

# Tackling inequality is essential for behaviour change for net zero

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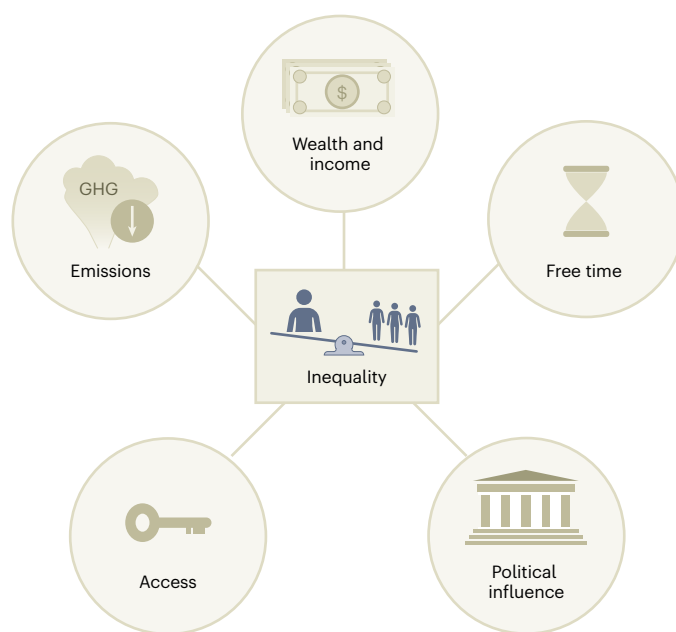


Policies and psychological approaches often overemphasize individual agency, overlooking how socioeconomic inequality can constrain access to low-carbon alternatives. We argue that tackling these inequalities is urgent for impactful, equitable behaviour change.

There is increasing recognition that behaviour change – not just technical innovation – is required to tackle climate change. Sustainability-related behavioural research has often proposed high-agency interventions, which target effortful, conscious behaviour change<sup>1</sup>, for example, education campaigns on environmentally damaging activities<sup>2</sup>. Despite their popularity, the effectiveness and population-level scalability of high-agency interventions is limited by their reliance on reflective, conscious engagement and access to unequally distributed resources. While some behaviours may be more easily changed through conscious processes than others – for example, highly deliberative decisions such as appliance purchases – socioeconomic inequalities can restrict individuals' capacity and opportunity for deliberative behaviour change. Despite their disproportionate contribution to global emissions, wealthy individuals can be well positioned to switch to some low-carbon behaviours, which we discuss below. Systemically rooted inequalities such as a lack of affordable low-carbon options<sup>3</sup>, time poverty<sup>4</sup> or limited access to supportive infrastructure<sup>3</sup> may make the population-wide adoption of low-carbon behaviours infeasible, while the damage done by greenhouse gas (GHG) emissions is not priced at their true cost within markets. Although interventions targeting high-emitting population segments are urgently needed<sup>5</sup>, many behavioural domains such as the food and transportation systems require behavioural changes across the population, especially in high-income countries. Here, we argue that tackling inequality – both within and between countries – is a core prerequisite for enabling behaviours required to mitigate climate change and meet human needs within planetary boundaries<sup>6</sup>.

## Inequality and the feasibility of low-carbon behaviours

Systemic inequalities, such as limited access to low-carbon options, can constrain the feasibility of adopting additional low-carbon behaviours for lower-income individuals (Fig. 1). In South Africa, historical and ongoing socioeconomic inequality have resulted in wealthier urban populations having greater access to low-carbon transportation options. By contrast, those living in low-density rural areas often rely on high-carbon solutions due to a lack of infrastructure and resources. For lower-income households in the United States, for instance, vehicle-related expenses consume up to 25% of disposable income<sup>7</sup>. Such financial constraints can hinder the feasibility of purchasing



**Fig. 1 | Inequalities hinder a just transition to net zero and constrain who can feasibly adopt additional low-carbon behaviours.** These include inequalities in GHG emissions, wealth and income, free time, political influence and access to low-carbon options such as public transport and insulation subsidy schemes.

public transport passes for journeys where public transport is a reasonable alternative to driving, thereby perpetuating high-carbon transport mode lock-in.

While London boasts the cheapest bus fares and the most comprehensive public transport network in the UK, it also ranks highest for house prices and rents. Although rent and property prices can be lower in rural areas than in cities, the deregulation and subsequent privatization of the UK bus network in the 1980s have led to fare increases, a marked decrease in ridership, service fragmentation, increased car ownership and dependence, and transport-associated social exclusion, which disproportionately affect poorer citizens in rural communities<sup>3,8</sup>. Furthermore, in North America, low-carbon transport alternatives such as bike and scooter hire schemes are often preferentially introduced to wealthier and predominantly white neighbourhoods<sup>9</sup>. Access to low-carbon public and active modes of transport may therefore be infeasible for some lower-income citizens, particularly in rural areas.

Inequalities in the accessibility of healthy and appealing low-carbon choices are also evident in the food domain. For instance, research shows that supermarkets in low-socioeconomic-status neighbourhoods

## BOX 1

### Avenues for implementation

#### Elected representatives and other policymakers:

- Understand and tackle wealth-dependent GHG emissions and feasibility of low-carbon behaviour, and create targeted policies to (1) align wealthy individuals' emissions with their fair shares, and (2) provide equal opportunities for low-carbon behaviour across the income spectrum
- Develop initiatives that aim to reduce emissions, particularly within the high-consuming top 10% of emitters within countries:
  - Progressive taxation rates on wealth and income
  - Regulations requiring more energy-efficient appliances and vehicles
  - Carbon taxes, including on aviation fuel, red meat and large homes
  - Heavily subsidized public transport — with, for example, free bus passes for some groups
  - Subsidies to lower-income families to support the installation of energy-efficient appliances, grants to support home insulation and retrofitting
- Local schemes: more expensive parking permits or congestion charge rates for heavier, more expensive and more polluting cars

#### Citizens and community leaders that reduce inequality and GHG emissions:

- Advocate for policies to reduce inequality and emissions, alongside alleviating poverty
- Lobby for specific policies:
  - Improved public transportation, including access to bike, electric bike and electric car share schemes
  - Cycle paths separated from motor traffic
  - Shared community solar panel purchases
  - Mandatory installation of low-carbon energy options (heat pumps, solar panels) on council and social housing

#### Urban and transport planners:

- Design cities for equal access to public space to improve access to public transportation, bike lanes and pedestrian-friendly routes, particularly in lower-income neighbourhoods
- Offer subsidized purchasing programmes for electric vehicles, including electric cargo bikes; in developing countries, this could also mean working to improve basic infrastructure in disadvantaged areas to allow for more efficient and sustainable transport options, such as free bus shuttles for those with limited mobility
- Create more luxurious low-carbon transport options to encourage middle- and high-income citizens to shift from high-carbon habits

#### Employers and decision-makers in organizations:

- Introduce fixed wage ratios between the lowest-paid and highest-paid employees to avoid wages for the lowest-paid stagnating while executive and other more highly paid employees' salaries spiral without outsourcing poorly paid roles to external businesses with lower pay
- Provide flexible working patterns, including part-time options and a four-day work week
- Subsidize bike, electric vehicle and electric bike purchases for all employees, and provide free or subsidized public transport passes
- Discourage commuting by car and introduce tiered workplace parking charges, so that those with more expensive and more polluting vehicles (who are likely to be on higher salaries) are charged more
- Provide additional annual leave for those who holiday by train instead of flying
- Offer subsidized low-carbon food options at the cafeteria, accessible to all staff

often stock fewer varieties and poorer quality of fruit and vegetables<sup>10</sup>, which form a key part of healthy and sustainable diets<sup>11</sup>.

Alongside inequalities in accessibility, some low-carbon options can require additional financial or time investments that may be infeasible for those with less wealth. In the UK, reducing housing-related energy consumption can often require substantial upfront investments to retrofit poorly insulated housing stock. Government subsidies and support for housing insulation tend to be exclusively for homeowners, with renters having little control over the infrastructure they live in. Similarly, tax breaks or financing to buy electric bikes or cars are largely restricted to those in permanent employment with reasonable salaries.

Time availability can further constrain the feasibility of low-carbon behaviours. Those on higher incomes and with more wealth are more able to afford to work part-time, retire early or pay for others to undertake time-consuming activities on their behalf, such as cleaning and childcare. This can free up time for low-carbon behaviours that take longer than the alternatives. For instance, shifting to new low-carbon behaviours such as meat-free cooking, or highly deliberative investments

to facilitate future low-carbon lifestyles, such as retrofitting a home or installing a heat pump, take considerable time and cognitive resources.

Certain low-carbon actions are time-intensive due to policy decisions — for instance, appropriate infrastructure and policies could make inter-city train travel faster than car travel. Yet, some low-carbon behaviours require more time owing to inherent biophysical constraints. For example, inter-continental travel will almost inevitably be faster by plane than by train. Plant-based proteins such as peas, beans and lentils have much lower environmental impacts and are generally cheaper than meat and cheese, but can take longer to prepare into appetizing meals.

In addition to freeing up time for more sustainable behaviours, reduced working hours could further curtail spending on carbon-emitting activities and products. A four-day working week is estimated to cut the UK's emissions by as much as 20%<sup>12</sup> by reducing transport emissions from commuting and increasing low-carbon activities including rest, exercise, community building, and seeing friends and family. These activities also strongly benefit well-being<sup>13</sup>.

## Tackling inequalities for net zero

Modelling studies show that unprecedented reductions in inequalities for both wealth and emissions are necessary to secure decent living conditions within safe planetary boundaries<sup>14</sup>. Evidence strongly indicates that the provision of high-quality public services – such as public transport – makes low-carbon choices more feasible across socioeconomic groups and meets human well-being with lower energy usage<sup>6</sup>. Furthermore, high-quality public services are more frequently found in more equal high- and middle-income countries, and are generally funded through progressive taxation, which further limits inequality.

Reducing inequalities can increase the effectiveness and fairness of behaviour change policies for climate change mitigation, easing the way for a smooth transition to net-zero emissions<sup>5</sup>. For instance, carbon taxes are designed to internalize the negative externalities from pollution and climate change within a market economy, and are considered highly effective for reducing emissions. However, carbon taxes can disproportionately burden poorer citizens and nations, while wealthier countries and individuals can afford to continue emitting. Similarly, a personal carbon allowance, which provides each individual with the same carbon budget, would be more difficult to adhere to for individuals living in unsupportive contexts, for example, with poor access to low-carbon transportation. More equal societies can implement such policies with fewer compromises to human needs and policy effectiveness, ensuring that everyone has the resources and support necessary to adopt low-carbon behaviours<sup>15</sup>.

Moreover, more equal societies can more easily avoid possible or perceived trade-offs between social and environmental considerations. For instance, instead of direct payments to poorer households or a flat payment to every household, several countries – including the UK and South Africa – introduced energy price cap policies. The stated aim was to protect lower-income households from rising energy prices due to supply-chain disruptions and Russia's invasion of Ukraine. However, these policies inadvertently function as fossil fuel subsidies, with the state and taxpayers covering the difference between the market price and the capped amount paid to fossil fuel producers. As well as increasing inequality, this policy risks increasing reliance on fossil fuels and hinders the transition to renewable energy sources and better building insulation<sup>15</sup>. Tackling inequalities can help societies avoid such reliance on fossil fuel subsidies for public welfare interventions in the future. Tackling wealth inequalities can also help address current and potential social and political inequalities linked to climate change mitigation. For example, social norms that increasingly normalize low-carbon behaviours may inadvertently marginalize those who cannot afford to adopt expensive low-carbon options, particularly if the current emphasis on individual agency prevails. Furthermore, limited adoption of low-carbon behaviours could exacerbate existing inequality – for instance, those who cannot currently afford to insulate their homes and install solar panels are more vulnerable to any future increases in oil and gas prices. Socioeconomic inequalities are also associated with unequal influence on policymaking. Wealthy individuals can shape policy to align with their interests, compromising the ambition of implemented policies that would otherwise contribute to a fairer distribution of the remaining carbon budget. For example, fossil fuel billionaires have previously donated to politicians who support low taxes and oppose environmental protection and climate action<sup>5</sup>.

## Implications for behavioural research

There are substantial inequalities in who can feasibly adopt additional low-carbon behaviours as well as in personal GHG emissions. Researchers

studying climate change mitigation – especially those focused on behavioural approaches – must carefully consider how these inequalities impact the feasibility of proposed policies, which specific barriers disadvantaged communities face in adopting low-carbon behaviour and how these can be dismantled for a just transition to net zero (Box 1).

First, impactful, equitable behavioural research requires a shift beyond high-agency interventions. This entails prioritizing behaviour change approaches that do not rely solely on conscious, deliberate engagement, recognizing the unequal distribution of resources and capacity for change among different socioeconomic groups. When designing interventions, researchers should thoughtfully consider their choice of target population and the agency required by the intervention.

Second, the impact of socioeconomic inequalities on the feasibility of behaviour change is currently not well understood. Future research can identify barriers to high-impact behaviour change by socioeconomic segments. This will help create targeted interventions and policies that promote equal access to low-carbon options.

Finally, it is vital to recognize that satisfying human needs within planetary boundaries is unattainable without addressing socioeconomic disparities within and between nations. By studying and advocating for policies aimed at mitigating these inequalities, researchers can help lay the foundation for a low-carbon future for all.

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## Competing interests

The authors declare no competing interests.