Executive Summary

Fast approaching the 1.5°C guardrails

Recent temperature observations show that global warming is already rapidly approaching the critical 1.5 degrees Celsius (°C) guardrail, and the remaining carbon budget is now so limited that – if current emission levels persist – it could be exhausted by around 2028. This makes a near-term breach of 1.5°C very likely (Forster et al. 2025).

But 1.5°C is not just an abstract number. It represents lived realities: rising seas displacing communities, farmers losing crops to drought and floods, climate refugees straining political systems, and critical infrastructure designed for a cooler past buckling under new extremes. The inconvenience of today's heatwaves can rapidly turn into tomorrow's health crises; thawing glaciers may release long-dormant pathogens; and, as temperatures rise, so too do social frictions and political instability. The difference between 1.5°C and 1.7°C is not just a fraction of a degree. It marks the line between manageable disruption and irreversible, catastrophic breakdowns of ecosystems and livelihoods.

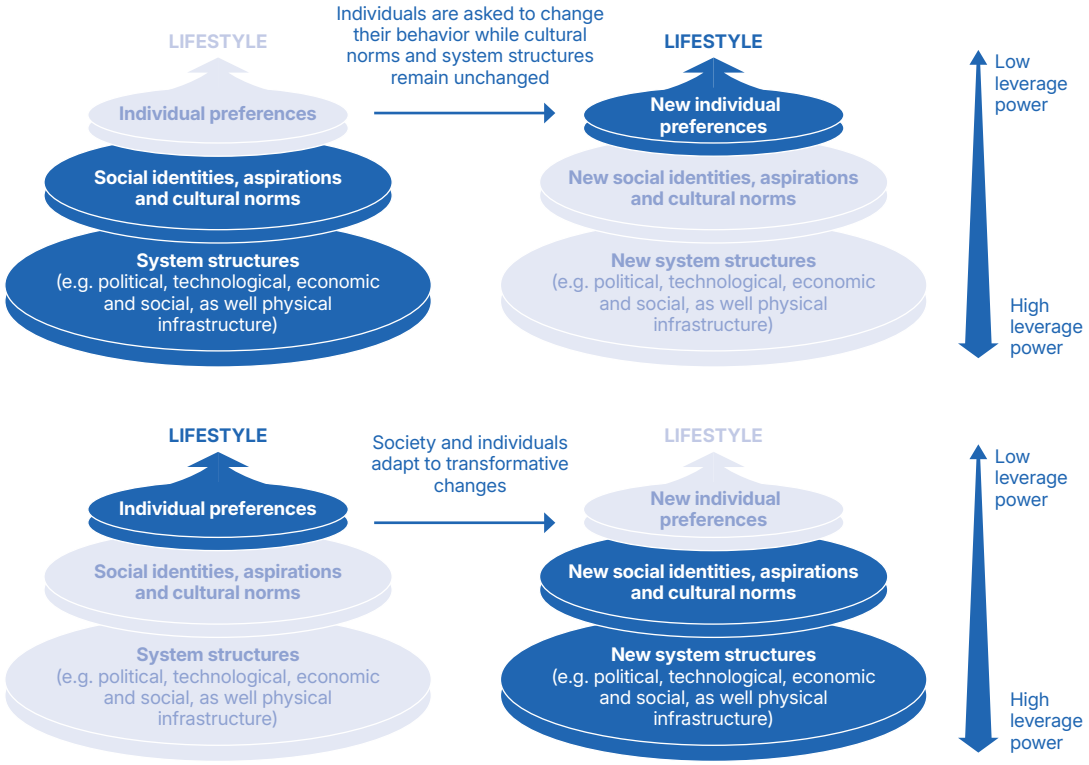
This report focuses on how *lifestyles* drives these crisis. Lifestyles are patterns of behaviour shaped by systemic factors, such as infrastructure and public policies, as well as by social norms and cultural identities (Figure ES1). Lifestyles are not just about individual choices; they are embedded in infrastructures, provisioning systems* and institutions that lock societies into consumerist aspirations and high-emission pathways. What societies consume reflects what they prioritise – and whose needs and aspirations carry weight.

Consumerist lifestyles, long established in the Global North, are spreading rapidly, especially across middle-income countries, while also setting future aspirations across lower-income groups. Meanwhile, consumption by the world's wealthy – in both North and South – is pushing humanity beyond ecological safety limits, while billions remain below the minimum standards for a decent life.

This creates a dual crisis of inequality and ecological overshoot.

* Provisioning systems can be defined as the entire set of societal arrangements through which people's needs (or wants) are met. This is not limited to supply chain and business processes, but includes economic, political, cultural and institutional structures.

Figure ES1. Building blocks of lifestyles



Lifestyles are co-shaped by systems, social identities and choices. Aligning lifestyles with planetary limits requires transformations at all three levels, with priority given to the systemic levels.

The fair consumption space and targets for sufficiency living

This report underscores an urgent inter-linked challenge in our path to meeting the Paris Agreement targets: cutting excess consumption while improving the livelihoods of under-consuming groups to levels of consumption that ensure dignified living, and within the remaining carbon budget. The report elaborates on the concept of the *fair consumption space* – the safe and just zone between an environmental ceiling and a social floor (Figure ES2) – and demonstrates how "sufficiency living" can support human flourishing while achieving climate stability.

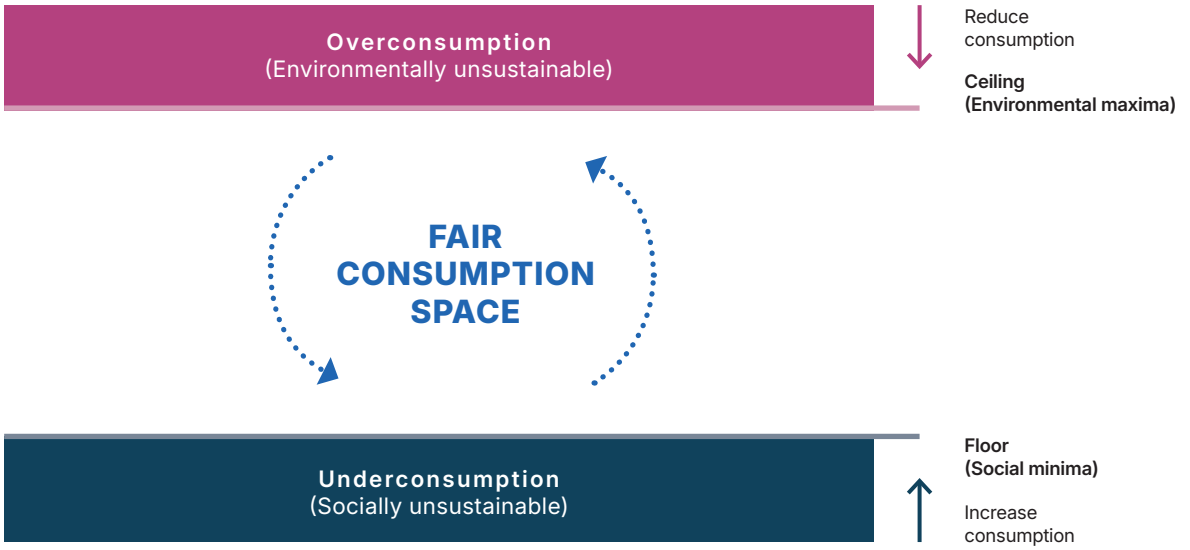
- The ceiling represents the maximum lifestyle-related emissions compatible with limiting warming to 1.5°C.
- The floor represents the minimum material conditions required for dignity, health and social participation.

Both extremes are unsustainable: consumption above the ceiling drives ecological breakdown, while levels below the floor deny people a decent life. Crucially, these are inter-linked: the more some consume beyond their fair share, the harder it becomes to lift others to the floor level while keeping within a shrinking global carbon budget.

Sufficiency is radically different from efficiency. Efficiency seeks to do more with less, but rebound effects often undermine its impact – leading to more consumption rather than less. Sufficiency requires us to ask: how much is enough to ensure wellbeing within the regenerative limits of the Earth? It shifts attention away from endless accumulation and towards cultivating wellbeing, care and shared prosperity. This report outlines key elements of a sufficiency approach to the climate crisis.

Sufficiency living is defined by the material requirements needed to secure wellbeing without material excess. Building on previous research on decent living standards, this report goes beyond basic

Figure ES2. A fair consumption space for sustainable lifestyles, defining limits for over- and underconsumption



Adapted from Akenji et al. 2021.

necessities to include wider needs for dignified living and social participation, exploring how those could be provisioned in equitable and ecologically responsible ways. It finds that meeting sufficiency living standards globally with today's technologies and practices would generate around 3.9 tonnes of carbon dioxide equivalent (tCO_2e) per person per year. This is far below the current averages in many wealthy countries (amounting to 8-10 tCO_2e per person per year, or more) but still well above the 1.5°C-aligned ceiling by 2035 (corresponding to 1.1 tCO_2e per person).

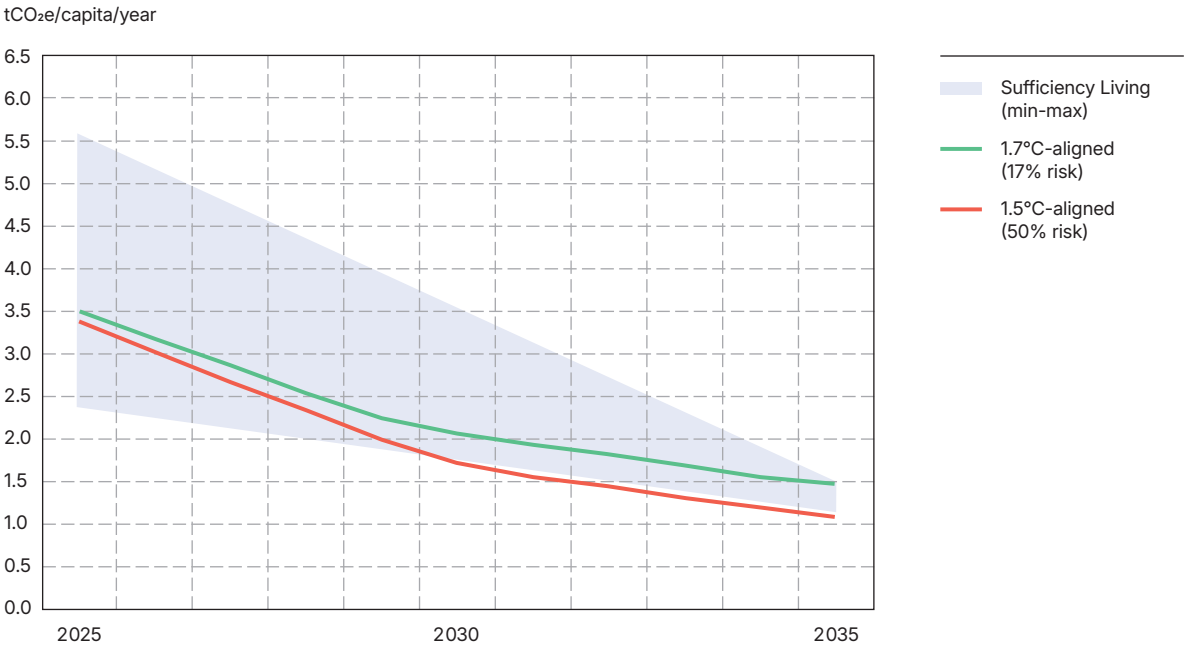
Under a low-carbon scenario – drawing on existing and quantifiable innovations (including social innovations) and easily foreseeable advancements in renewable energy, electrified transport, reduced commuting, efficient building standards, sustainable food systems and shared consumption – the emissions associated with sufficiency living standards could decline to around 1.3 tCO_2e per person per year by 2035. This is consistent with the higher-end target (2°C) of the Paris Agreement, and below the 1.7°C target (1.4 tCO_2e). However, it remains above the 1.5°C-aligned ceiling of 1.1 tCO_2e per person by 2035, identified by the Intergovernmental Panel on Climate Change (IPCC) as critical to avoiding potentially irreversible climate risks*.

The 2024 United Nations *Emissions Gap Report* warns that delayed action and weak decarbonisation efforts risk locking the world into a trajectory of 2.6-3.1°C of warming (UNEP 2024a). The present report underscores that concern, while also showing that an alternative compatible with the Paris Agreement remains within reach through a sufficiency living pathway (Figure ES3). Further ambition is both needed and achievable, particularly in the nutrition sector – through deeper decarbonisation of agricultural practices – and in personal transport, where investment in infrastructure and space reallocation could shift the focus from mobility to accessibility. Such changes would enable people to meet their needs and maintain social connections with much less travel, and therefore far fewer emissions.

Achieving this pathway will require more than rapid technological deployment. It demands deep reforms in provisioning systems, alongside shifts in cultural and social values that place equity and ecological responsibility at the center of development. It also calls for mainstreaming sufficiency within climate, economic, and social agendas, and for bringing in new actors that have not yet been part of the conversation.

* This benchmark has been calculated through the Carbon Budget Explorer (Dekker et al. 2024), based on a 50% probability of exceeding the temperature limit, moderate reductions in non-CO_2 emissions, and only minimal reliance on carbon dioxide removal.

Figure ES3. Lifestyle carbon footprint targets aligned with 1.5°C and 1.7°C pathways, and emissions associated with sufficiency living



5.6	5.2	4.8	4.4	3.9	3.5	3.1	2.7	2.3	1.9	1.5	Sufficiency Living (max)
3.9	**3.6**	**3.4**	**3.1**	**2.9**	**2.6**	**2.3**	**2.1**	**1.8**	**1.6**	**1.3**	Sufficiency Living (average)
2.4	2.2	2.1	2.0	1.9	1.7	1.6	1.5	1.4	1.3	1.1	Sufficiency Living (min)
3.5	3.2	2.8	2.5	2.2	2.0	1.9	1.8	1.7	1.6	1.4	1.7°C-aligned (17% risk)
3.4	3.0	2.6	2.3	2.0	1.7	1.5	1.4	1.3	1.2	1.1	1.5°C-aligned (50% risk)

Note: The sufficiency threshold and ecological ceiling are based on different accounting approaches. LCA-based estimates may overestimate household emissions by including structural and collective inputs, while IO-based ceilings may underestimate the full carbon cost by excluding essential societal infrastructure. The gap reflects a potential boundary mismatch rather than an exact measure of overshoot, which could be resolved through future research.

Lifestyle carbon footprints

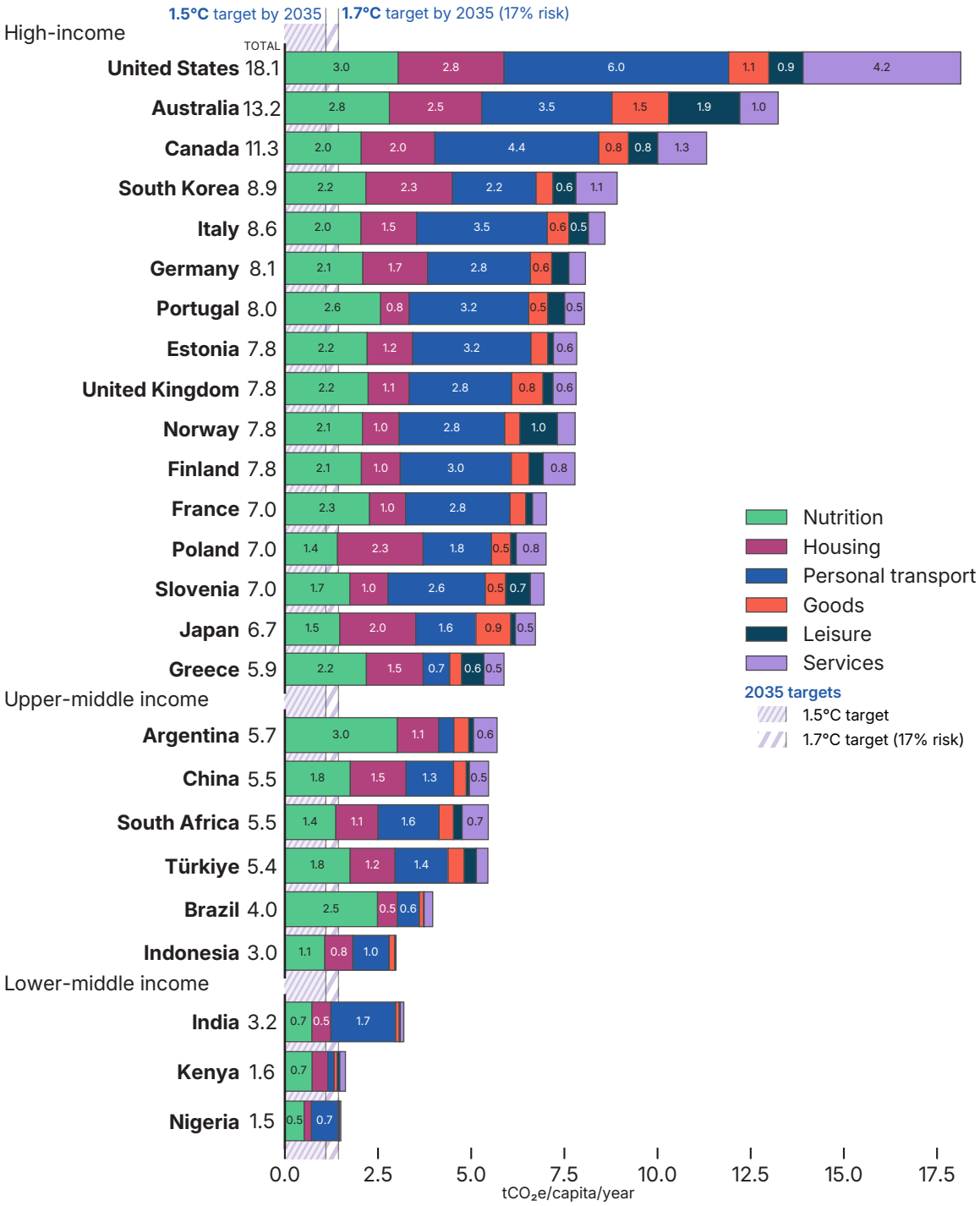
The report presents new quantitative analyses of lifestyle carbon footprints* for 25 countries, spanning high, upper-middle and lower-middle income contexts. This is the broadest assessment of its kind and, by drawing directly on official national statistics, provides rare and robust insights that are often missing in international analyses (Figure ES4). The calculations include only emissions related to lifestyles, excluding emissions from public spending and investments**.

The global average lifestyle carbon footprint across these 25 countries is 7.1 tCO_2e per person per year – more than six times the 1.5°C-aligned target of 1.1 tCO_2e for 2035. At the extremes, the United States (18.1 tCO_2e) has an average lifestyle carbon footprint more than 10 times that in Nigeria (1.5 tCO_2e). Despite regional and cultural differences, three domains – nutrition, housing and transport – consistently emerge as the primary drivers of lifestyle-related emissions. Together, these domains account for 66% to 95% of the total lifestyle carbon footprint across income groups, with their relative share increasing as income decreases.

* Lifestyle carbon footprint refers to the total greenhouse gas emissions, expressed in carbon dioxide equivalents (CO_2e), that are directly and indirectly caused by an individual's or household's everyday activities – such as nutrition, housing, personal transport, goods and services – throughout the full life cycle of the products and services consumed.

** Earlier modelling studies indicate that lifestyles account for around 72% of society's emissions (Hertwich and Peters 2009). This difference between lifestyle carbon footprints and total emissions was considered when calculating future emission targets aligned with decarbonisation pathways.

Figure ES4. Lifestyle carbon footprints by country and across six major consumption domains



To align with the 1.5°C target by 2035, average lifestyle emissions must fall by:

- 82% to 94% in high income countries,
- 64% to 81% in upper-middle income countries, and
- 29% to 67% in lower-middle income countries.

No country, however, is currently on track to achieve these reductions. Without systemic change, climate goals will remain out of reach.

Importantly, comparing emission levels with income offers valuable insights. Countries with similar human development – as measured by the Inequality-adjusted Human Development Index from the United Nations Development Programme – show very different carbon intensities (Figure ES5). This reveals that development pathways are not fixed: some countries achieve higher wellbeing with lower emissions, offering opportunities for policy learning and exchange.

Inequalities also exist within countries. In high-income contexts, many people overshoot sufficiency levels while marginalised groups remain below them. In lower-income countries, elites consume far above sufficiency while large populations still lack access to basic needs. Overconsumption and underconsumption are therefore two sides of the same crisis.

Domains and options for change

As the window for limiting heating to 1.5°C shrinks and becomes increasingly difficult to keep open, meaningful and timely action is more urgent than ever. Every fraction of a degree matters. Arguing that "it's too late" is misleading and only serves those who seek to maintain the polluting status quo.

Lifestyle changes that directly address overconsumption can reduce per capita lifestyle carbon footprints considerably (Figure ES6). The greatest impacts are found in:

- **Nutrition:** adopting plant-based, vegetarian or planetary health diets can cut 1,000–2,500 kilograms of CO_2e per person annually, depending on the country context.

- **Transport:** avoiding private car use in urban areas, shifting to public and active transport, and reshaping urban planning so people live closer to work or study can each save over 1,000 kilograms of CO_2e per person per year, especially in car-dependent countries.

- **Housing:** retrofitting buildings, applying passive standards, using low-carbon materials, and switching to clean heating and cooling systems reduce energy demand and emissions at scale.

Figure ES5. Comparing Inequality-adjusted Human Development Index (IHDI) and lifestyle carbon footprint (tCO_2e/capita/year)

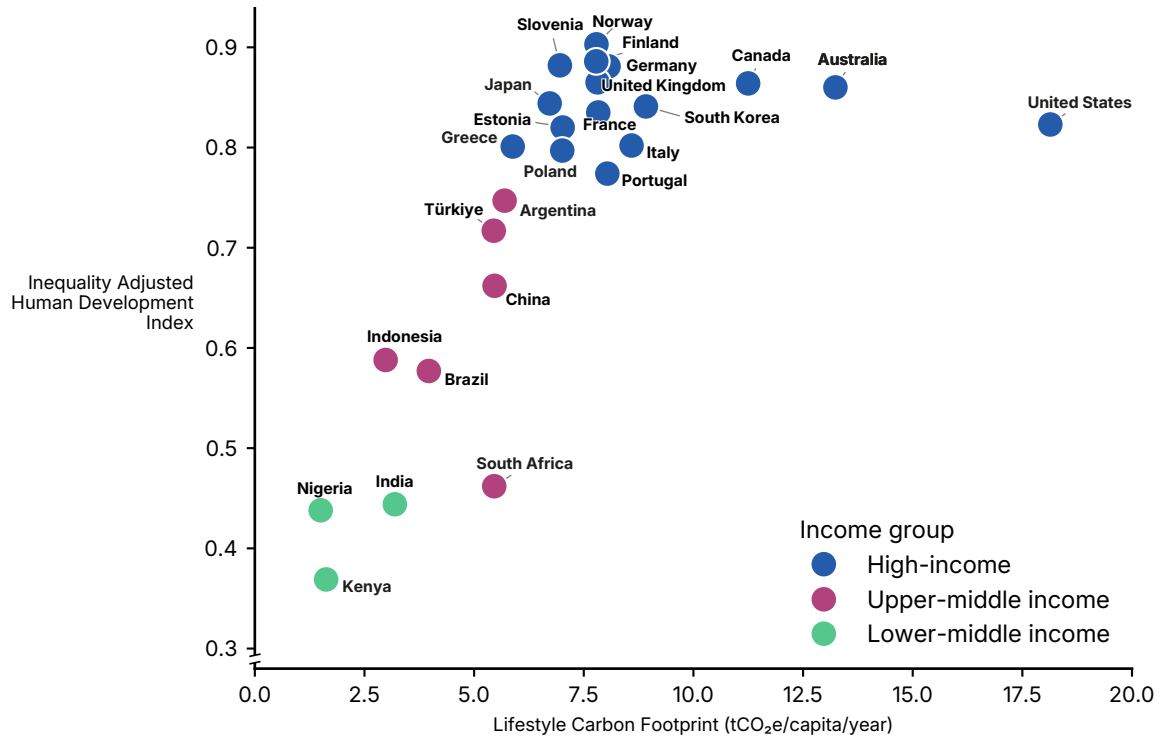
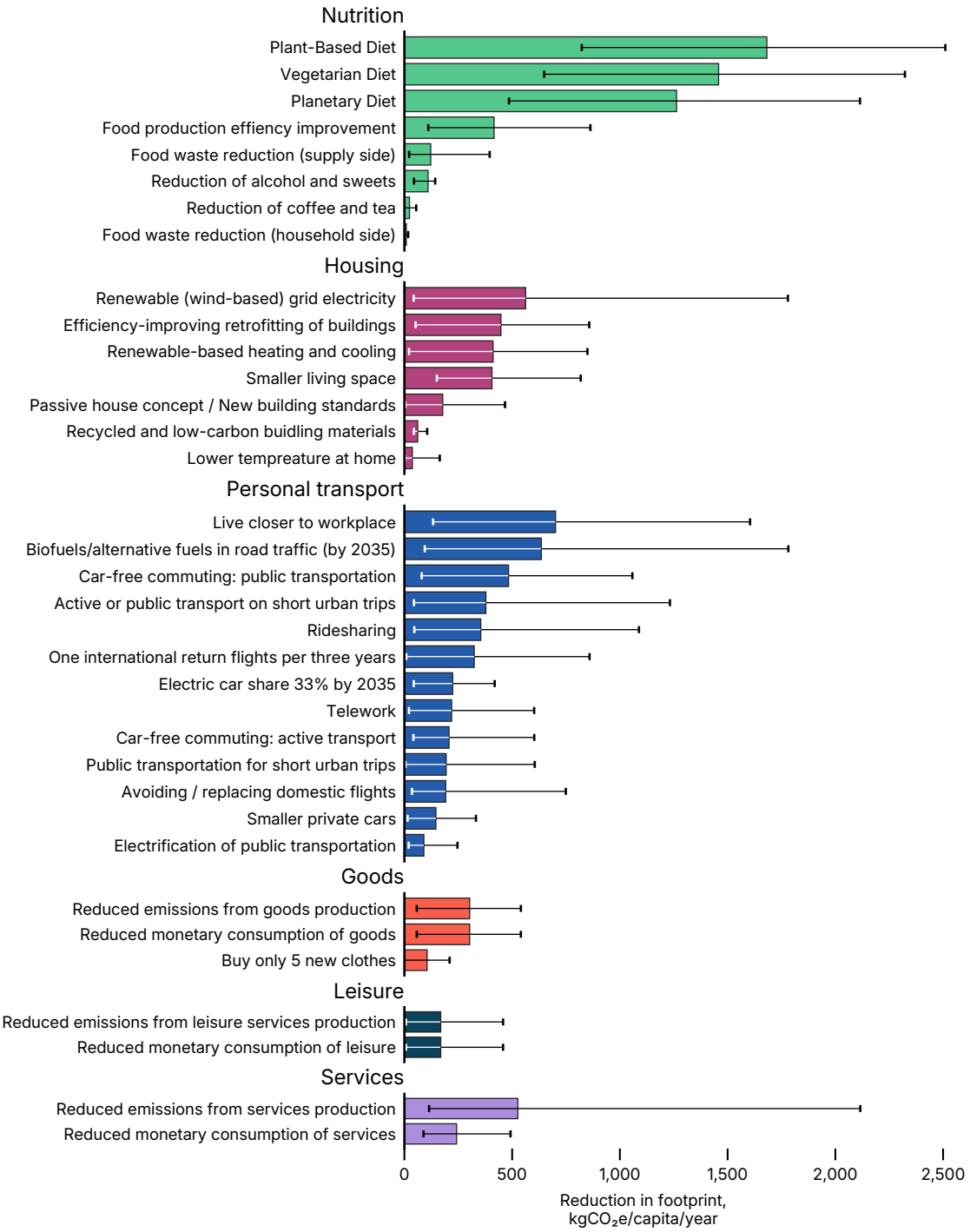


Figure ES6. Average per capita footprint reductions ($kgCO_2e$/capita/year) for low-carbon lifestyle options



Note: Error bars indicate minimum and maximum reduction potential ($kgCO_2e$/capita/year) across selected case countries: Argentina, Brazil, Canada, Finland, France, Japan, South Africa, the United Kingdom and the United States.

By focusing on nutrition, personal transport, and housing, sufficiency becomes both a guiding principle and a practical pathway for aligning lifestyles with climate targets. These domains are universal priorities for reducing emissions, but the most impactful actions differ across countries – underscoring the need for tailored, context-specific pathways to low-carbon futures.

Recommendations

Overall, the findings of this report make clear that incremental efficiency improvements are insufficient. Fundamental societal transformations are needed to enable climate-compatible, socially just lifestyles. The recommendations include six critical actions at the collective and individual levels, to avoid crossing socio-ecological red lines.

Bend back the emissions curve: recommit to 1.5°C

The climate ambition remains the same, keeping temperature rise as low as possible above pre-industrial levels. In the context of overshoot, this requires keeping the level and duration of average global temperatures above 1.5°C as short as possible. This makes 1.5°C still the target, only now more urgent. The longer we stay at such levels of overshoot – and, even worse, for every additional unit of increase in average global temperatures above 1.5°C – the more impactful it would be, and difficult to reverse to comfortable pre-overshoot levels.

Governments must urgently recommit to 1.5°C, and adopt concrete, verifiable, and time-bound plans, preferably legally binding, with compulsory reductions for business and strong international co-ordination. "Too late" narratives only serve the status quo. The curve can still be bent back – if rapid, co-ordinated action is taken.

Implement globally co-ordinated taxes and wealth caps

The wealthiest top 10% of the global population is responsible for nearly half of all emissions, while the bottom 50% accounts for less than a third (Chancel 2022). And the trend is worsening. Some estimates show that the top 1% global wealth share could rise from around 38.5% today to 46% in 2050 if the wealthiest individuals own all the new low-carbon infrastructure. Tackling overconsumption and inequality is therefore central to climate stability.

Globally co-ordinated fiscal tools can curb harmful excess and redistribute opportunities fairly. These include progressive income, wealth and inheritance taxes; comprehensive capital gains taxation; maximum income–minimum income ratios; and absolute wealth ceilings. Revenues should be redirected to fund universal basic services and sufficiency-oriented infrastructure.

Such policies are not unprecedented. In the 1940s, the top marginal tax rate in the United States reached 94%, greatly reducing inequality. Today, globally co-ordinated action on wealth and taxation could both fund sufficiency for all and reduce social tensions that undermine climate co-operation.

Change aspirations and catalyse large-scale social innovation

Shifting towards sufficiency requires redefining what societies aspire to. Current aspirations, shaped by consumerism and advertising, drive overconsumption and ecological overshoot. New collective visions are needed that are built on more positive values such as care and collaboration, and that emphasise wellbeing and shared prosperity within planetary limits.

An understanding of social tipping dynamics – how small interventions can trigger large, systemic changes in society – can be used to trigger rapid change. For example, removing fossil fuel subsidies and exposing the moral implications of fossil fuel use, strengthening climate education and engagement, and restricting excessive wealth accumulation could have a cascade of positive systemic implications. Active choice editing would further catalyse innovation, such as through phasing out private consumption options that may be harmful and have distributive burdens (e.g. private jets, loyalty programmes for non-essential consumer goods), while expanding access to sustainable alternatives such as affordable public transport and healthy diets. Changing societal aspirations would also require new business models. A business licence to operate would be linked to measures that demonstrate value to society and contributions to ecological health. Public policy is needed to encourage alternative models such as circular businesses, non-profit businesses, worker-owned corporations and co-operatives.

Such changes require participation of citizens to strengthen legitimacy. Through citizen assemblies, citizens, communities and non-market actors must be empowered to co-create alternatives that align lifestyles with ecological realities.

Prioritise the carbon budget: provisioning systems for fundamental needs

With a shrinking carbon budget, priority must go to meeting fundamental needs: nutrition, housing, health and transport. These sectors not only drive the majority of lifestyle emissions but are also where inequalities are most visible and where social tensions most often erupt.

A provisioning systems approach shifts the focus from consumer products to how societies organise the delivery of needs. Governments should direct remaining emissions space and investment into universal access to nutritious food, affordable housing, quality health care and low-carbon mobility. This requires universal basic provisioning, the protection of essential services from speculation, and the expansion of affordable public options such as free, frequent public transport.

Such an approach offers a double dividend: lowering emissions while reducing inequality and strengthening social stability. It ensures that carbon is spent where it matters most – on dignified lives within ecological limits.

Take personal responsibility: apply REDuse to sufficiency living

While systems and policies set the conditions, individuals and households undeniably also play a role. Adapting a simple framework REDuse (Refuse, Effuse and Diffuse) can empower individuals and households in their daily lives to understand areas where action can have high impact. Refuse discourages harmful practices (e.g. cut back on flights and fast fashion). Effuse promotes or advocates for low-carbon alternatives (e.g. vote for climate action and push for 1.5°C-aligned strategies). Diffuse encourages collaboration and actions that spread sufficiency (e.g. shared living). These shifts can cut 1–2.5 tonnes of CO_2e per person annually for an average person in the countries studied, while also delivering health, financial and social benefits.

Applying REDuse to sufficiency living directs individuals and households to where strategic individual intervention can have multiplier effects in the community and broader system. It encourages them to take action in three key areas of life: everyday living choices, work and political participation.

Establish a Council on Global Ecological Stability and Justice

The current confluence of crises calls for a new governance architecture that addresses the problems from a global perspective, that ensures a collaborative approach rather than destabilising competitiveness, and that ensures there is justice and needs-based prioritisation of the remaining carbon budget and resources. Global commons require global governance. This report calls for the creation of a Council on Global Ecological Stability and Justice.

The Council would:

- Monitor the fair consumption space and ensure transparent reporting on global resource use;
- Co-ordinate contraction and convergence* pathways to bring countries and groups into alignment with planetary limits;
- Provide a platform for addressing global inequalities in consumption and emissions;
- Align international finance with sufficiency living and safeguard access to essential services worldwide.

Such a body could complement existing United Nations institutions by anchoring ecological stability and justice as inseparable goals, ensuring that planetary limits and human dignity are jointly respected.

Looking forward

This report demonstrates that the challenge of 1.5°C is inseparable from the challenge of lifestyles. Current levels of consumption are driving ecological overshoot while leaving billions without the means for a decent life. The concept of the fair consumption space highlights a dual imperative: cut overconsumption while raising underconsumption to sufficiency levels.

The analysis shows that lifestyle carbon footprints must decline by 80–90% in high-income countries, and substantially in all others, if global warming is to be limited in line with the Paris Agreement goals. Sufficiency living offers a pathway to achieve this, combining well-being with ecological responsibility. While the remaining carbon budget is rapidly shrinking, it is still possible to reduce overshoot and avoid the most dangerous consequences.

Solutions are available – what is needed is courage and leadership to act. Reductions in food, transport, and housing emissions can each save more than 1 tonne of CO_2e per person annually, while also delivering co-benefits for health, affordability and quality of life. Progressive taxation and wealth caps, alongside global governance mechanisms, are essential to ensure fairness and enable systemic transformation. Individuals and households also play a role by refusing harmful consumption, supporting sustainable alternatives and spreading sufficiency practices.

The task ahead is urgent but achievable. If governments, businesses, and citizens act together to re-align lifestyles with planetary limits, we can bend the emissions curve back towards 1.5°C and create the conditions for equitable and sustainable human flourishing.

* Contraction and convergence calls for global emissions to decline while national per capita emissions equalise, with high emitters cutting faster to enable a fairer share of the remaining carbon budget. It is grounded in the Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC) principle of the United Nations Framework Convention on Climate Change (UNFCCC), which recognises that all nations share the duty to protect the climate but that high-income countries bear greater responsibility and capacity.