Centre for **Climate Change** and **Social Transformations**

BEHAVIOUR CHANGE FOR NET ZERO

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UNIVERSITY OF BATH

UKRI Economic and Social Research Council

Climate change risks

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- **Wildfires in LA** (Jan 2025)

- **Flooding & storms in NZ**

- **European heatwaves & drought** (2022)

- **Developing countries** more vulnerable

Techno-optimistic climate policy framing

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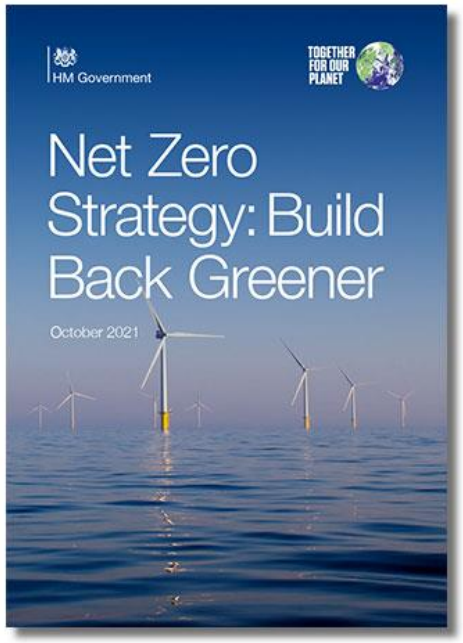
UK



"For years, going green was inextricably bound up with a sense that we have to **sacrifice** the things we love. But this strategy shows how we can build back greener, **without so much as a hair shirt in sight.**

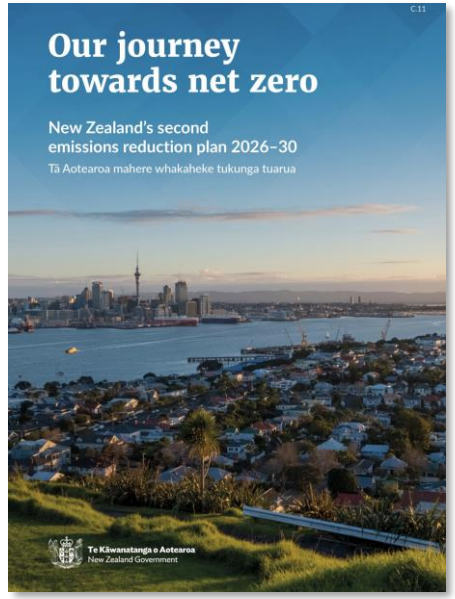
In 2050, we will still be **driving cars, flying planes and heating our homes**, but our cars will be electric gliding silently around our cities, our planes will be zero emission allowing us to fly **guilt-free,** and our homes will be heated by cheap reliable power drawn from the winds of the North Sea.[...]

We will unleash the unique **creative power of capitalism to drive the innovation** that will bring down the costs of going green."

NZ

"Taking a technology-led approach

The Government is taking a technology-led approach so the New Zealand economy can grow as net emissions come down. The Government is investing in research and development of new technologies across a range of programmes with the aim of lowering emissions and increasing removals.



Technology can open new pathways to lower emissions. As technologies become commercially available, New Zealand will have more options for achieving emissions budgets and targets.

Promising technologies include:

- agricultural emissions reduction technologies, so that farmers can cost-effectively reduce on-farm emissions while continuing to increase production
- carbon capture, utilisation and storage (CCUS), to support the sequestration of carbon dioxide from our hard-to-abate industries
- biomass, to produce low-emissions fuel substitutes
- sustainable aviation and marine fuels
- non-forestry removals and nature-based solutions, so that we can remove carbon dioxide while promoting wider environmental benefits."

Tackling climate change > behaviour change

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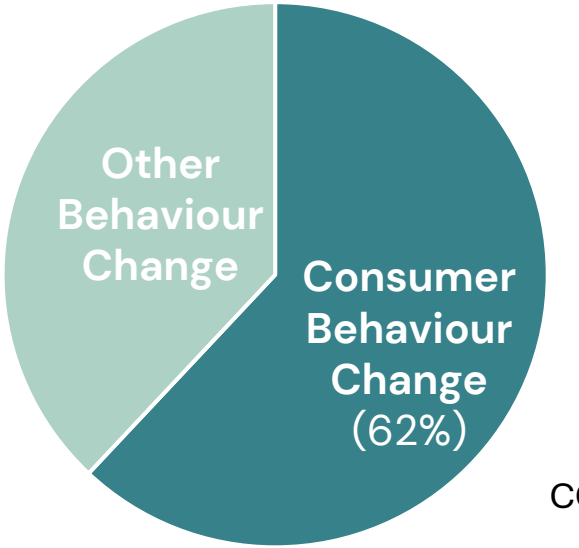
Societal transformation is required to reach 'net zero' by 2050 (IPCC, 2018)

Technological change is <u>not enough</u>: most/all measures needed to reach net zero require **behaviour change**



CCC, 2020

We're not on track... CO_2 emissions have been cut from energy supply but hardly from <u>demand</u> (CCC, 2024)

Current policy approach to changing behaviour is **'seriously inadequate'** (House of Lords, 2022)

Whose behaviour needs to change?

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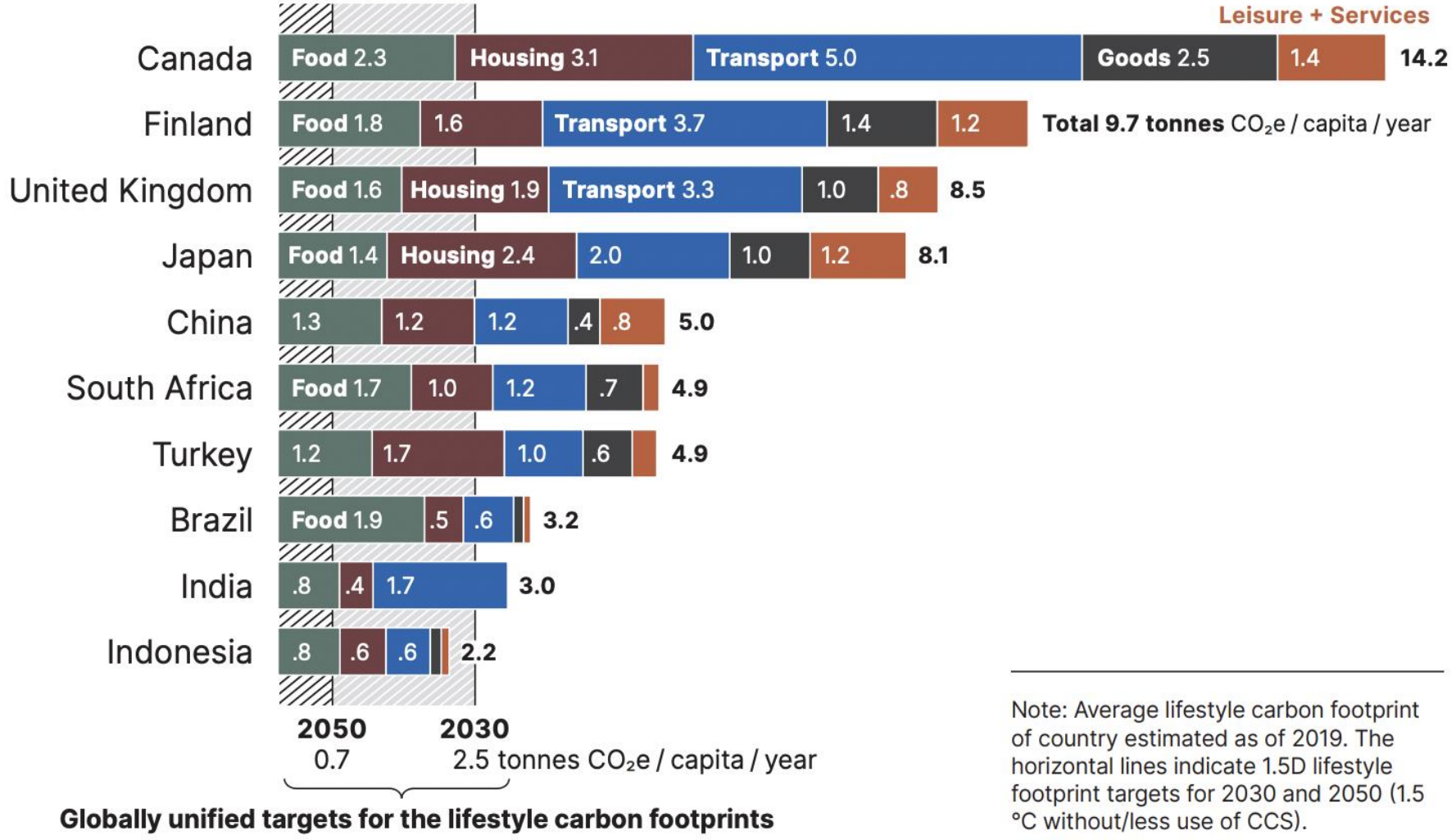
NZ = 6.1 tCO_2e



Note: Average lifestyle carbon footprint of country estimated as of 2019. The horizontal lines indicate 1.5D lifestyle footprint targets for 2030 and 2050 (1.5 °C without/less use of CCS).

Akenji et al., 2021

Whose behaviour needs to change?

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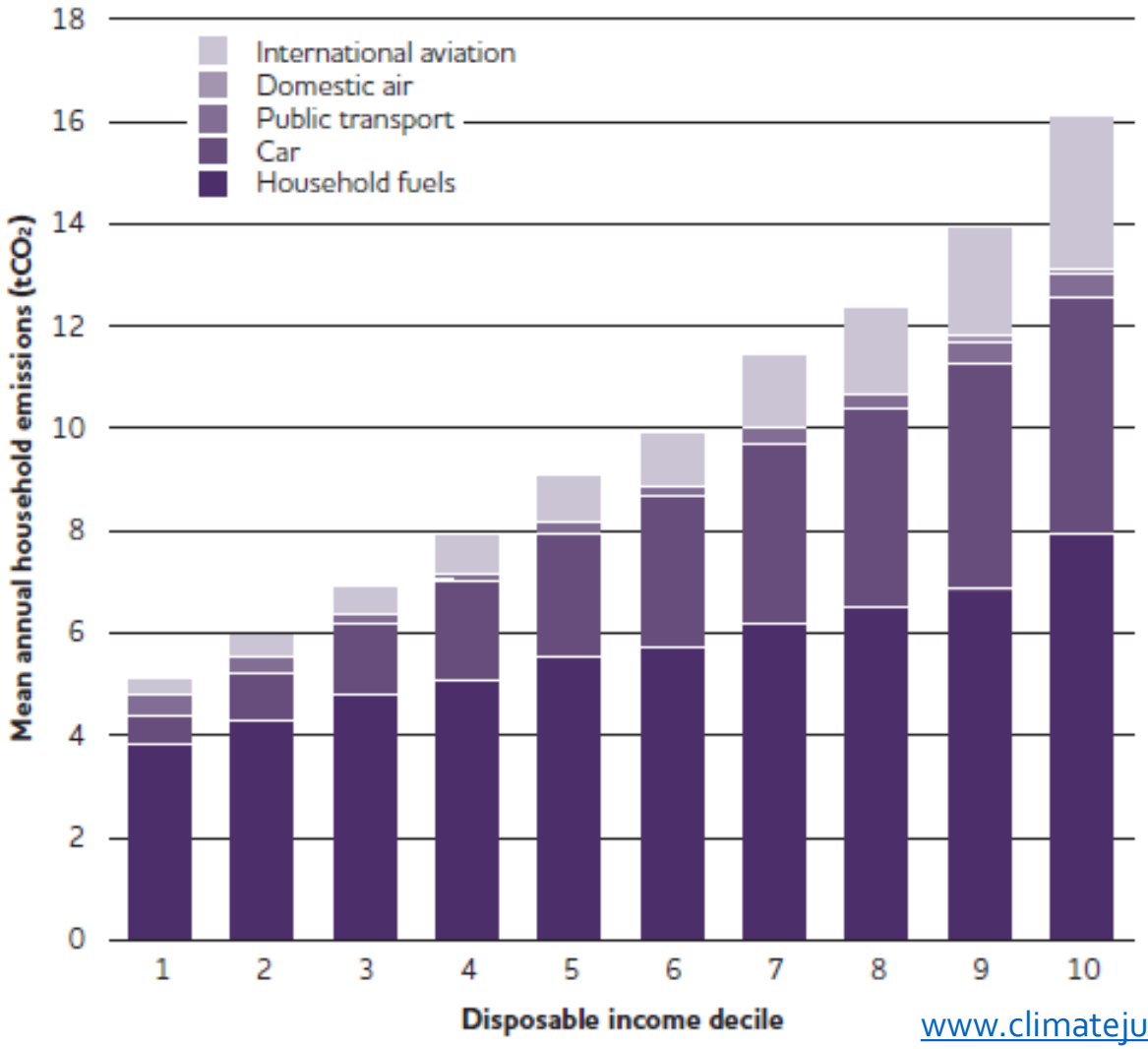
"Not all households will need to—or be able to—adopt behaviour changes to the same extent, and that policies should take into account the needs of **different groups** *[rural, disability, gender, income, etc.]* and fairness.

… The **wealthiest 10%** have a carbon footprint more than **four times** that of people at the lower end of the income distribution"

In the US, it's **16 times** more.



House of Lords, 2022

www.climatejust.org.uk

Which behaviours need to change?

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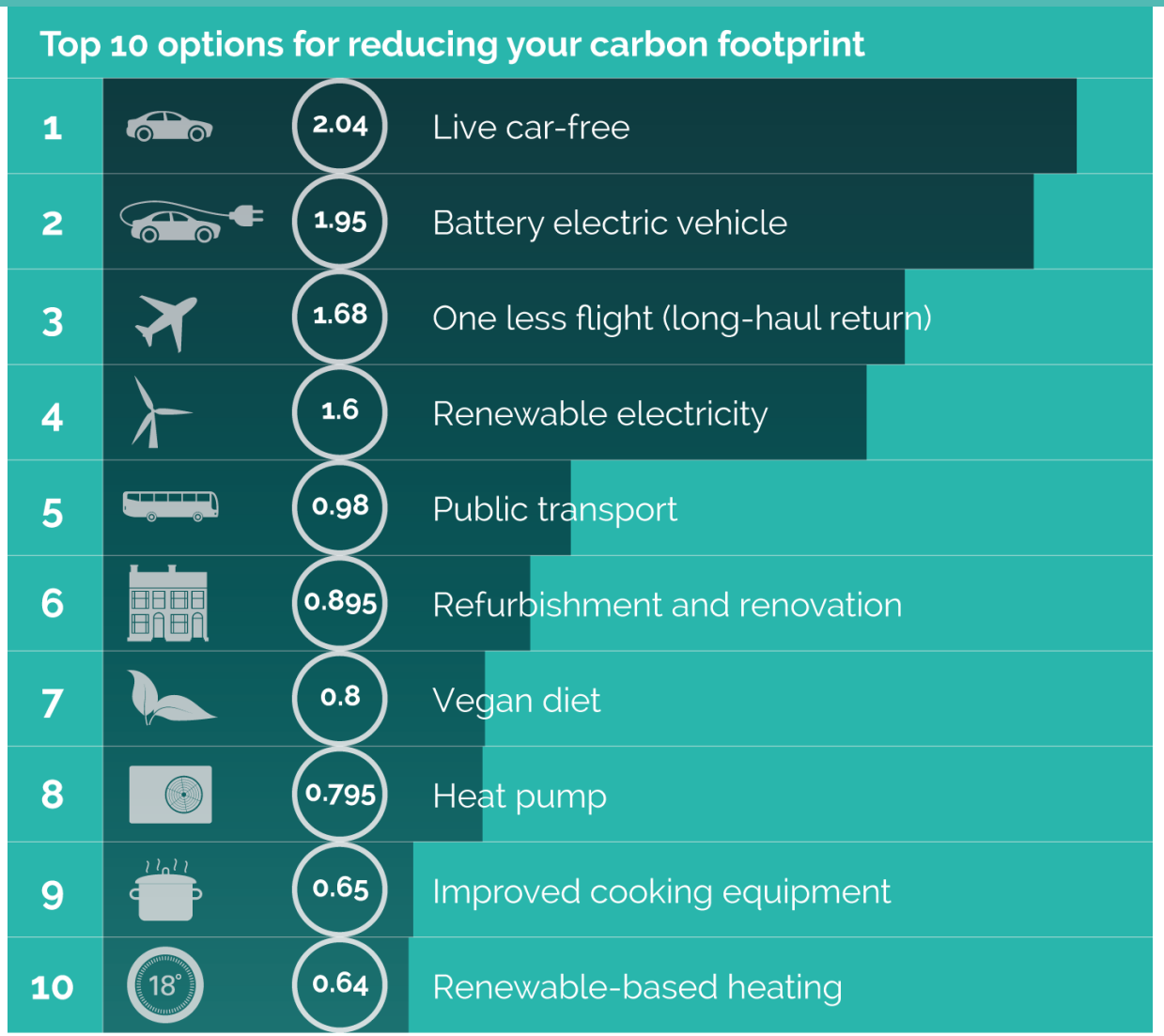
Ivanova et al., 2020



Recycling saves **0.01** tCO_2 per year

But people are not only consumers

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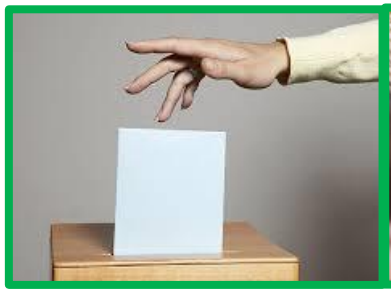
We have multiple roles, and many contexts in which to change behaviour

Direct CO_2 reduction



Indirect CO_2 reduction

Hampton & Whitmarsh, 2023; Nielsen et al., 2021

Have a conversation

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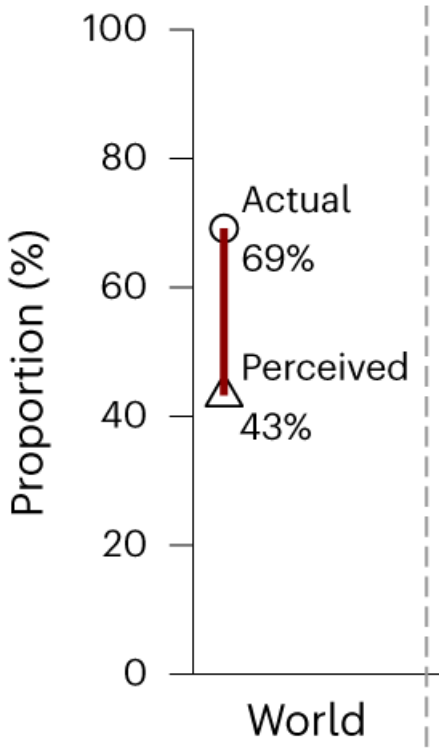
- **‘Pluralistic ignorance’**
- People under-estimate climate concern and policy support



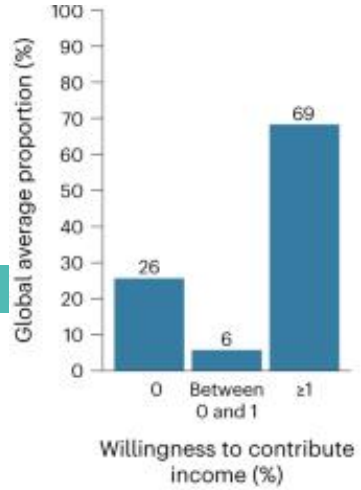
Proportion willing to contribute 1% of their income to tackle climate change, vs. perceived proportions of others willing to contribute 1%

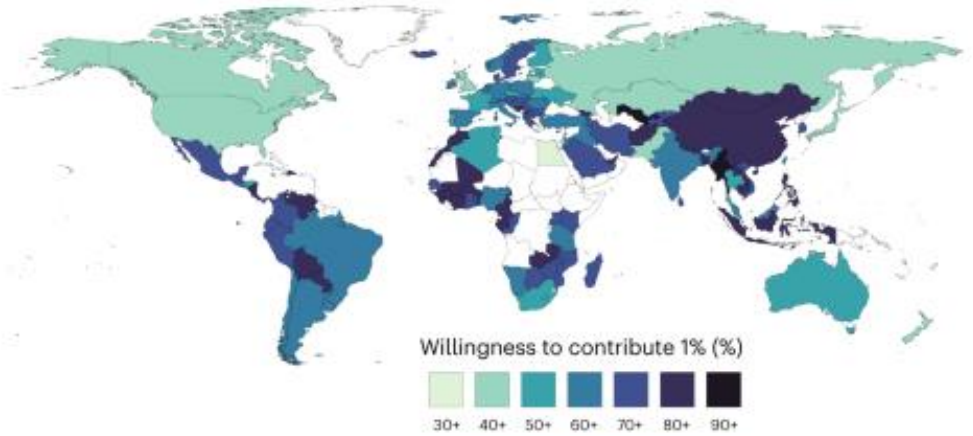
1. **Find common ground** – why does it matter to you (e.g. your children, interests)?

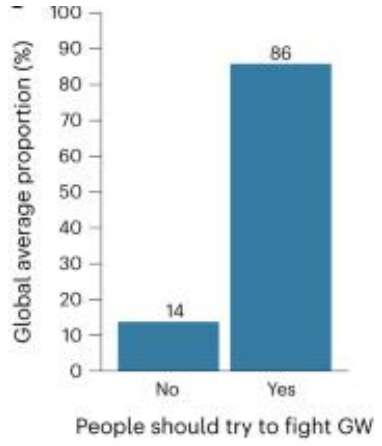
2. **Share solutions** – and why they’re good for us in lots of ways

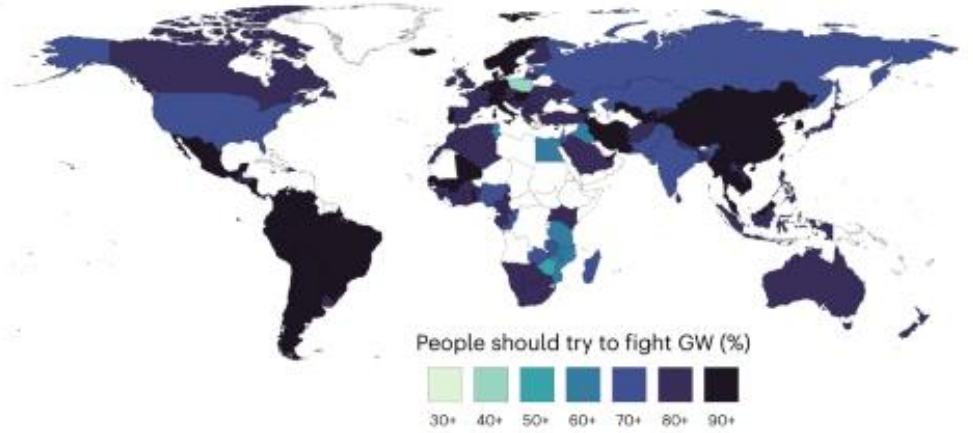
People are worried

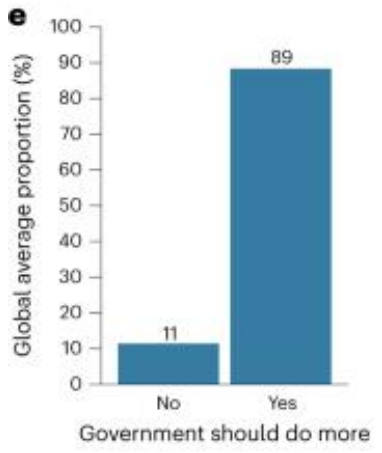
- 46% in NZ willing to donate 1% income to tackle climate change
- 84% in NZ think we should fight climate change
- 74% say NZ government is not doing enough











Andre et al., 2024

Government inaction is reducing wellbeing

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- Majority of **young people** around the world are extremely/very worried about climate change **and 45% say this is impacting on functioning …**

- *"A perceived **failure by governments** to respond to the climate crisis is associated with **increased distress**"* (Hickman et al., 2021)

How can government change our behaviour?

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Downstream – influencing individuals' choices

- information / advertising (e.g. labels)
- education
- social approaches

2-3% effective*

*** and exacerbates inequalities… but important for political / social change**
(Weiss & Tschirhart, 1994)

Upstream – influencing context/situation of action

- economic measures
- changes to available products and services (nudges, regulation)
- changes to built environment

Up to 100% effective

Verplanken & Wood, 2006; Nisa at al., 2019

Although there are information gaps…

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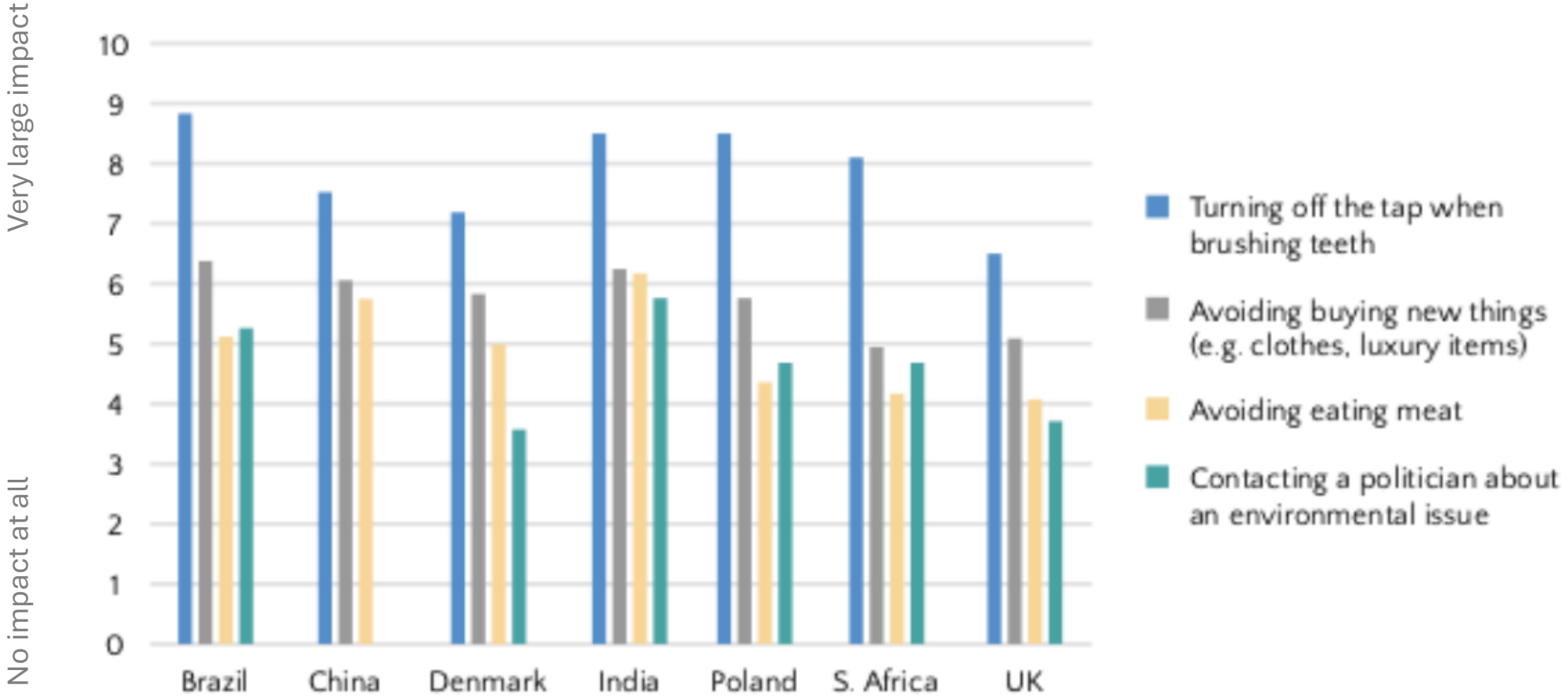
'To what extent do you feel that the following actions have an impact in terms of protecting the environment?'



CASPI/CO, 2019

...but information can polarise opinion

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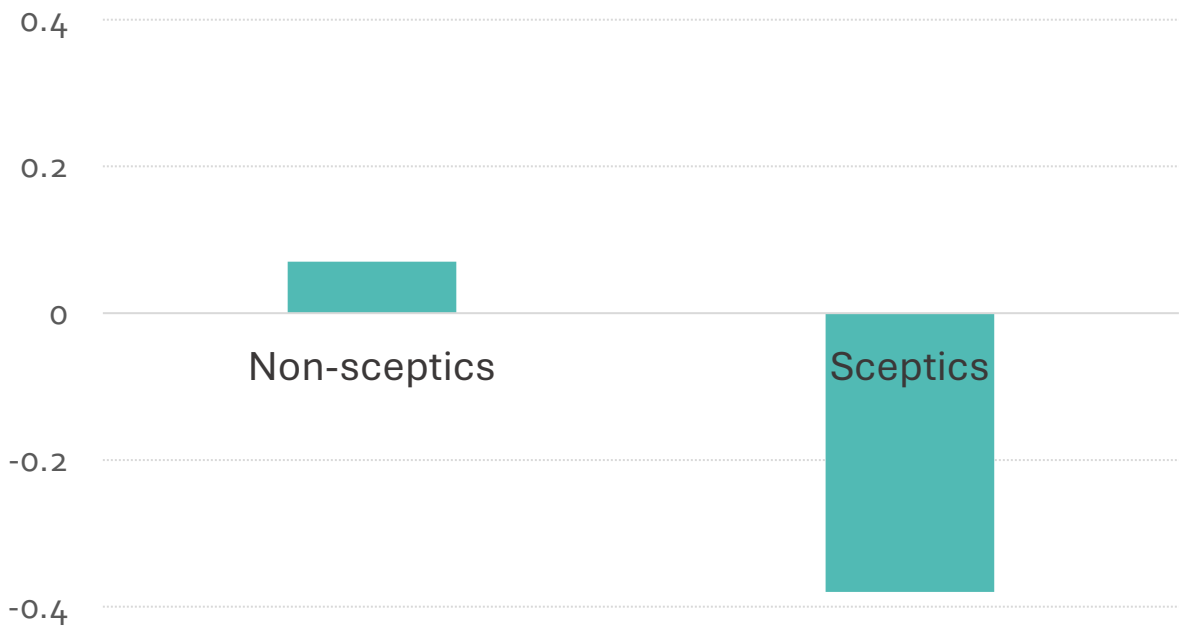
We gave a group of people (some climate sceptics and some not) two newspaper editorials on climate change (one sceptical, one advocating action) to read and then asked:

*"Did you become **more** or less **convinced** about **climate change**?"*



Corner et al., 2012

… or simply be ignored

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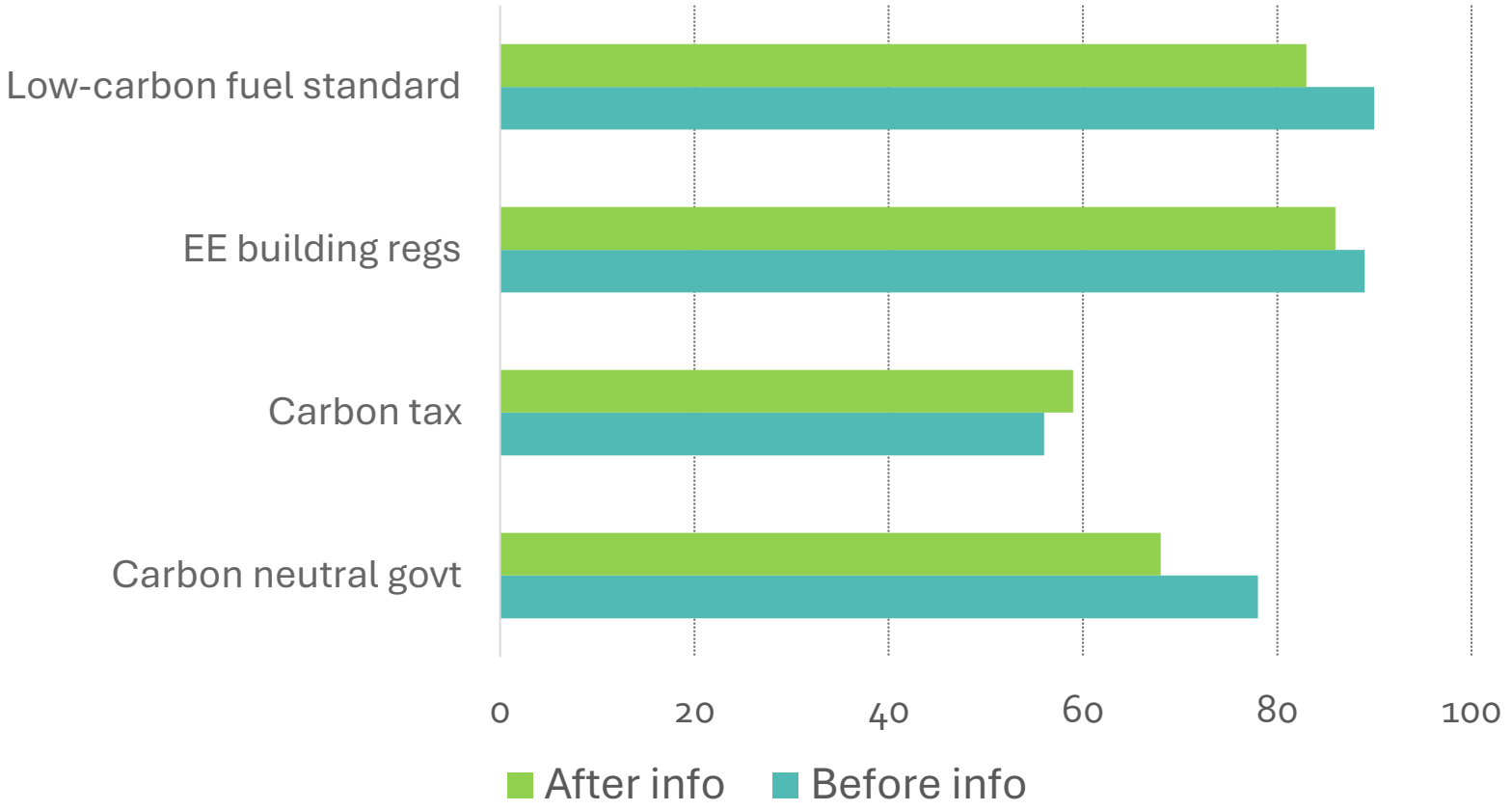

Rhodes et al., 2014

Information is filtered through biases

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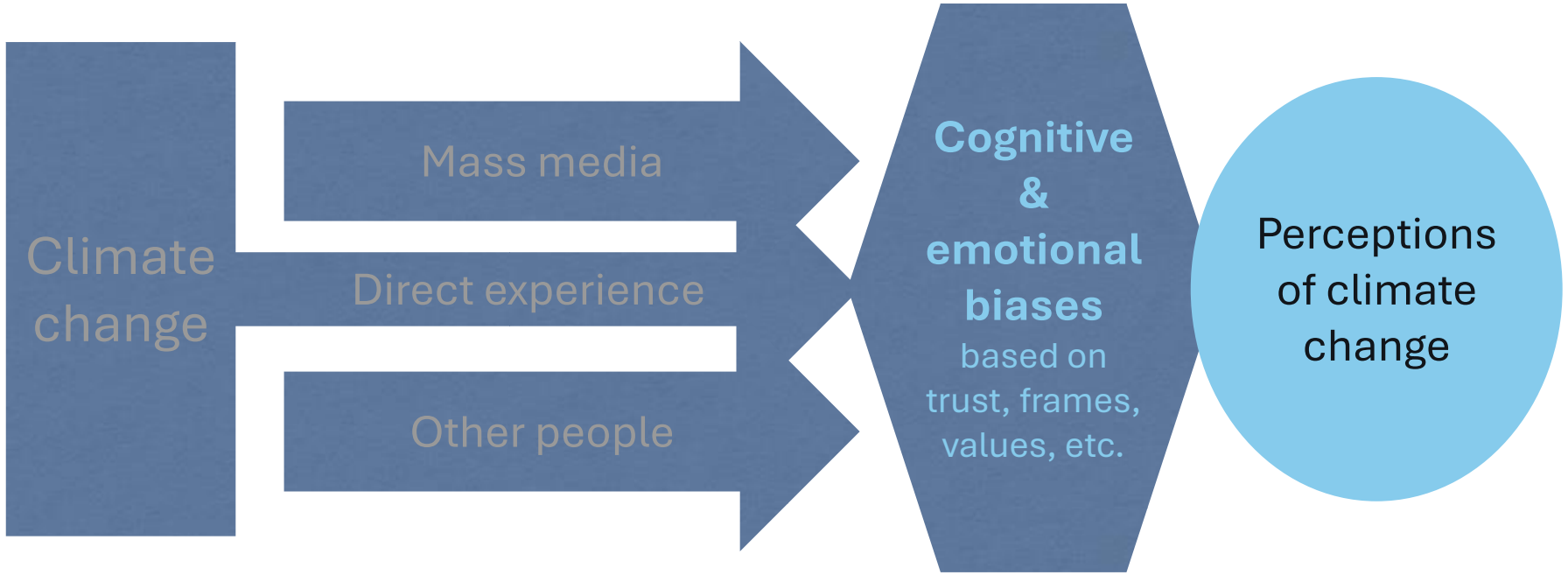

e.g. 'Confirmation bias':
select information that affirms existing beliefs and values

Clayton et al., 2015

Effective communication targets audience values

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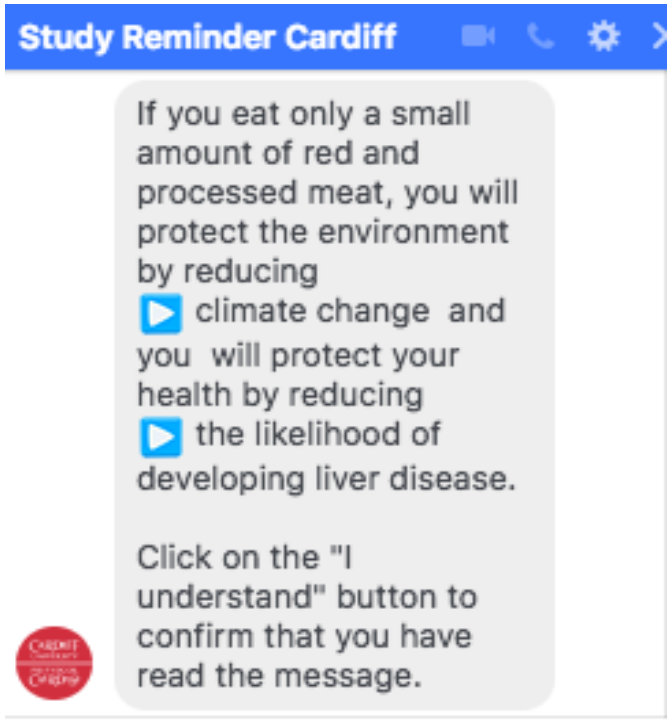
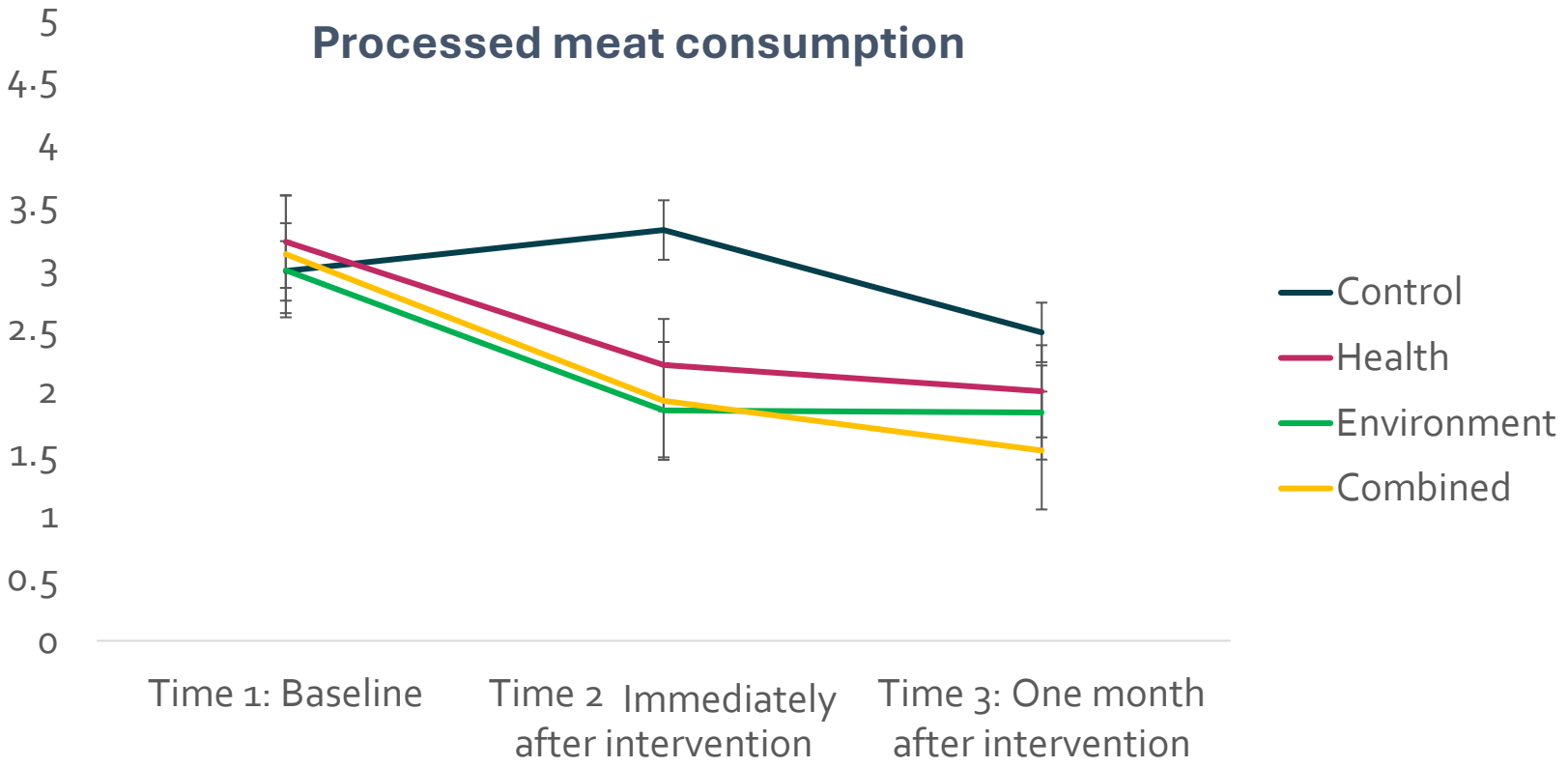
Reducing red and processed meat is good for environment *and* for health – which message works best?



'Combined' condition message (Chatbot)



Wolstenholme et al., 2020

Climate action is good for us

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Health co-benefits are best evidenced

Effects of demand-side options on wellbeing in 19 categories (Creutzig et al., 2022)

Sectors	SDGs	2	6	7, 11		6	7	11	11	4		1, 2, 8,10	5, 10, 16	5, 16	10, 16	11, 16	8	9, 12	8,12
	Mitigation strategies/well-being dimensions	Food	Water	Air	Health	Sanitation	Energy	Shelter	Mobility	Education	Communication	Social protection	Participation	Personal security	Social cohesion	Political stability	Economic stability	Material provision	Supply side/incumbents
Building	Sufficiency																		
	Efficiency																		
	Lower carbon and renewable energy																		
Food	Food waste																		
	Overconsumption																		
	Animal-free protein																		
Transport	Teleworking and online education system																		
	Non-motorized transport																		
	Shared mobility																		
	BEVs																		
Urban	Compact city																		
	Circular and shared economy																		
	Systems approach in urban policy and practice																		
	Nature-based solutions																		
Industry	Using less material by design																		
	Product life extension																		
	Energy efficiency																		
	Circular economy																		

Legend

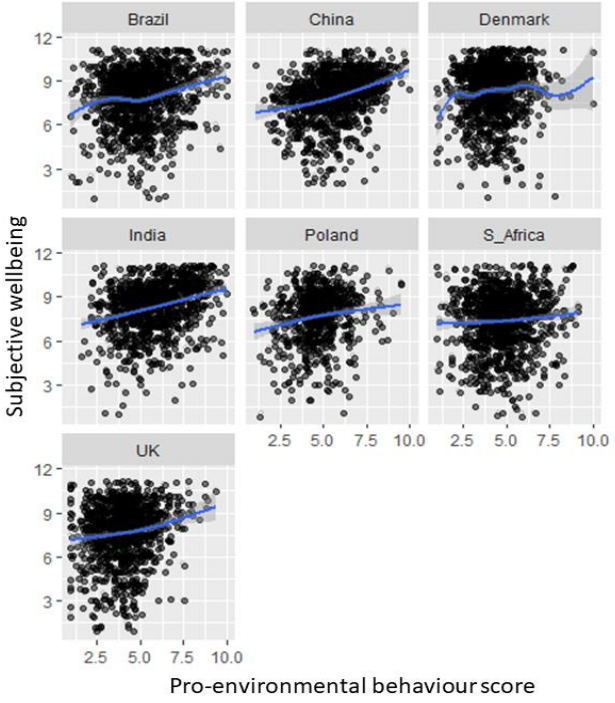
- High positive impact (+3)
- Medium positive impact (+2)
- Low positive impact (+1)
- Overall neutral
- No impact
- Low negative impact (−1)
- Medium negative impact (−2)
- Confidence level

Climate action improves wellbeing

- Studies show that climate action can improve health, economy, equality, biodiversity, etc. (IPCC, 2022)

- Those with 'green' lifestyles tend to have higher wellbeing (Capstick et al., 2022)
- Materialism negatives affects wellbeing (Dittmar et al., 2014)

- **Going green is not about 'sacrifice' – far from it; it can improve quality of life**



Visions of low-carbon society

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Public workshops in several countries explored desirable low-carbon futures:

‘Visions were dominated by ideas around **green space** and **healthy lifestyles** … Home working, reduced traffic, and cleaner air, combined with discussions of green urban regeneration evoked visions of urban life centred on **wellbeing, leisure and community**.’

‘Pen portraits’ for car use reduction

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*Working with Scottish Government, CAST used desk research, focus groups and surveys to develop and test 6 ‘pen portraits’ reflecting different Scottish public segments and highlighting that car use reduction is **possible** and **desirable**:*

- Mary and Jonathan, an older couple living in a rural area
- Alex, a young adult living in an urban area
- Nia and John, middle-income parents
- Kim, a parent on lower income
- Yasmin, a small business owner
- Mike, a disability rights campaigner

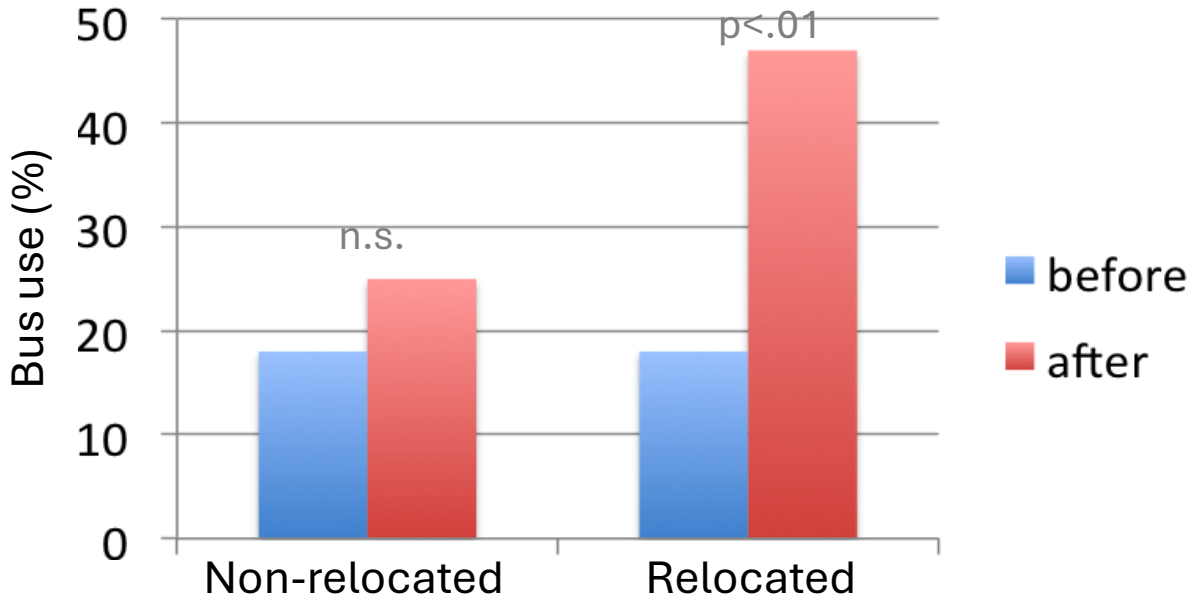
Toolkit: www.cast.ac.uk/reports

Get the timing right…

Habits are a major barrier to lifestyle change

Habits are weaker during 'moments of change' (e.g. moving house)

- Tailored bus info and 1-day pass to promote bus use given 6-weeks post-relocation was more effective (inc. from 18% to 47%) than when given to those not relocating



Bamberg, 2006

The limits of information...

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THE TIMES | Today's sections | Past six days | Explore | Times Radio

Climate experts fly more often than other scientists

Ben Webster, Environment Editor

Tuesday October 20 2020, 12.01am, The Times

- Climate change experts took median **2-3 flights** per year; non-experts took **two** flights per year
- Both groups took similar no. of personal flights (1-2 per year)
- Climate change professors fly the most!
- **Knowledge doesn't lead to behaviour change**

Whitmarsh et al., 2020

Changing the context of action

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Nudging

- Doubling vegetarian options in canteens inc. plant-based sales by **40-80%** (Garnett et al. 2019)
- Default green energy tariff inc. uptake from 3% to **80-90%** (Liebe et al. 2021).

Economic (dis)incentives

- Congestion charging is most effective at cutting car use (up to **33%,** London; Kuss & Nicholas, 2022)

Changing infrastructure

- Reallocating road space reduces traffic by mean of **22%** (Cairns et al., 2002)

There is broad support for net zero policies

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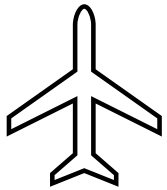
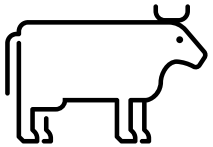
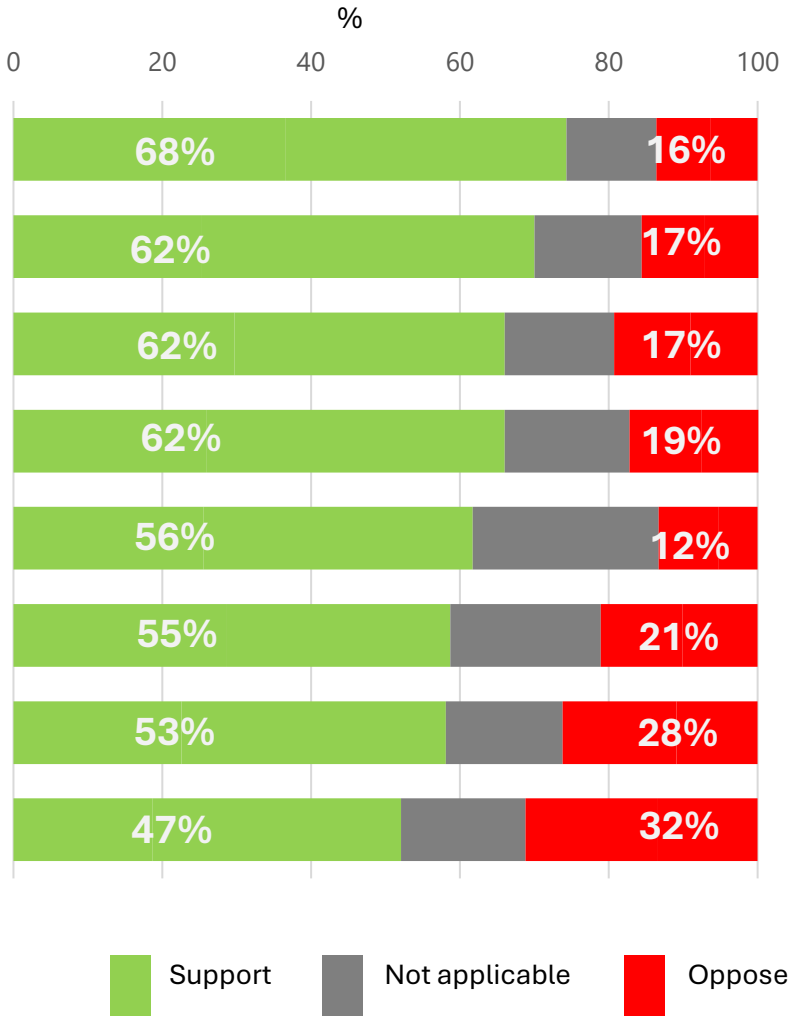
Policy support







- Online survey of UK public conducted by Ipsos in August 2021
- N=**5,665** (aged 16+)
- Broadly representative of UK public (slightly older)
- Each participant was randomly presented with **4 policies** from a total of 8 and asked about **support, co-benefits, trade-offs and fairness**
- Replicated in summer 2022 and 2024 (similar levels of support)

Poortinga et al., 2024

Predictors of policy support

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	Low-traffic n'hoods	Frequent flyer levy	EV subsidies	Veg/vegan provisioning	Meat/ dairy tax	Env. pricing	Phase out gas boilers	Sustainable pensions
	B	*B*	*B*	*B*	*B*	*B*	*B*	*B*
Gender (M=1, F=2)	-.001	.014	-.021	**.053****	.018	**.07*****	-.009	.02
Age	**.059****	**.098*****	-.012	.018	.005	.038	.007	-.026
Econ. deprivation (IMD quintile)	-.004	-.01	**.048***	**.061****	.028	**.06****	.008	**-.042***
Rurality	**.047***	.013	-.026	.008	.008	**.057****	.013	.024
Political orientation (L-R)	-.021	**-.101*****	-.034	**-.064****	-.046	-.03	-.027	**-.093*****
Communitarian (1) vs individualistic (2)	**-.095*****	-.048	**-.123*****	**-.119*****	**-.114*****	**-.089*****	**-.131*****	**-.131*****
Climate worry	**.249*****	**.261*****	**.307*****	**.276*****	**.327*****	**.379*****	**.333*****	**.295*****
Policy fairness	**.446*****	**.356*****	**.369*****	**.426*****	**.433*****	**.326*****	**.382*****	**.329*****
R^2	.37	.29	.37	.45	.46	.38	.40	.39

Poortinga et al., 2024

How can we make climate policies fairer?

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Perceived fairness predicts policy support:

- Fairness is **more important than effectiveness** of policies (Sweetman & Whitmarsh, 2015; Bergquist et al., 2022)
- **Procedural**, as well as **distributional**, justice (Jagers et al., 2o10)

Participatory policy-making leads to <u>better</u> and fairer outcomes (instrumental rationale: Fiorini, 1990)

Citizen engagement is vital for building political mandate (e.g., citizens assemblies and juries)

Howarth et al., 2020

Climate Assembly UK

THE PATH TO NET ZERO

House of Commons

- Climate Assembly UK was **first UK citizens' assembly on climate change**
- Commissioned by six Select Committees of the House of Commons to look at **how the UK should reach its legally-binding target of net zero emissions by 2050**
- **108** assembly members were **representative** of UK population in terms of demographics, geography and levels of climate concern
- Spent 6 weekends in Jan-May **2020** learning about climate change and net zero policies, deliberating and making recommendations
- Covered **range of topics** inc. energy supply, food, travel, heating, consumption
- **Strong support** for various net zero policies

Principles for net zero policies:

- **Fairness** (regions, incomes, sectors, preferences);
- Taking advantage of **co-benefits** for local high streets, health and the economy;
- Maintaining **freedom and choice** where possible;
- Much better **information and education;**
- **Strong leadership from government** and a **cross-party approach to change.**

Conclusions

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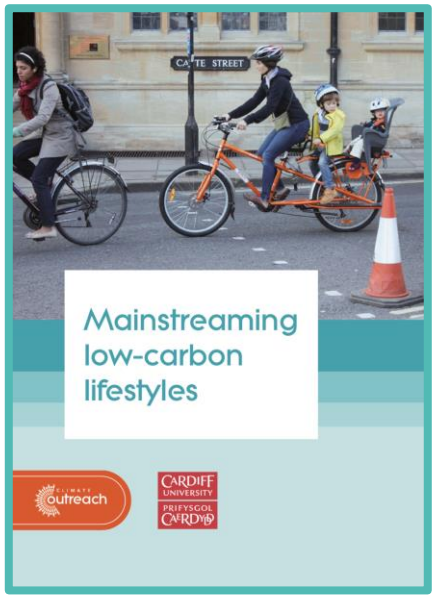

https://cast.ac.uk/publications/

Rapid and ride-ranging behavioural change is essential for tackling climate change – but also to *improve wellbeing*

Achieving this requires people playing an *active* role in decision-making and action, and governments removing barriers to behaviour change (upstream + downstream measures)

People have multiple roles – not only as consumers, but also parents, citizens, professionals, investors, community members… *cut your carbon footprint, but also use your voice*

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