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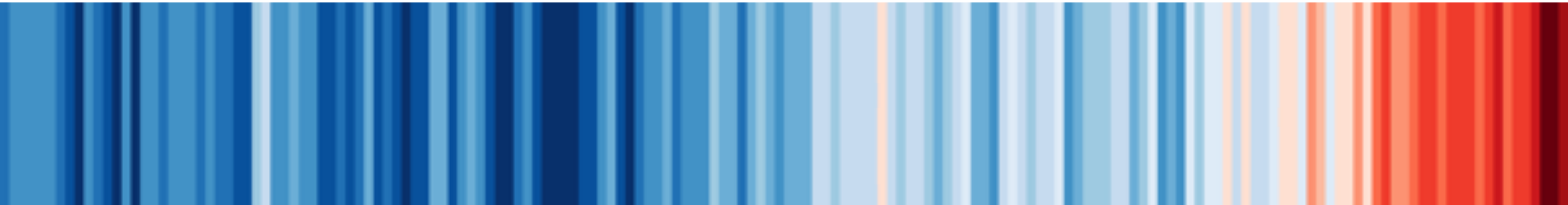
The Sustainability Literacy Project

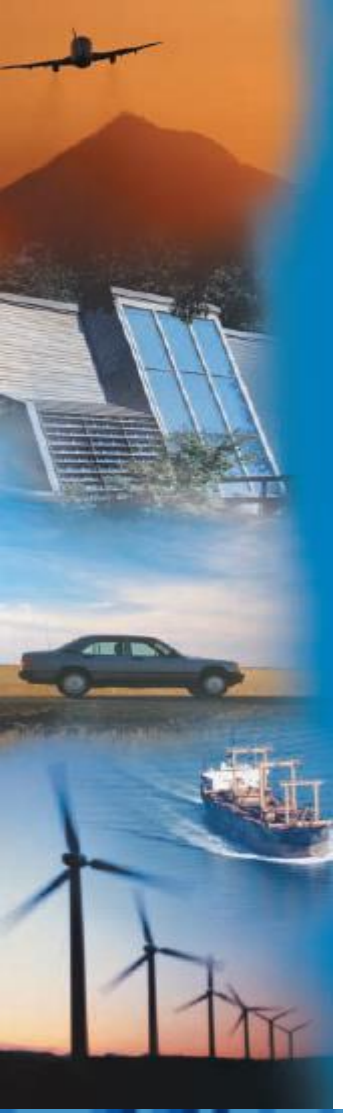
ETHICS, CLIMATE CHANGE & THE ENVIRONMENT

Engineering Ethics Conference

University of Leeds, 6th September 2018

1850 **Annual average global temperatures** **2017**





What Next?
Four Change Challenges

Where sustained ongoing intervention is required to drive change more effectively

I To make choosing the sustainability option easier and cheaper for clients and contractors

II To build the capacity of teachers and trainers to integrate sustainability into courses

III To make specifying for sustainability criteria in materials and processes an effective tool for change

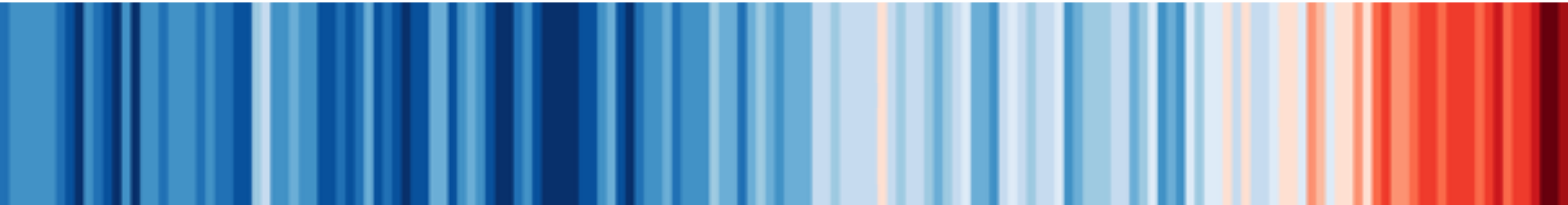
IV To embed sustainability thinking and practices into the culture of organisations and across different professional groupings

Today I will try to:

BE FRANK ABOUT OUR DILEMMA

QUESTION YOUR APPROACH TO ENGINEERING ETHICS

CONTRIBUTE A VISION FOR YOUR VISION




“If it was that serious, *they* would be doing something about it”
LM55 OPG

Source: World Bank unless otherwise stated	**1972** **1st Earth Summit**	**1992** **2nd Earth Summit**	**2015** **SD GOALS**
POPULATION (total fertility rate average births/woman) *UN DESA Population 2015*	**3.7 billion** (4.4)	**5.3 billion** (3.04)	**7.3 billion** (2.47)
WATER SCARCITY People no access to safe H2O	no reliable figures	**1.2 billion**	**657 million**
UNDERNOURISHED PEOPLE *FAO various publications*	**878 million** (26%)	**848 million** (16%)	**795 million** (10.8%)
ARABLE LAND Hectares *per person*	**0.31**	**0.26**	**0.20**
ELECTRICITY DEMAND kWh per *person/per year*	**1273**	**2132**	**3126**
GLOBAL GHG EMISSIONS Kt CO2 equivalent	**28**	**40**	**54**
FREEDOM & JUSTICE *Freedom House*	2017 marks the 12th consecutive year of decline 113 countries net decline, 62 net improvement		
GLOBAL ECONOMY 2017 US$	**GDP $3.8 trillion** DOW 1000	**GDP $25 trillion** DOW 3301	**GDP $75 trillion** DOW 17,450

A simple extension of dematerialization theory: Incorporation of technical progress and the rebound effect

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ABSTRACT

Dematerialization is the reduction in the quantity of materials needed to produce something useful over time. Dematerialization fundamentally derives from ongoing increases in technical performance but it can be counteracted by demand rebound -increases in usage because of increased value (or decreased cost) that also results from increasing technical performance. A major question then is to what extent technological performance improvement can offset and is offsetting continuously increasing economic consumption. This paper contributes to answering this question by offering some simple quantitative extensions to the theory of dematerialization. The paper then empirically examines the materials consumption trends as well as cost trends for a large set of materials and a few modern artifacts over the past decades. In each of 57 cases examined, the particular combinations of demand elasticity and technical performance rate improvement are not consistent with dematerialization. Overall, the theory extension and empirical examination indicate that there is no dematerialization occurring even for cases of information technology with rapid technical progress. Thus, a fully passive policy stance that relies on unfettered technological change is not supported by our results.

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"a fully passive policy stance that relies on unfettered technological change is not supported by our results"

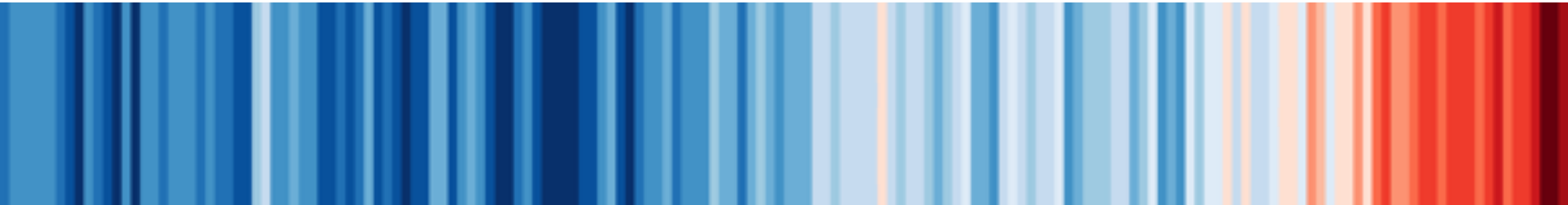
QUESTION: Is ethics for engineers really different from ethics for anyone else?

Ethics is the practice of a personal morality.

This is not explicit. We are paralysed with discordant messages

There is only one issue at stake here

If it is not a sustainable future for all life on earth, what is it?

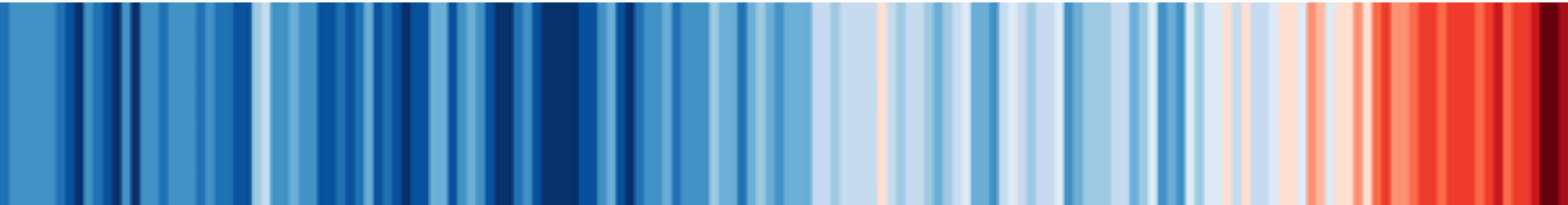


Your vision is for an operational matter – embedding ethics into engineering practices. Great!

But do you have a *good enough idea about* what sustainability is, never mind how to get it?

My contribution, therefore, is a vision for your vision – An idea of what good would look like from a sustainability perspective.

Then you as engineers, like the rest of us, can contribute as best we can



QUESTION: What does good look like?

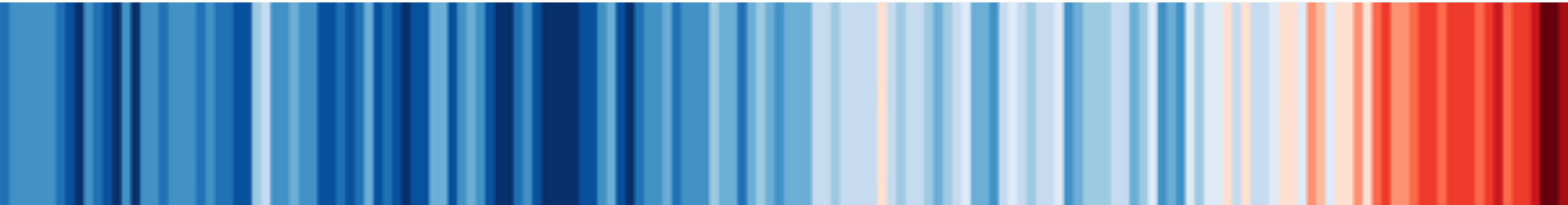
Success is when people feel good about themselves, their relationships and the place where they live

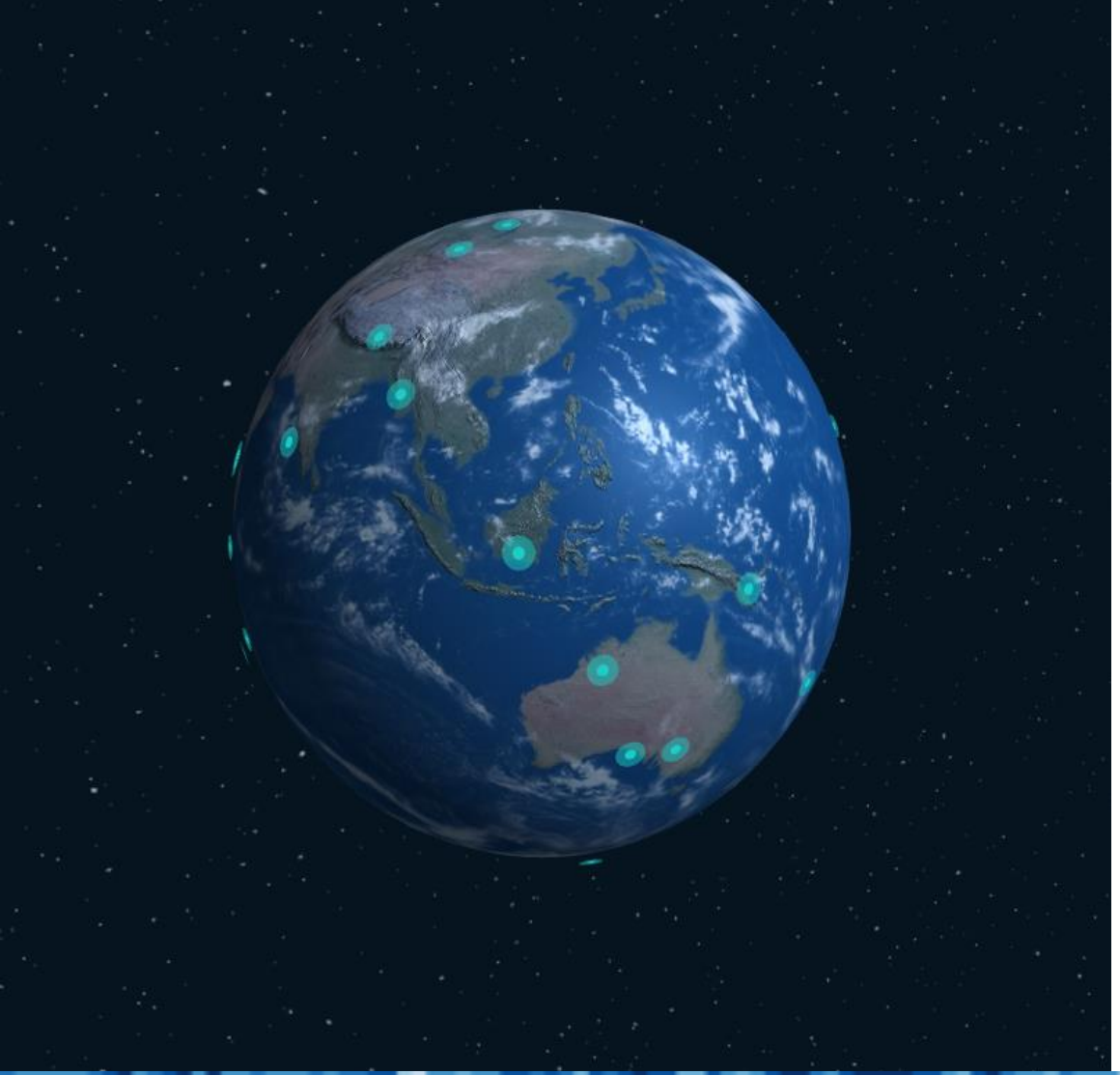
We all feel there is order and meaning – a purpose – to our lives

The logic shaping our economy is of fewer-people-consuming-less-stuff

Our livelihoods are focussed around growing natural, human and social capital

Financial and technology systems are in support of the above





“If we conserve half the land and sea, 85% of all species will be protected from extinction and life on Earth enters the safe zone.”

E O Wilson, one of the world’s greatest biologists

http://www.half-earthproject.org/

QUESTION: How to ‘do’ ethics?

Reconnect ethics to personal morality – how to be a *good* person

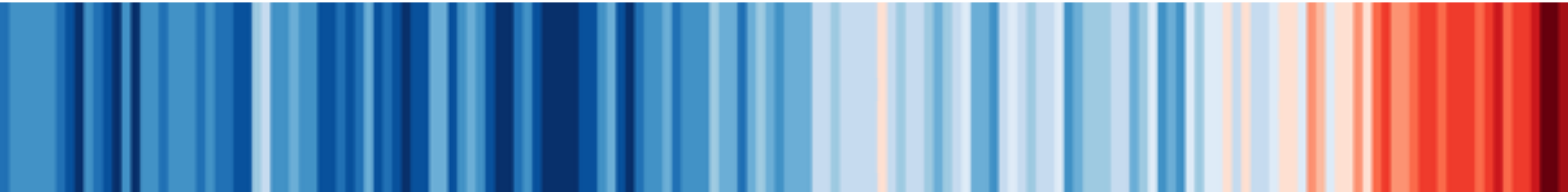
Accept the only issue that matters is doing right by all life on earth

Have a *good enough* idea of what good looks like

Maximise our contribution to getting there - as an engineer and as a moral person

Influence others to join in .

ASK QUESTIONS



Why is recycling preferred over waste reduction and avoidance?

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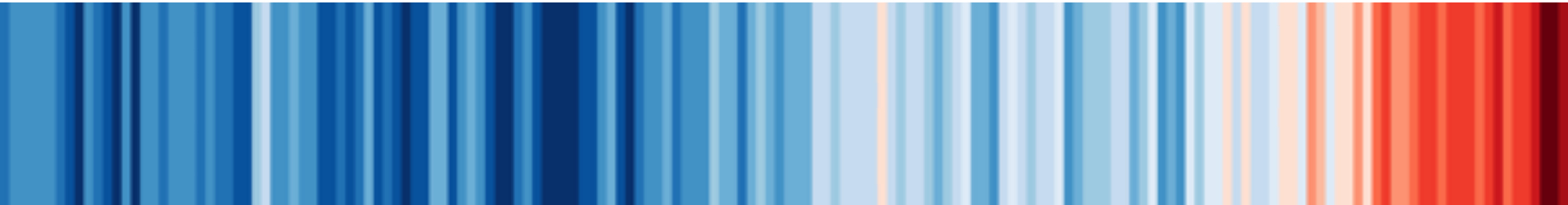
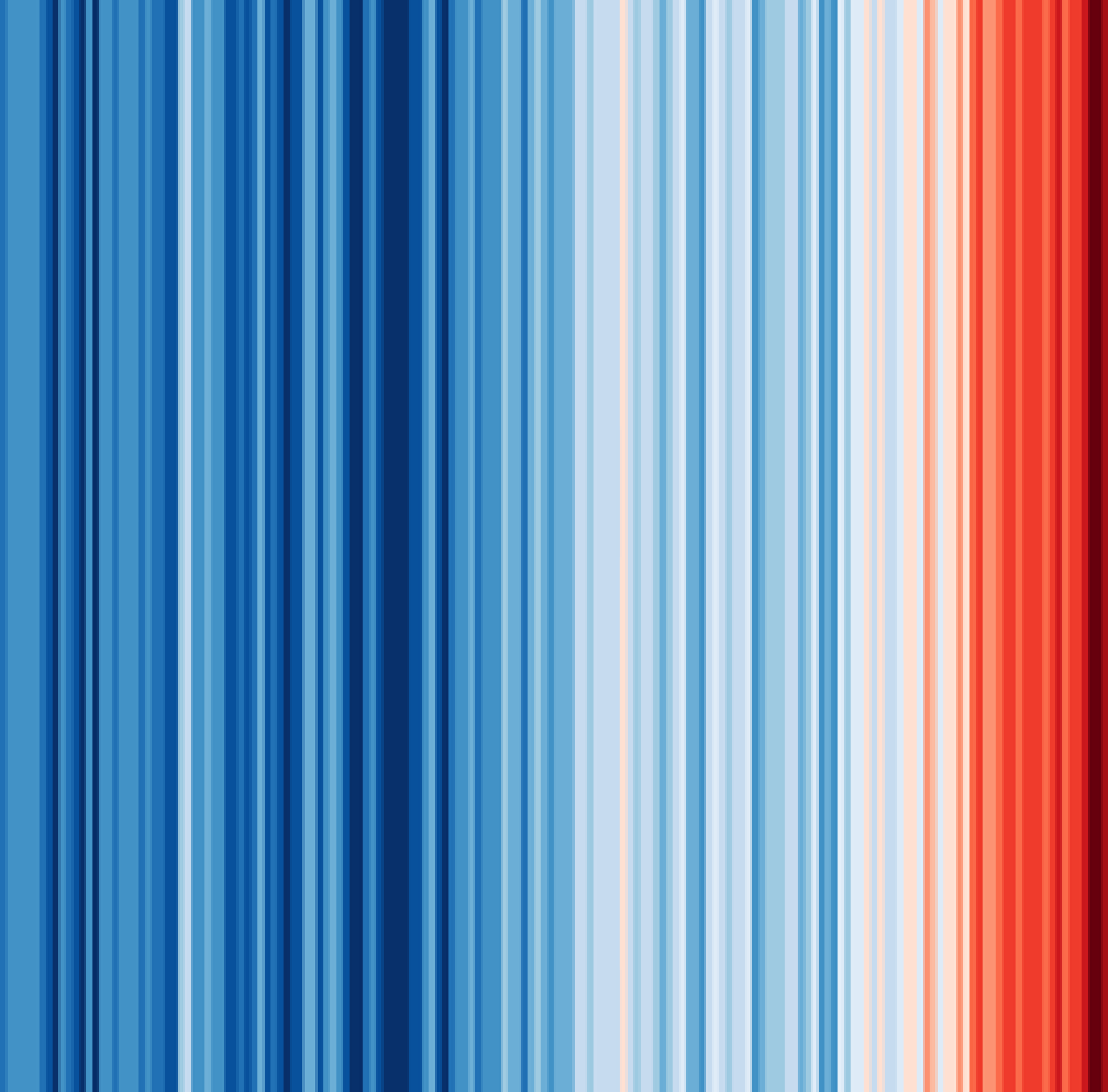
First death linked to air pollution as government asthma advisor finds 'striking association' with girl's fatality

share Save 11

Ella Kissi-Debrah died from an asthma attack five years ago CREDIT: FAMILY HANDOUT

What has to happen before we stop air pollution reaching such dangerous levels?





What has to happen before we act?

Thank you for listening

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