 - 10:00AM

Tram speeds development, property prices in Northbourne corridor



Kirsten Lawson

Latest News

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The Gungahlin tram line is speeding development in the Northbourne corridor, the government says, pointing to about 2500 extra apartments already in train since 2016.

The developments are on Northbourne Avenue or in the couple of blocks either side, from Dickson to the city. The government says the value of development approvals in over 16 months from November 2016 totals \$394 million.



A tram takes to Northbourne Avenue in March, under budget and nearly on time.

One of the claimed benefits of the light rail project was to create higher-density living and increase property values in the corridor, increasing jobs and reducing the need to open up new housing developments on empty land further out.

On Friday, the government released its final report on the 12 kilometre line, comparing what it promised with what it delivered.

Home Project Solutions
Reliable & Friendly Service
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H&D Constructions ACT
H&D Constructions ACT - Licenced Builder
[0413...](#) [Show Number](#)

Hi-Micro Computers
We offer on-site and in house servicing
[0262...](#) [Show Number](#)

LOCAL NEWS

- 1

Nelson to step down as War director
- 2

Boy, 11, in hospital after being hit by car
- 3

Man threatened at knife point in Gungahlin service station
- 4

The hotel where guests take a break from the beds
- 5

A Netflix show has caused a spike at Canberra Glasswork

Coping strategies

Continue to rely on resource but **compensate** those who have limited resource access.

Shift economy away from resources that are being depleted.

Both strategies require **government resources**.

Climate change and conflict

Climate change is a **threat multiplier** for instability. (Salehyan

2008: 316 quoting US military officers' report; emphasis added)

No evidence yet that environmental degradation is a **necessary** or **sufficient** condition for armed conflict.

What is important is the **interactive effect** of environmental and political systems.

“In short, resource scarcity, natural disasters, and long-term climatic shifts are ubiquitous, while armed conflict is rare; therefore, **environmental conditions, by themselves, cannot predict violent outbreaks.**” (Salehyan

2008: 319; emphasis added)

Areas for research improvement (Saleyhan 2008)

Develop better measures of **political institutions**.

Develop **exogenous measures** (natural conditions that humans cannot control) of **environmental stress**.

Model **endogenous relationships** (e.g. between environment pressures and political failures).

Look for interactive, **contingent** effects.

Two additional factors (Buhaug & Theisen 2012)

The environmental and social **costs of resource extraction**

The **environmental impacts** of conflict

How many links between climate and conflict can you think of?

If you can think it, Hsiang et al.(2013) probably tested it.

Quantifying the Influence of Climate on Human Conflict

Solomon M. Hsiang,* Marshall Burke, Edward Miguel

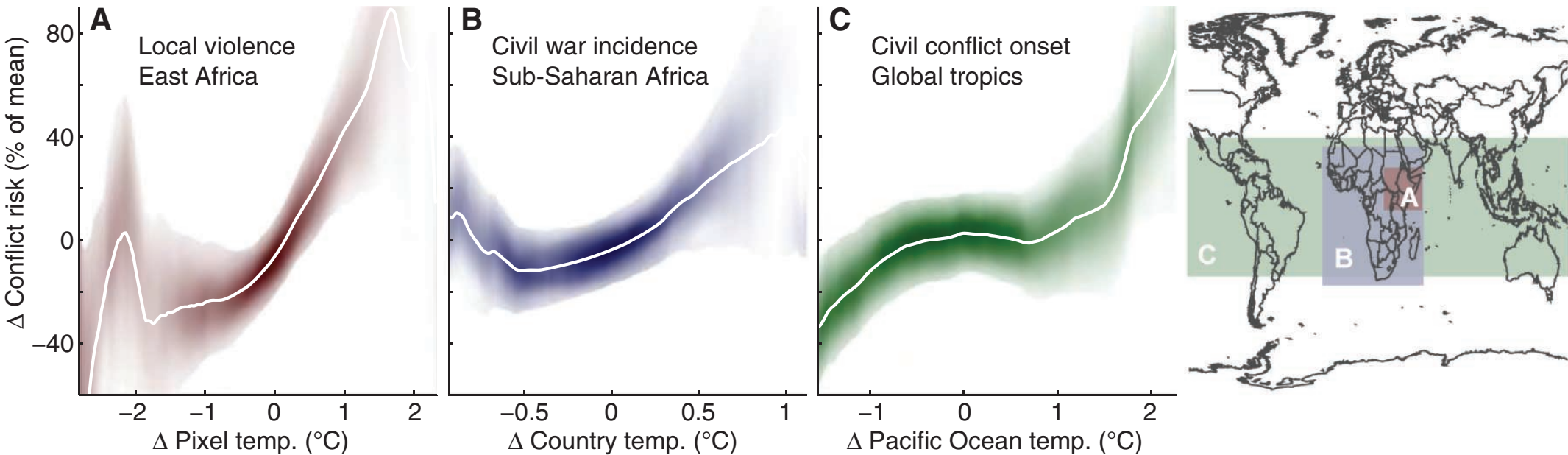
Introduction: Despite the existence of institutions designed to promote peace, interactions between individuals and groups sometimes lead to conflict. Understanding the causes of such conflict is a major project in the social sciences, and researchers in anthropology, economics, geography, history, political science, psychology, and sociology have long debated the extent to which climatic changes are responsible. Recent advances and interest have prompted an explosion of quantitative studies on this question.

Methods: We carried out a comprehensive synthesis of the rapidly growing literature on climate and human conflict. We examined many types of human conflict, ranging from interpersonal violence and crime to intergroup violence and political instability and further to institutional breakdown and the collapse of civilizations. We focused on quantitative studies that can reliably infer causal associations between climate variables and conflict outcomes. The studies we examined are experiments or “natural experiments”; the latter exploit variations in climate over time that are plausibly independent of other variables that also affect conflict. In many cases, we obtained original data from studies that did not meet this criterion and used a common statistical method to reanalyze these data. In total, we evaluated 60 primary studies that have examined 45 different conflict data sets. We collected findings across time periods spanning 10,000 BCE to the present and across all major world regions.

Results: Deviations from normal precipitation and mild temperatures systematically increase the risk of conflict, often substantially. This relationship is apparent across spatial scales ranging from a single building to the globe and at temporal scales ranging from an anomalous hour to an anomalous millennium. Our meta-analysis of studies that examine populations in the post-1950 era suggests that the magnitude of climate’s influence on modern conflict is both substantial and highly statistically significant ($P < 0.001$). Each 1-SD change in climate toward warmer temperatures or more extreme rainfall increases the frequency of interpersonal violence by 4% and intergroup conflict by 14% (median estimates).

Discussion: We conclude that there is more agreement across studies regarding the influence of climate on human conflict than has been recognized previously. Given the large potential changes in precipitation and temperature regimes projected for the coming decades—with locations throughout the inhabited world expected to warm by 2 to 4 SDs by 2050—amplified rates of human conflict could represent a large and critical social impact of anthropogenic climate change in both low- and high-income countries.

Climate and conflict across spatial scales. Evidence that temperature influences the risk of modern human conflict: (A) local violence in 1° grid cells, (B) civil war in countries, and (C) civil conflict risk in the tropics. The map depicts regions of analysis corresponding to nonparametric watercolor regressions in (A) to (C). The color intensity in (A) to (C) indicates the level of certainty in the regression line.



The list of author affiliations is available in the full article online.
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READ THE FULL ARTICLE ONLINE

<http://dx.doi.org/10.1126/science.1235367>

 Cite this article as S. Hsiang *et al.*, *Science* **341**, 1235367 (2013). DOI: 10.1126/science.1235367

FIGURES AND TABLE IN THE FULL ARTICLE

Fig. 1. Samples and spatiotemporal resolutions of 60 studies examining intertemporal associations between climatic variables and human conflict.

Fig. 2. Empirical studies indicate that climatological variables have a large effect on the risk of violence or instability in the modern world.

Fig. 3. Examples of paleoclimate reconstructions that find associations between climatic changes and human conflict.

Fig. 4. Modern empirical estimates for the effect of climatic events on the risk of interpersonal violence.

Fig. 5. Modern empirical estimates for the effect of climatic events on the risk of intergroup conflict.

Fig. 6. Projected temperature change by 2050 as a multiple of the local historical SD (σ) of temperature.

Table 1. Primary quantitative studies testing for a relationship between climate and conflict, violence, or political instability.

SUPPLEMENTARY MATERIALS

Supplementary Text
Figs. S1 to S4
Tables S1 to S4
References (140, 141)

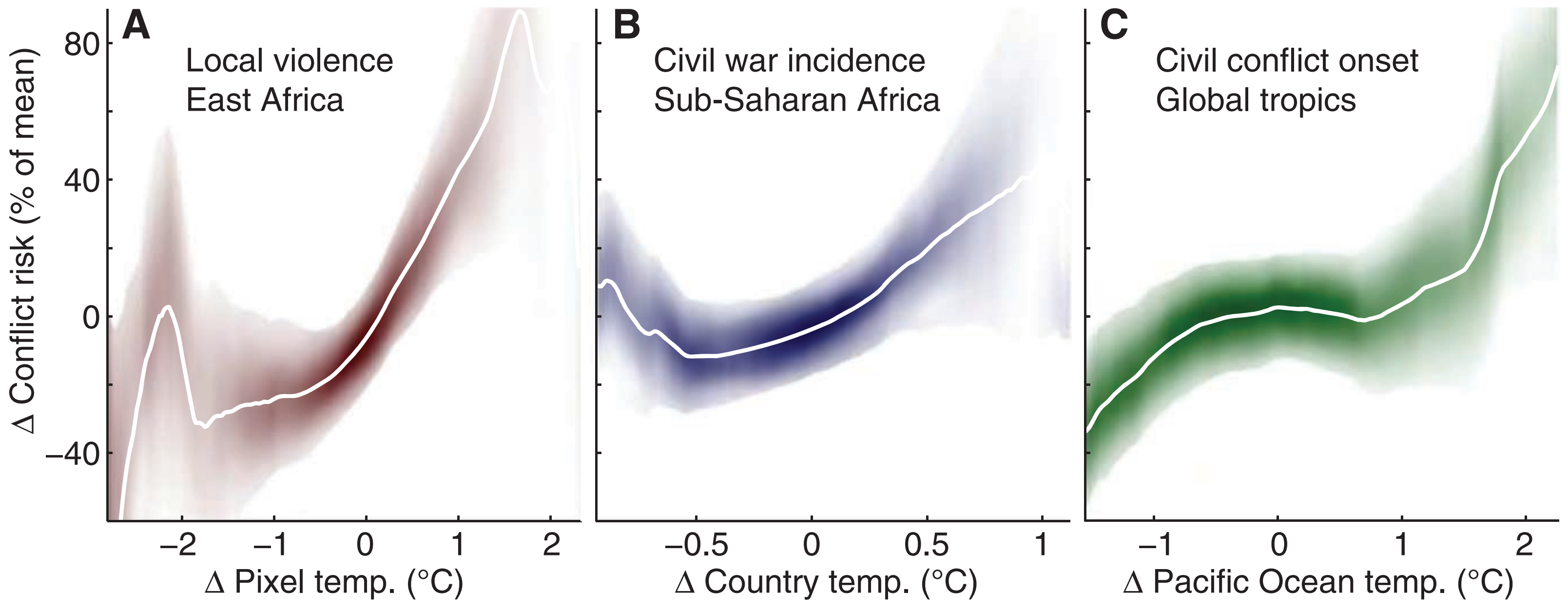
Table 1. Primary quantitative studies testing for a relationship between climate and conflict, violence, or political instability. “Stat. test” is Y if the analysis uses formal statistical methods to quantify the influence of climate variables and uses hypothesis testing procedures (Y, yes; N, no). “Large effect” is Y if the point estimate for the effect size is considered substantial by the authors or is greater in magnitude than 10% of the mean risk level for a 1σ

change in climate variables. “Reject β = 0” is Y if the study rejects an effect size of zero at the 95% confidence level. “Reject β = 10%” is Y if the study is able to reject the hypothesis that the effect size is larger than 10% of the mean risk level for a 1σ change in climate variables. —, not applicable. SSA, sub-Saharan Africa; PDSI; Palmer Drought Severity Index; ENSO, El Niño–Southern Oscillation; NAO, North Atlantic Oscillation; N. Hem., Northern Hemisphere.

Study	Sample period	Sample region	Time unit	Spatial unit	Independent variable	Dependent variable	Stat. test	Large effect	Reject β = 0	Reject β = 10%	Ref.
<i>Interpersonal conflict (15)</i>											
Anderson <i>et al.</i> 2000*	1950–1997	USA	Annual	Country	Temp	Violent crime	Y	Y	Y	—	(34)
Auliciems <i>et al.</i> 1995†	1992	Australia	Week	Municipality	Temp	Domestic violence	Y	Y	Y	—	(29)
Blakeslee <i>et al.</i> 2013	1971–2000	India	Annual	Municipality	Rain	Violent and property crime	Y	Y	Y	—	(42)
Card <i>et al.</i> 2011†‡	1995–2006	USA	Day	Municipality	Temp	Domestic violence	Y	Y	Y	—	(37)
Cohn <i>et al.</i> 1997§	1987–1988	USA	Hours	Municipality	Temp	Violent crime	Y	Y	Y	—	(30)
Jacob <i>et al.</i> 2007†	1995–2001	USA	Week	Municipality	Temp	Violent and property crime	Y	Y	Y	—	(35)
Kenrick <i>et al.</i> 1986¶	1985	USA	Day	Site	Temp	Hostility	Y	Y	Y	—	(27)
Larrick <i>et al.</i> 2011†‡	1952–2009	USA	Day	Site	Temp	Violent retaliation	Y	Y	Y	—	(36)
Mares 2013	1990–2009	USA	Month	Municipality	Temp	Violent crime	Y	Y	Y	—	(39)
Miguel 2005†‡	1992–2002	Tanzania	Annual	Municipality	Rain	Murder	Y	Y	N	N	(40)
Mehlum <i>et al.</i> 2006	1835–1861	Germany	Annual	Province	Rain	Violent and property crime	Y	Y	Y	—	(43)
Ranson 2012†	1960–2009	USA	Month	County	Temp	Personal violence	Y	Y	Y	—	(38)
Rotton <i>et al.</i> 2000§	1994–1995	USA	Hours	Municipality	Temp	Violent crime	Y	Y	Y	—	(31)
Sekhri <i>et al.</i> 2013†	2002–2007	India	Annual	Municipality	Rain	Murder and domestic violence	Y	Y	Y	—	(41)
Vrij <i>et al.</i> 1994¶	1993	Netherlands	Hours	Site	Temp	Police use of force	Y	Y	Y	—	(28)
<i>Intergroup conflict (30)</i>											
Almer <i>et al.</i> 2012	1985–2008	SSA	Annual	Country	Rain/temp	Civil conflict	Y	Y	N	N	(65)
Anderson <i>et al.</i> 2013	1100–1800	Europe	Decade	Municipality	Temp	Minority expulsion	Y	Y	Y	—	(63)
Bai <i>et al.</i> 2010	220–1839	China	Decade	Country	Rain	Transboundary	Y	Y	Y	—	(50)
Bergholt <i>et al.</i> 2012‡#	1980–2007	Global	Annual	Country	Flood/storm	Civil conflict	Y	N	N	Y	(75)
Bohlken <i>et al.</i> 2011 #	1982–1995	India	Annual	Province	Rain	Intergroup	Y	Y	N	N	(44)
Buhaug 2010 [#]	1979–2002	SSA	Annual	Country	Temp	Civil conflict	Y	N	N	N	(22)
Burke 2012‡ #	1963–2001	Global	Annual	Country	Rain/temp	Political instability	Y	Y	N**	N	(71)
Burke <i>et al.</i> 2009‡ #††	1981–2002	SSA	Annual	Country	Temp	Civil conflict	Y	Y	Y	—	(64)
Cervellati <i>et al.</i> 2011	1960–2005	Global	Annual	Country	Drought	Civil conflict	Y	Y	Y	—	(54)
Chaney 2011	641–1438	Egypt	Annual	Country	Nile floods	Political Instability	Y	Y	Y	—	(70)
Couttenier <i>et al.</i> 2011 [#]	1957–2005	SSA	Annual	Country	PDSI	Civil conflict	Y	Y	Y	—	(53)
Dell <i>et al.</i> 2012#	1950–2003	Global	Annual	Country	Temp	Political instability and civil conflict	Y	Y	Y	—	(21)
Fjelde <i>et al.</i> 2012‡#	1990–2008	SSA	Annual	Province	Rain	Intergroup	Y	Y	N**	N	(55)
Harari <i>et al.</i> 2013#	1960–2010	SSA	Annual	Pixel (1°)	Drought	Civil conflict	Y	Y	Y	—	(52)
Hendrix <i>et al.</i> 2012‡ #	1991–2007	SSA	Annual	Country	Rain	Intergroup	Y	Y	Y	—	(46)
Hidalgo <i>et al.</i> 2010‡ #	1988–2004	Brazil	Annual	Municipality	Rain	Intergroup	Y	Y	Y	—	(25)
Hsiang <i>et al.</i> 2011 #	1950–2004	Global	Annual	World	ENSO	Civil conflict	Y	Y	Y	—	(51)
Jia 2012	1470–1900	China	Annual	Province	Drought/flood	Peasant rebellion	Y	Y	Y	—	(56)
Kung <i>et al.</i> 2012	1651–1910	China	Annual	County	Rain	Peasant rebellion	Y	Y	Y	—	(47)
Lee <i>et al.</i> 2013	1400–1999	Europe	Decade	Region	NAO	Violent conflict	Y	Y	Y	—	(57)
Levy <i>et al.</i> 2005‡ #	1975–2002	Global	Annual	Pixel (2.5°)	Rain	Civil conflict	Y	Y	N**	N	(49)
Maystadt <i>et al.</i> 2013#	1997–2009	Somalia	Month	Province	Temp	Civil conflict	Y	Y	Y	—	(66)
Miguel <i>et al.</i> 2004#‡‡	1979–1999	SSA	Annual	Country	Rain	Civil war	Y	Y	Y	—	(48)
O’Laughlin <i>et al.</i> 2012‡ #	1990–2009	E. Africa	Month	Pixel (1°)	Rain/temp	Civil/intergroup	Y	Y	Y	—	(23)
Salehyan <i>et al.</i> 2012	1979–2006	Global	Annual	Country	PDSI	Civil/intergroup	Y	Y	Y	—	(76)
Sarsons 2011	1970–1995	India	Annual	Municipality	Rain	Intergroup	Y	Y	Y	—	(45)
Theisen <i>et al.</i> 2011‡#	1960–2004	Africa	Annual	Pixel (0.5°)	Rain	Civil conflict	Y	N	N	N	(24)
Theisen 2012‡ #	1989–2004	Kenya	Annual	Pixel (0.25°)	Rain/temp	Civil/intergroup	Y	Y	N**	N	(14)
Tol <i>et al.</i> 2009	1500–1900	Europe	Decade	Region	Rain/temp	Transboundary	Y	Y	Y	—	(60)
Zhang <i>et al.</i> 2007§§	1400–1900	N. Hem.	Century	Region	Temp	Instability	Y	Y	Y	—	(59)
<i>Institutional breakdown and population collapse (15)</i>											
Brückner <i>et al.</i> 2011#	1980–2004	SSA	Annual	Country	Rain	Inst. change	Y	Y	Y	—	(78)

Continued on next page

Climate and conflict across spatial scales. Evidence that temperature influences the risk of modern human conflict: **(A)** local violence in 1° grid cells, **(B)** civil war in countries, and **(C)** civil conflict risk in the tropics. The map depicts regions of analysis corresponding to nonparametric watercolor regressions in (A) to (C). The color intensity in (A) to (C) indicates the level of certainty in the regression line.



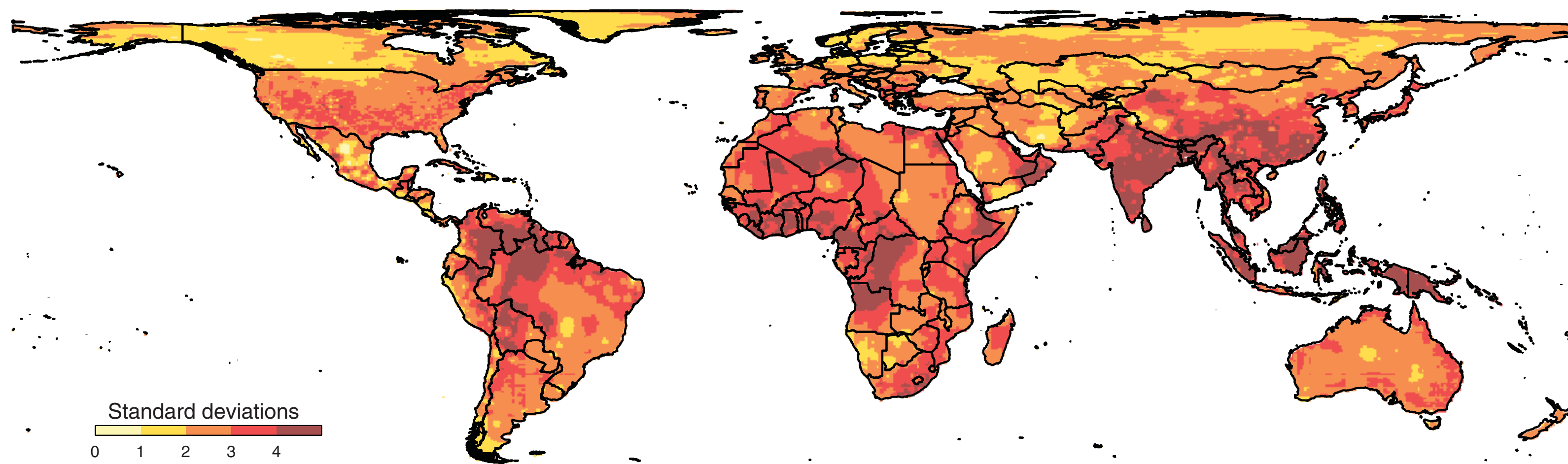


Fig. 6. Projected temperature change by 2050 as a multiple of the local historical SD (σ) of temperature. Temperature projections are for the A1B scenario and are averaged across 21 global climate models reporting in the Coupled Model Intercomparison Project (CMIP3) (96). Changes are the difference

between projected annual average temperatures in 2050 and average temperatures in 2000. The historical SD of temperature is calculated from annual average temperatures at each grid cell over the period 1950–2008, using data from the University of Delaware (131). The map is an equal-area projection.

AMBIENT TEMPERATURE AND HORN HONKING

A Field Study of the Heat/Aggression Relationship

DOUGLAS T. KENRICK *is Associate Professor in the Social and Environmental Psychology programs at Arizona State University. he was previously an assistant professor at Montana State University. He has published articles and chapters on personality/environment interactions and interpersonal processes, including work on the effects of aversive environments on interpersonal attraction.*

STEVEN W. MacFARLANE *attended the University of California at Irvine as an undergraduate, receiving his bachelor's degree in social ecology. He also holds a master's degree in psychology from Arizona State University, where he is currently enrolled as an advanced doctoral student in the Social Psychology Program.*

ABSTRACT: Using a method developed in previous field studies of aggression, this study examined the influence of ambient temperature on responses to a car stopped at a green light. To investigate alternative models of the effects of high temperature on interpersonal hostility, the study was conducted during the spring and summer in Phoenix, Arizona, and included a range on the temperature-humidity discomfort index up to 116°. Results indicated a direct linear increase in horn honking with increasing temperature. Stronger results were obtained by examining only those subjects who had their windows rolled down (and presumably did not have air conditioners operating).

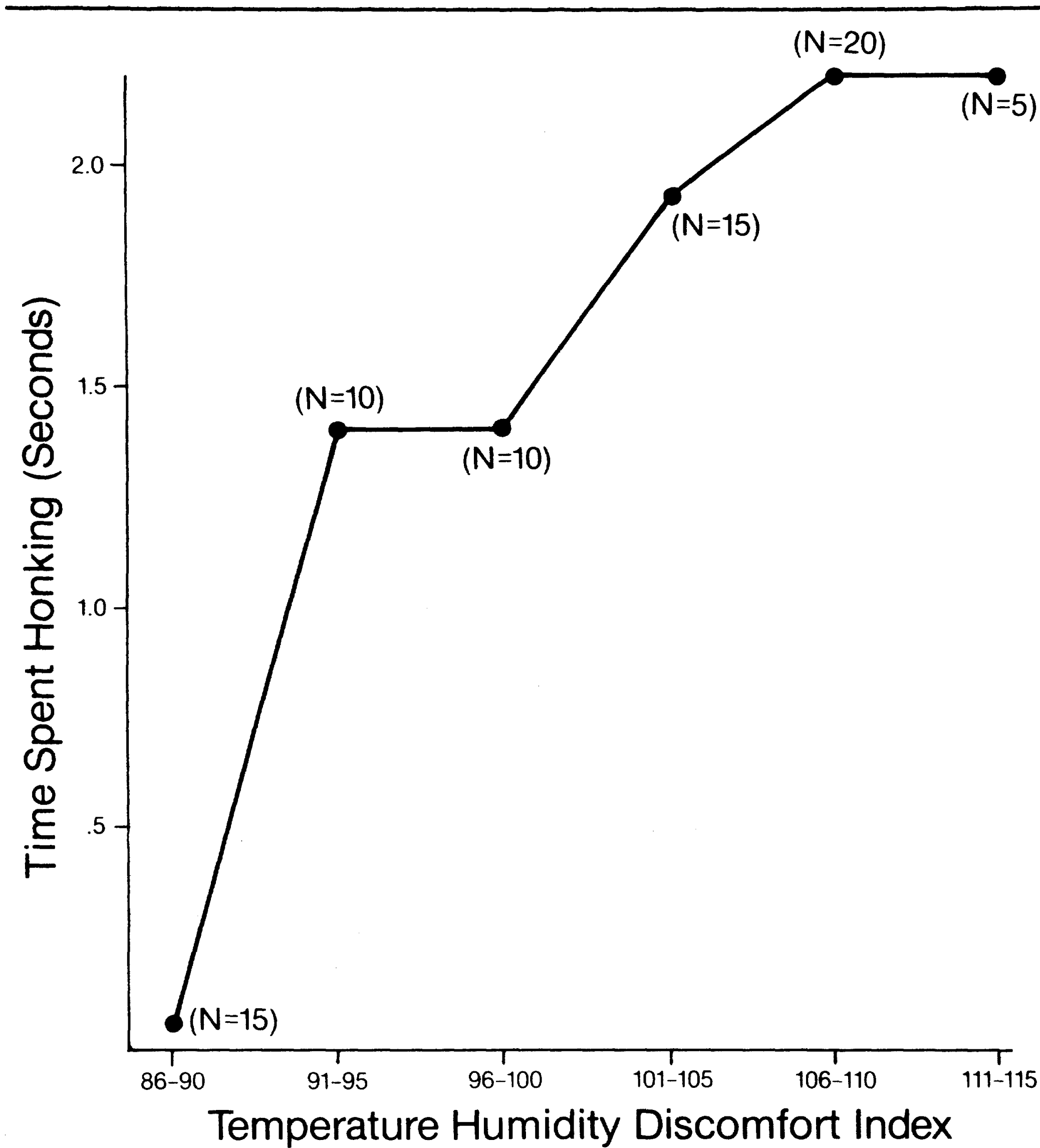


Figure 1: Mean Amount of Time Spent Honking as a Function of Temperature/Humidity Discomfort Index

5. Climate, resources, and conflict



Image source: <https://medium.com/@unclearn/4-climate-change-dynamics-that-might-contribute-to-existing-or-future-conflicts-8e8d48ba76c1>

6. A Venezuela case study



Image source: <https://www.caracaschronicles.com/2016/07/28/el-furrial/>



Wonkblog

Venezuela is on the brink of a complete economic collapse

By **Matt O'Brien** January 29



Customers line up to enter a state-run Bicentenario supermarket in Caracas, Venezuela. (Jorge Silva/Reuters)

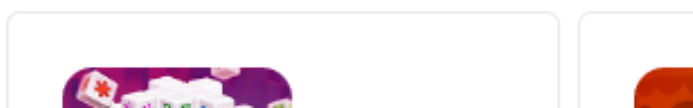
The only question now is whether Venezuela's government or economy will completely collapse first.

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ARGUMENT

Under Cover of Coronavirus, Maduro Is Consolidating Control

As the pandemic continues to stress the country’s collapsing health system, Venezuela’s president has bolstered his political ground.

BY **JOE PARKIN DANIELS** | AUGUST 10, 2020, 9:02 PM



Venezuelan President Nicolás Maduro gives a speech to government supporters at Palacio de Miraflores in Caracas on Jan. 23.
CAROLINA CABRAL/GETTY IMAGES

EDITOR’S NOTE: We’re making some of our coronavirus pandemic coverage free for nonsubscribers. You can read those articles [here](#) and subscribe to our newsletters [here](#).

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Few countries are as ill-equipped to deal with a pandemic as Venezuela. Despite boasting the largest proven oil reserves on the planet, the South American nation is mired in economic, political, and social turmoil. Some 4.5 million Venezuelans

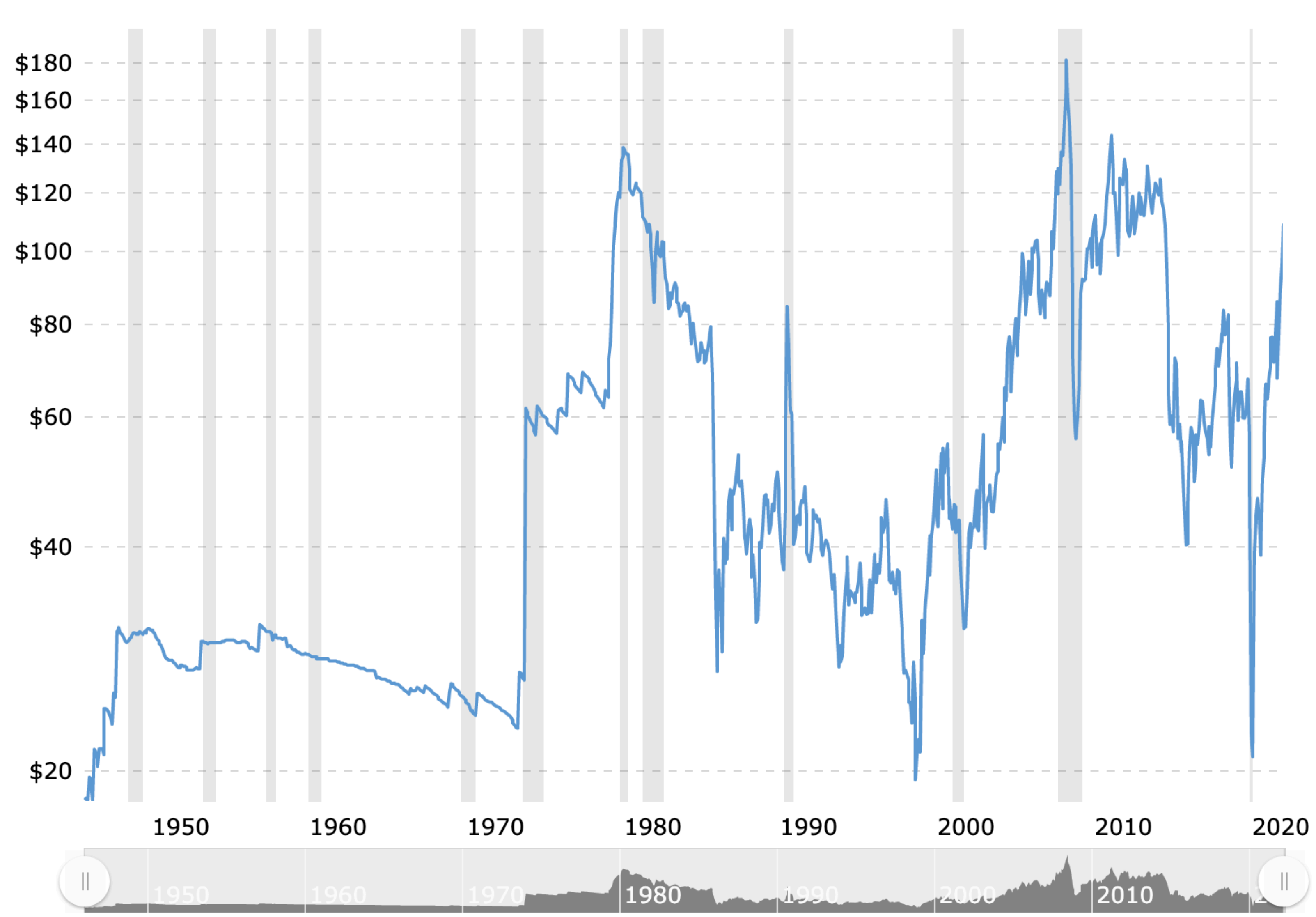
“With more than 4 million displaced, Venezuelans make up the **world’s second-largest refugee crisis**, after Syria’s — but they haven’t received nearly as much help from the international - community.

Spending on Syrians peaked at more than \$5,000 per displaced person, the Organization of American States reported in July. Venezuelans have received about **\$300 per person**.

A \$738 million appeal by the United Nations and other - organizations last year has netted less than a quarter of that goal.”

Anthony Faiola and Rachelle Krygier. 2019. “As Venezuela’s crisis deepens, the most vulnerable are joining the exodus.” *Washington Post* 8 August.

W. Texas intermediate crude oil prices (constant US\$)



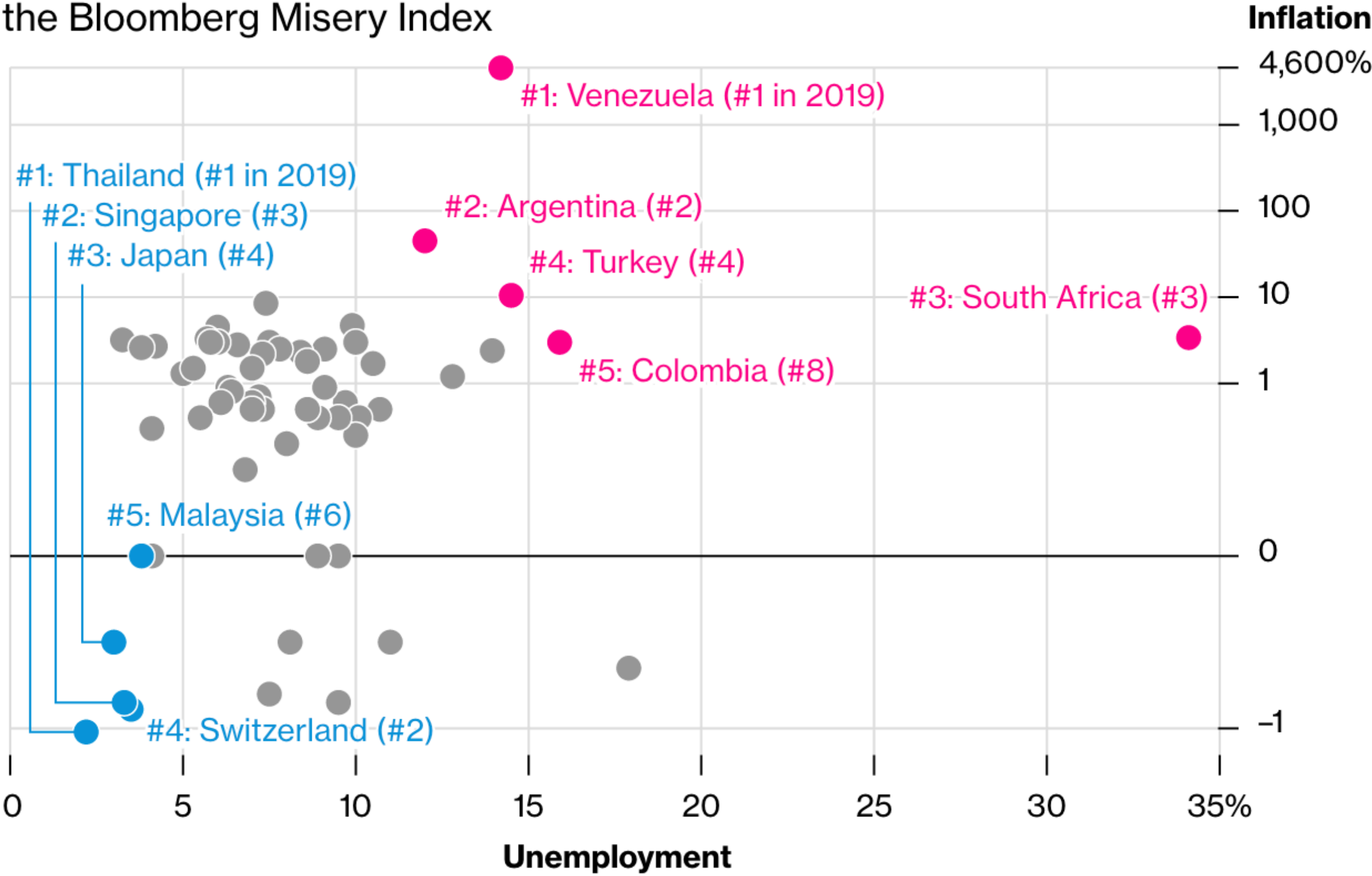
Source: <http://www.macrotrends.net/1369/crude-oil-price-history-chart>

Venezuela has the world's most miserable economy

(According to Bloomberg's 2020 misery index)

Misery Split

The world's **most** and **least** miserable economies for 2020, according to the Bloomberg Misery Index



Sources: Bloomberg surveys as of July 27; national statistics agencies
Note: The index calculates a score for each one of 60 economies, as the sum of their inflation and unemployment rates. Those with the highest scores are considered the most miserable economies. The index compares the median estimate of economists' forecasts for 2020 to 2019 published data.

Published December 15, 2016
Updated Aug 07, 2019

VENEZUELAN CAFÉ CON LECHE INDEX

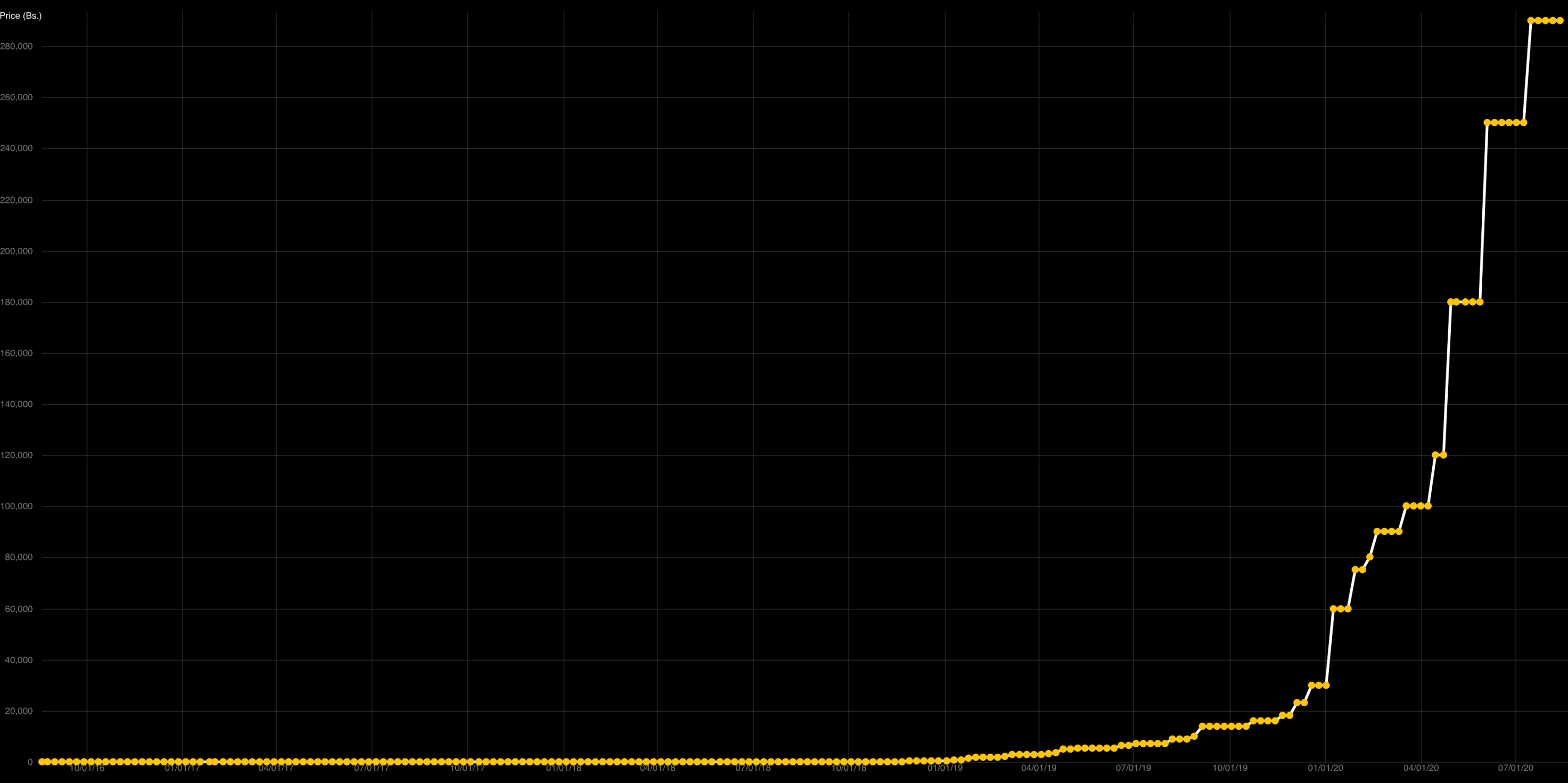
TRACKING HYPERINFLATION ONE CUP OF
COFFEE AT A TIME

Source: <https://www.bloomberg.com/features/2016-venezuela-cafe-con-leche-index/>

Most Recent Price:
290,000.00
Bolívars

Annual Inflation Rate
3,122%
(Trailing 12 mos.)

- 3 MONTH
- 6 MONTH
- 1 YEAR
- ALL TIME



#WORLD NEWS AUGUST 17, 2017 / 8:54 AM / 8 HOURS AGO

Police believe thieves steal Venezuela zoo animals to eat them



Tapirs are seen at the Zulia's Metropolitan Zoological Park in Maracaibo, Venezuela August 16, 2017.

Isaac Urrutia

Venezuela

Joe Parkin Daniels in Bogotá

@joeparkdan

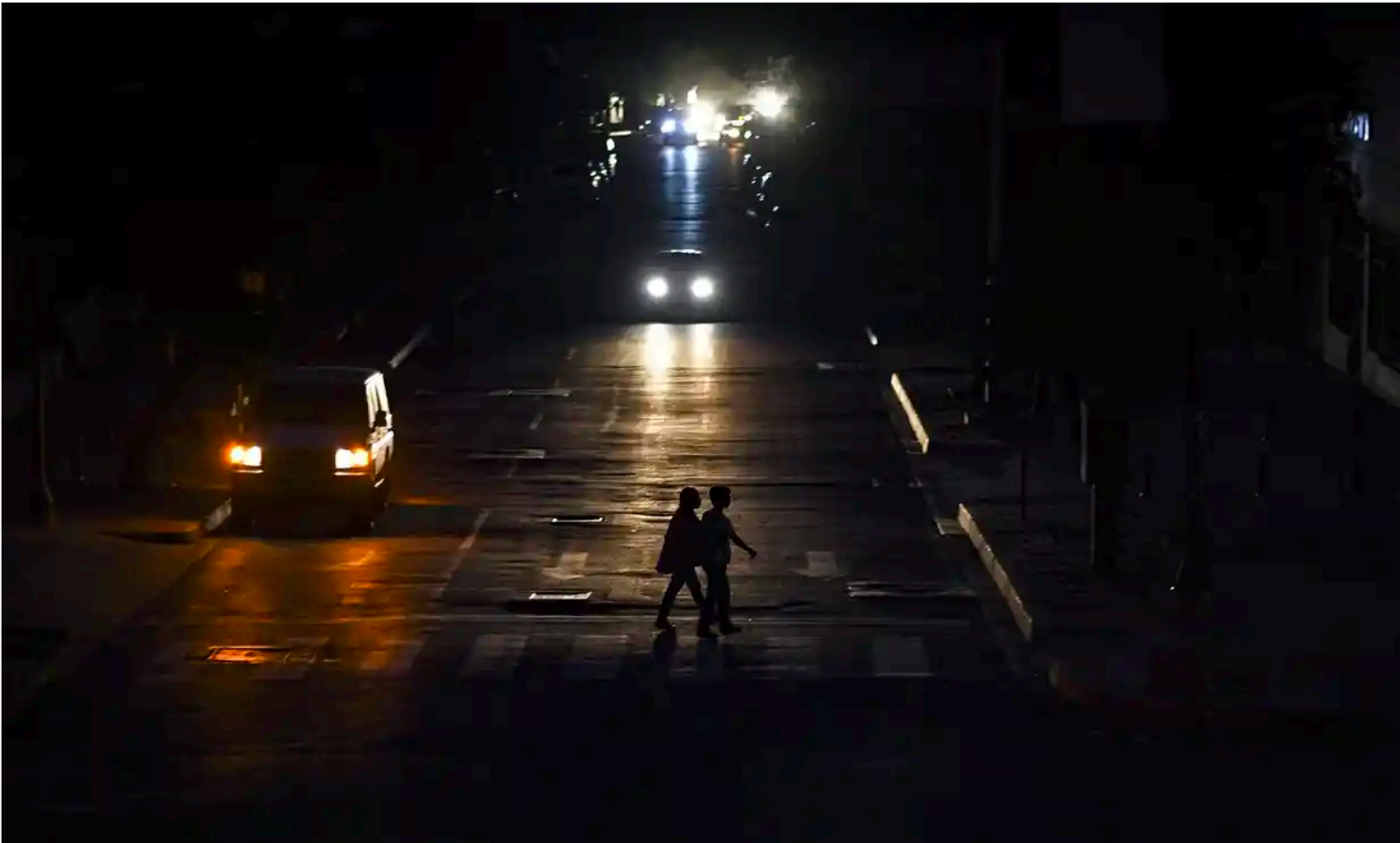
Wed 24 Jul 2019 01:57 AEST



120

Venezuela: widespread blackouts could be new normal, experts warn

Country struggled to restore power after massive blackout on Monday left millions without power



▲ The lights went out in most of Caracas on Monday. Photograph: Yuri Cortéz/AFP/Getty Images

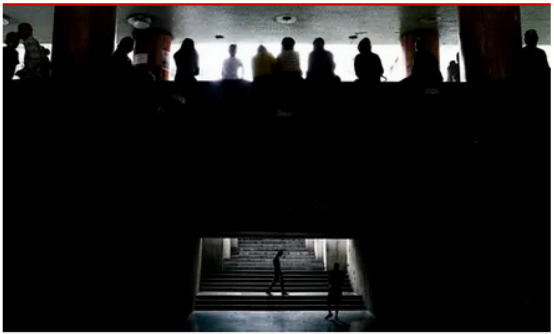
Widespread electricity outages could become the new normal in Venezuela, experts have warned, as the country struggled to restore power after a massive blackout that left millions without power or access to the internet.

The energy minister, Freddy Brito, said on Tuesday morning that power had been restored in Caracas and at least five states after the outage which the government blamed on an “electromagnetic attack” at hydroelectric dams in the south of the country. About 80% of Venezuela’s grid is served by hydropower.

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FEATURES | **VENEZUELA** YESTERDAY

Malaria infections spreading in crisis-ridden Venezuela

Experts calculate that malaria cases could triple this year as the country suffers from a shortage of medication.



Experts blame deficient preventive and treatment measures for infections [Getty Images]



by **Bram Ebus**



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WORLD

Venezuela’s Murder Epidemic Rages on Amid State of Emergency

Ioan Grillo / Caracas @ioangrillo | Jorge Benezra / Caracas @jorgebenezra | May 20, 2016

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Alvaro Ybarra Zavala—Getty Images Reportage

Meeting the killers of Caracas as opposition to President Nicolas Maduro brings Venezuela to the brink

At the Bello Monte morgue in Caracas, the smell of death reeks out from the buildings to the surrounding streets and to the dozens of people waiting on the sidewalks to collect the corpses of their loved ones. The odor of the rotting bodies is so strong because of power cuts hitting the air

A family mourns at the funeral of a man who was shot dead with 16 bullets to the head, while coming out of his home with his daughter, by one of the "colectivos" of Caracas, November 2009. He was part of a rival gang.



AMERICAS

Protests Over Food Shortages in Venezuela Leave Three Dead in a Week



By VICE News and Reuters

June 14, 2016 | 4:56 am

The recent wave of lootings and food riots in crisis-hit Venezuela has left three people dead in the last week, authorities and a rights group said.

The state prosecutor's office is investigating the deaths of a 21-year-old man in the state of Sucre on Saturday, another 21-year-old man in the Caracas slum of Petare on Thursday, and a 42-year-old woman in the western state of Táchira last Monday.

MOST POPULAR



WorldViews • Analysis

Venezuela may be sliding into a civil war

By Ishaan Tharoor June 29



Want smart analysis of the most important news in your inbox every weekday along with other global reads, interesting ideas and opinions to know? [Sign up for the Today's WorldView newsletter.](#)



It was like a scene from a movie. On late Tuesday afternoon, residents in Caracas saw a blue police helicopter circling the capital, carrying a banner that read "Libertad," or "freedom," and the number "350" — a reference, [my colleagues explained](#), "to the article in the Venezuelan constitution that allows people to 'disown' their government if it acts in an undemocratic way."

M

F

Lecture question #3

Please watch the Financial Times and France 24 videos on Venezuela.

While watching these videos, I want you to think about the following question and explain why you reached the conclusion you reached:

If Venezuela does slide into conflict, should it be attributed to:

- 1) The political and economic decisions of Hugo Chavez and Nicholas Maduro
- 2) US sanctions
- 3) Geography and geology
- 4) Something else (explain what)

6. A Venezuela case study



Image source: <https://www.caracaschronicles.com/2016/07/28/el-furrial/>