READ THIS, THEN TALK TO YOUR FRIENDS, TALK TO YOUR FAMILY, TALK TO YOUR COLLEAGUES. IT'S TOUGH, BUT IT CAN'T WAIT.

CO2 AND METHANE CAUSE HEATING

Human activity has already warmed the earth by at least 1.1°C since the Industrial Revolution¹. This was caused by The Greenhouse Effect as shown in the diagram below. The Earth is heating up faster and faster, blanketed in the skyrocketing carbon dioxide (CO₂) and Methane (CH₄) emissions from industry, transport, agriculture, clothing production, and deforestation.

FURTHER READING

CO₂ TRAPS HEAT FROM THE SUN THAT WOULD OTHERWISE ESCAPE.

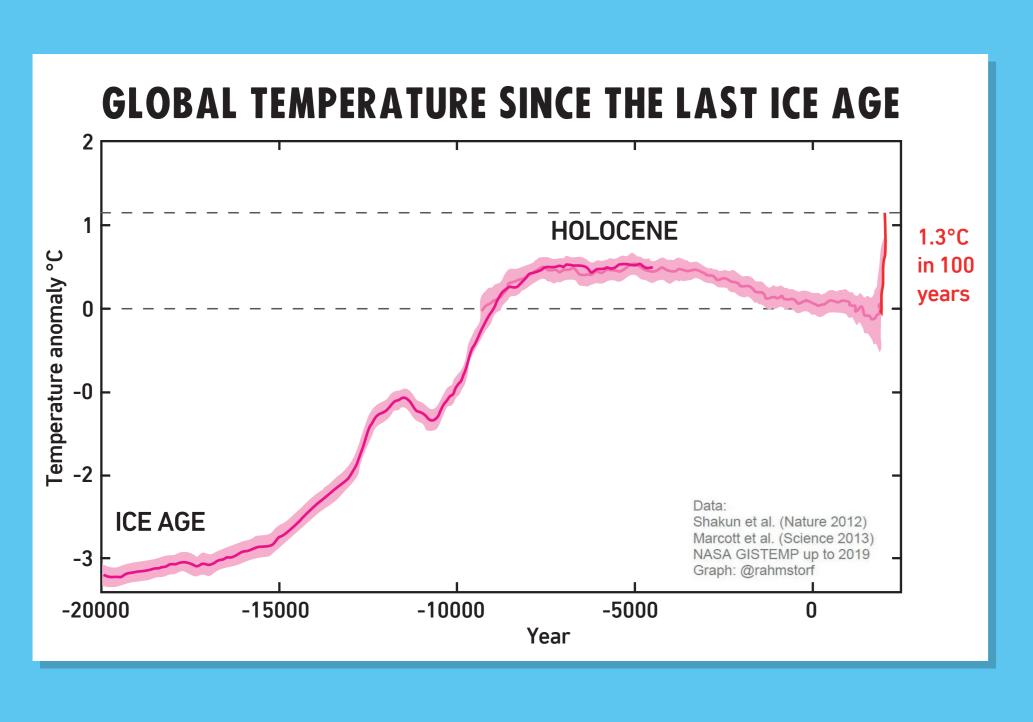
Methane is 84 times as heating in the first 20 years after emission². Our production of CO₂ and methane has been increasing enormously every year since the 1800s³.

Our current emissions and climate policies are on course for a 2+°C heating before 2050. THIS IS HOTTER THAN THE EARTH HAS BEEN FOR 130,000 YEARS⁴, positive feedback loops of further heating⁵. UN Ambassador Lumumba di-Aping called even 2°C "certain death for Africa".



See the next section.

THE GREENHOUSE EFFECT Heat from the Sun enters the Earth's atmosphere and warms Earth's surface Heat is absorbed by greenhouse gases in Earth warmer



TIPPING POINTS: VICIOUS CYCLES. HEATING CAUSES CHANGES, CHANGES CAUSE HEATING...

METHANE RELEASED +CO₂ +CH₄ DECAYS

The state of the 1.1°C warmed world is already indescribably dire. But further emissions risk triggering the permanent disruption of natural systems that then themselves cause unstoppable heating⁶. These are called 'Tipping Points'. Some are already happening⁷. Here are 9 that we know about:

THE AMAZON RAINFOREST IS CHANGING TO BE A NET EMITTER OF CO₂:

The Amazon contains over half the world's remaining rainforest, one of our most potent carbon sinks. The climate processes that preserve it are extremely delicate - heating, deforestation and shifting rain patterns will cause it to die back⁸, and decaying trees and fires will cause MORE CO₂ to be emitted than absorbed. Recent research shows 20% of the Amazon may already be in this state⁹.

2 PERMAFROST IS MELTING, RELEASING STORED CO₂ AND METHANE:

Enormous quantities of methane and CO₂ are currently safely stored in frozen plant matter and soils - about twice the amount of CO_2 as is present in our entire atmosphere¹⁰. As our climate warms, permafrost thaws and releases its stored carbon as greehouse gases,

3 OCEAN CURRENTS ARE SLOWING AND COULD STOP:

To scientists, this is one of the most dangerous of all. Ocean currents are responsible for our weather patterns, and for keeping equatorial regions habitable¹². They are largely driven by dense, cold salty water moving deeper down into the ocean, and warmer, less dense surface water replacing it¹³. The rapid heating of the Arctic is slowing and disrupting this entire global process¹⁴. Once stopped, it is impossible to restart. Why do we care? Recent research shows shutdown in Atlantic ocean currents

would stop the UK's ability to support widespread farming¹⁵. Research also shows other Tipping Points may be triggered 16.

4 BOREAL (SUB-ARCTIC) FORESTS ARE DYING OFF:

30% of the world's forests are found near the Arctic Circle¹⁷, called Boreal forests. They are estimated to hold a third of all terrestrial carbon¹⁸. But this boreal zone is heating around twice as fast as the global average, exposing trees to deadly conditions¹⁹. Fires, diseases and pests will lead to the abrupt release of much of this stored carb which can cause further tree loss²⁰. This is already happening²¹.

BOREAL DEFORESTATION

5 & 6 ANTARCTIC AND GREENLAND ICE SHEETS ARE DISINTEGRATING:

Unstable ice sheets cause further instability and melting of other ice sheets²², which leads to the rapid and irreversible loss of the world's coastal regions due to massive sea level rise²³.

Sea Ice Concentration (Percent)

CORAL REEFS COULD RAPIDLY AND IRREVERSIBLY COLLAPSE:

Coral reefs are a critical element of the ocean ecosystem. Heatwaves and acidification of oceans under our CO₂-laden air kills corals, but recent research shows feedback loops can cause this to accelerate, meaning once started coral could be completely wiped out in as little as 15 years²⁴.

8 & 9 MONSOONS WILL SHIFT IN WESTERN AFRICA, AND IN INDIA, CAUSING LIFE-THREATENING DROUGHTS AND FLOODS:

Areas of Western Africa and India rely on monsoon season for as much as 90% of rainfall²⁵, crucial for both food and water. Climate change already disrupted the African monsoon in the 1960s-80s, causing famine that killed 10,000s²⁶. Further heating will drastically disrupt this critical system²⁷.

KEEPING TO ONLY 1.5°C WARMING LIMITS RISK OF TIPPING POINTS. EVERY EXTRA 0.1°C WORSENS THEIR EFFECT.

3 US National Ocean Service https://bit.ly/2E6KQax

See all references https://bit.ly/Climate1Refs

DROUGHTS AND FLOODS WRECK LIVES

"Climate change will lead to battles for food." – Jim Yong Kim, Former President of The World Bank

The tiniest heating of our climate upsets every natural balance living things have depended upon for tens thousands of years.

At 1.1°C of heating since the 1800s, wildfires are already burning our world. Billions of living things die²⁸, and every year may be more severe²⁹. 2019 wildfire levels were unprecedented even in the UK³⁰.

Droughts in the Mediterranean and Cape Town are acute³¹. The drought cited as sparking the Syrian war, leading to 200,000 deaths and the Migration Crisis of 2015, was almost certainly caused by this atmospheric heating³².

BY 2050, AT 2+°C OF HEATING, 3.7 BILLION PEOPLE WILL LIKELY BE EXPOSED TO EXTREME DROUGHT, low

rainfall and poor water availability³³. Around 1 billion people may be forced to migrate from the worst hit areas³⁴, increasing the risk of violent armed conflic

Storms, floods and hurricanes are already more grow food. All can exponentially worsen as CO₂ rising sea levels³⁷.

REFERENCES & FURTHER READING

30 UK Wildfires, New Scientist, 2019 https://bit.ly/34lBEJV

https://bit.ly/34ljdVz

UNPRECEDENTED

DROUGHT

FRES

33 Table 3.4, Global heating 1.5deg, IPCC Report, 2018 https://bit.ly/2YoW155

OUR MOST URGENT THREAT IN HISTORY

"The climate emergency is our third world war. Our lives and civilization as we know it are at stake, just as they were in the Second World War." - Professor Joseph Stiglitz, Economist, awarded Nobel Prize in Economics

The consensus amongst the world's scientists that human action is the cause of climate change has **REACHED 100%**³⁸. Speaking about the scientific community, Professor Lonnie Thompson, director of the Byrd Polar Research Centre said "Virtually all of us are now convinced that global warming poses a clear and present danger to civilization."

The situation is accelerating. On top of the tipping points discussed to the left, recent discoveries show that trees are absorbing less CO₂ and dying younger as atmospheric CO₂ increases³⁹. THE UNKNOWN DANGERS MAY BE WORSE THAN THE KNOWN ONES⁴⁰.

Attempting to avert the climate crisis through currently non-existent CO₂-capture technologies

is impossibly expensive, would require economy-crippling investment on a scale never undertaken in human history⁴¹, and would be likely to fail anyway⁴². This route is passing both the existential crisis, and the responsibility to solve it, on to the next generation, with no real hope for survival.

Our only route to continued life for ourselves, our children, and the unique and irreplaceable animals and plants that share our world, is to reduce our CO₂ emissions before runaway heating⁴³. Through co-operation safety is still entirely within humanity's reach - but see the bottom left panel for how scientists show acting now is so critical."



REFERENCES & FURTHER READING

See all references https://bit.ly/Climate1Refs

CO-OPERATION CAN OVERCOME THE CLIMATE CRISIS'S THREAT TO OUR ECONOMY, SAFETY, FOOD SECURITY - BUT IT CAN'T WAIT.

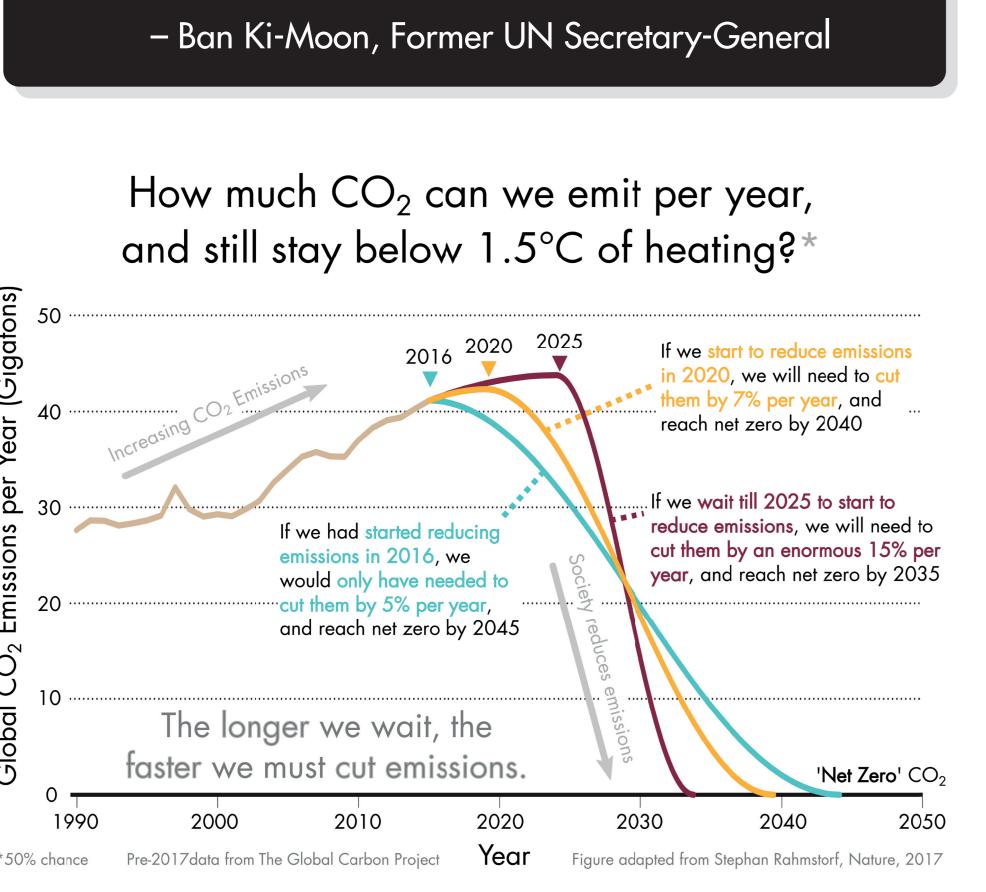


WHY ACT NOW? WHY NOT IN 5 YEARS, OR IN 2050? THE CARBON BUDGET

See all references https://bit.ly/Climate1Refs

In the Paris Agreement, the world agreed that 1.5°C heating was catastrophic enough to come together to avoid, and that 2°C THIS CENTURY MUST NOT HAPPEN AT ALL COSTS⁴⁴. Instead, we're on course to at least **3 TO 4°C**⁴⁵, with consequences so deadly, catastrophic and permanent that we can barely comprehend them now 46 .

Keeping below 2°C is currently entirely possible, and below 1.5°C may be achieved – but when we act is as critical as how we act. Greenhouse gases like CO₂ cause heating – TO LIMIT HEATING TO 1.5°C, WE ONLY HAVE A LIMITED TOTAL AMOUNT OF CO₂ WE CAN EMIT KNOWN AS THE 'CARBON BUDGET'⁴⁷ The more we 'spend' by emitting CO_2 this year, the less we can emit in the



emergency action. ""

Cutting our carbon emissions will require large changes to our society. "This is an emergency and for ANY CHANGES WE MAKE VOLUNTARILY WILL BE FAR emergency situations we need LESS SEVERE THAN THE FUTURE THE NEXT GENERATION IS

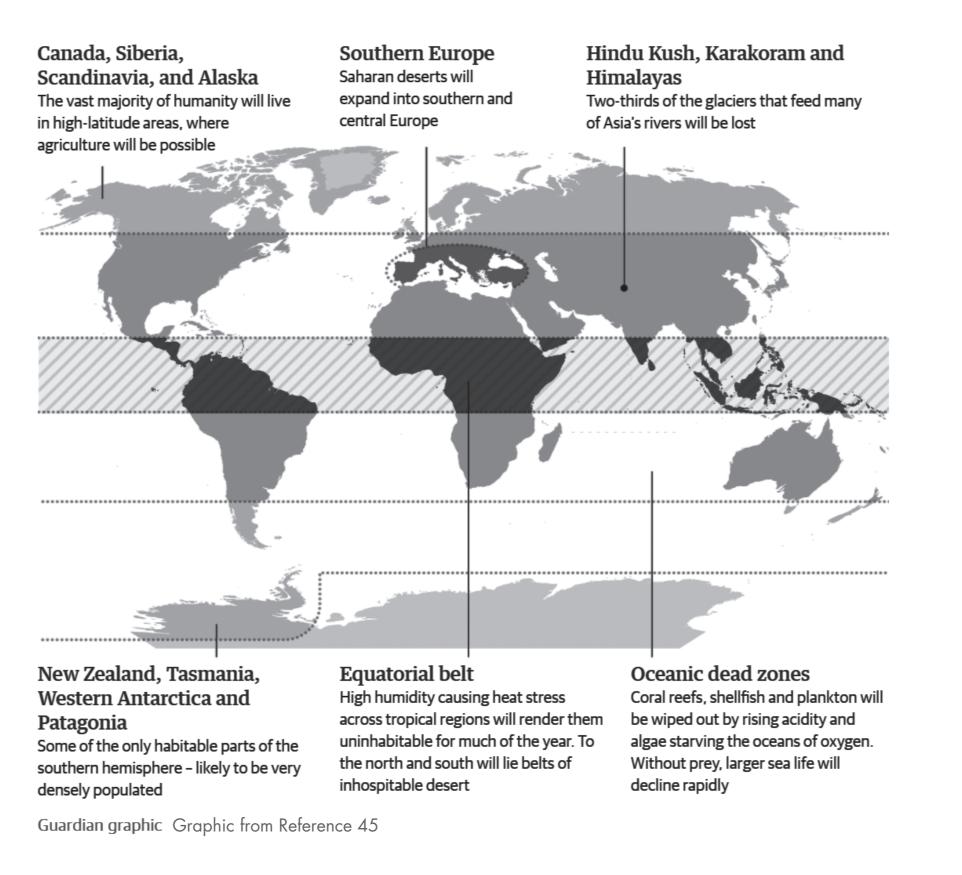
> caused a 7-8% drop in our emissions⁴⁹ – no-one would suggest now necessary due to our delays. IF WE WAIT, AND CONTINUE 15% A YEAR to keep below 1.5° C⁴⁸.

CURRENTLY FACING. But the longer we wait, the more abrupt the changes will have to be. The graph below shows the growth in our yearly CO₂ emissions, and what they must be in the future to likely stay below 1.5°C of heating. Had we acted to reduce emissions in 2016, we would only have needed to cut CO_2 by 5% every year to keep below 1.5°C. As we did not, and instead spent more of our carbon budget, by 2020 we

need to cut by 7% every year⁴⁸. The Coronavirus epidemic in 2020 lockdown to reduce emissions, but this shows the scale of change DOING NOTHING UNTIL 2025, WE WILL NEED TO CUT EMISSIONS BY

This is why acting now is so imperative. This is why so many world leaders call right now a 'critical time' in the fight to save our society, and save the natural world 50 .

WHAT IS LEFT AT 4°C OF WARMING



REFERENCES & FURTHER READING 44 Paris Agreement, WWF https://wwf.to/34kEDSX 45 4 Degrees Warming, Guardian, 2019 https://bit.ly/2Yo9Bpp 46 Our Final Warning: Six Degrees, Mark Lynas, 2020 https://bit.ly/34oXL2 47 Carbon Budgets - Where are we now? Carbon Tracker https://bit.ly/3p47 48 Rahmstorf et al., Nature, 2017 http://go.nature.com/38sGjMn

00 Introduction – Emergency on Planet Earth, XR UK http://bit.ly/3oXHHw6



WHAT TO DO NOW

Traditional campaigning has failed. "Write letters to your MP". "Sign this petition". If this worked, the climate crisis would have ended in the 1970s. Individual commitments such as eating less meat and not flying are part of the future, but negligible compared to the change needed. In the face of societal collapse, how do we change society's course? What should we do?

LEARN WHY AND HOW TO ACT NOW Extinction Rebellion are following Humanity's best model yet for successful mass action on the climate⁵¹. Read about XR's strategy in the next section, and watch this 30-minute video to take the first step:

JOIN. Extinction Rebellion has hundreds of groups across the country and the world. Read the section on the right to learn why we do what we do.

TALK. Discuss the necessity for immediate, massive action with friends, family, colleagues, strangers, social media followers...

LEAD. Individual action will not solve this. But we should make the best choices we can inside this broken system. Swap meat and dairy for plantbased foods. Buy less carbon-intensive material things - new clothing, new technology, new cars. Don't fly.

WHAT IS EXTINCTION REBELLION (XR)'S STRATEGY? TWO QUESTIONS:

1. WHAT DO SUCCESSFUL SOCIAL MOVEMENTS DO? Research in social science shows the answer. They are:

out of complacency, and forces discussion of neglected issues.

35 Mach et al., Nature, 2019 https://go.nature.com/3l4cHsl

NON VIOLENT. Not just because it's right, but because it works⁵². **DISRUPTIVE.** Break the rules. Disrupting 'business as usual' shocks people

INVOLVE PUBLIC SELF-SACRIFICE. Some members of XR are deliberately arrested en masse, overwhelming the system and causing a dilemma for those in power: repress us and cause more sympathy for us, or let us carry on. History is full of instances where repression of a movement

LARGE. We need more people to wake up, stand up, and save our future⁵⁴. WE NEED YOU.

REFERENCES & FURTHER READING

sparked its widespread success⁵³.

51 YouGov poll, 2019 http://bit.ly/32i1ooH 52 Chenoweth & Schock, Mobilization, 2015 http://bit.ly/3p2rqpx 53 "Blueprint for a Revolution", Srdja Popovic, 2015 http://bit.ly/3mTK0O 54 Chenoweth, 3.5% Rule, 2020 http://bit.ly/32dICyz

2. HOW DO WE SOLVE THIS PROBLEM?

This lead to XR's 3 big, clear demands:

TELL THE TRUTH, AND ACT AS IF IT'S REAL. The Government and media must educate the public and act on the

ACT NOW. We must bring greenhouse gas emissions to net zero and halt biodiversity loss by 2025. The longer we wait, the greater the risk.

BEYOND POLITICS. The current political system has failed to keep us safe. It cannot solve this problem. We need a Citizens' Assembly to decide how to act on the climate breakdown, with power to legislate. Questions? Read more here:



WATCH THIS 30-MINUTE TALK ON YOUTUBE TO TAKE THE FIRST STEP TO DOING SOMETHING ABOUT ALL THIS:

