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Hot or Cool

A contribution to

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1. INTRODUCTION

The latest assessment by the Intergovernmental Panel on Climate Change (IPCC et al. 2021) presents a narrow window of action for avoiding a greater than 1.5-degree temperature rise as per the Paris Agreement on climate change. Every single year of delay considerably worsens the odds of meeting the target. More than two-thirds of greenhouse gas (GHG) emissions can be attributed to households' consumption and lifestyles, according to the Emissions Gap Report 2020 (United Nations Environment Programme [UNEP] 2020). This includes both direct emissions from household activities, such as those from the tailpipe of a car, and from the entire life cycles of products and services, including natural resource extraction, manufacturing, use, and waste management.

While improved technologies can lower emissions substantially, the magnitude and speed of necessary cuts in GHG emissions require significant and rapid changes in predominant lifestyles as well, especially in high-consuming societies (Alfredsson et al. 2018). Therefore, preventing runaway climate change requires intentionally shifting lifestyles, through strategies that edit out highly carbon-intensive consumption options while driving innovation towards those goods and activities that better satisfy human needs and are regenerative.

The responsibility for causing climate change is strongly skewed, with the wealthy and those living in high-income countries causing a disproportionate share of emissions.

While the current global average lifestyle carbon footprint is 4.6 t CO2e per person (see Box 1), there are vast disparities. For instance, in Canada, the average footprint is more than 14 t CO2e per person, the UK 8.5, South Africa 4.6, and India 3.0 t CO2e (Akenji et al. 2021).

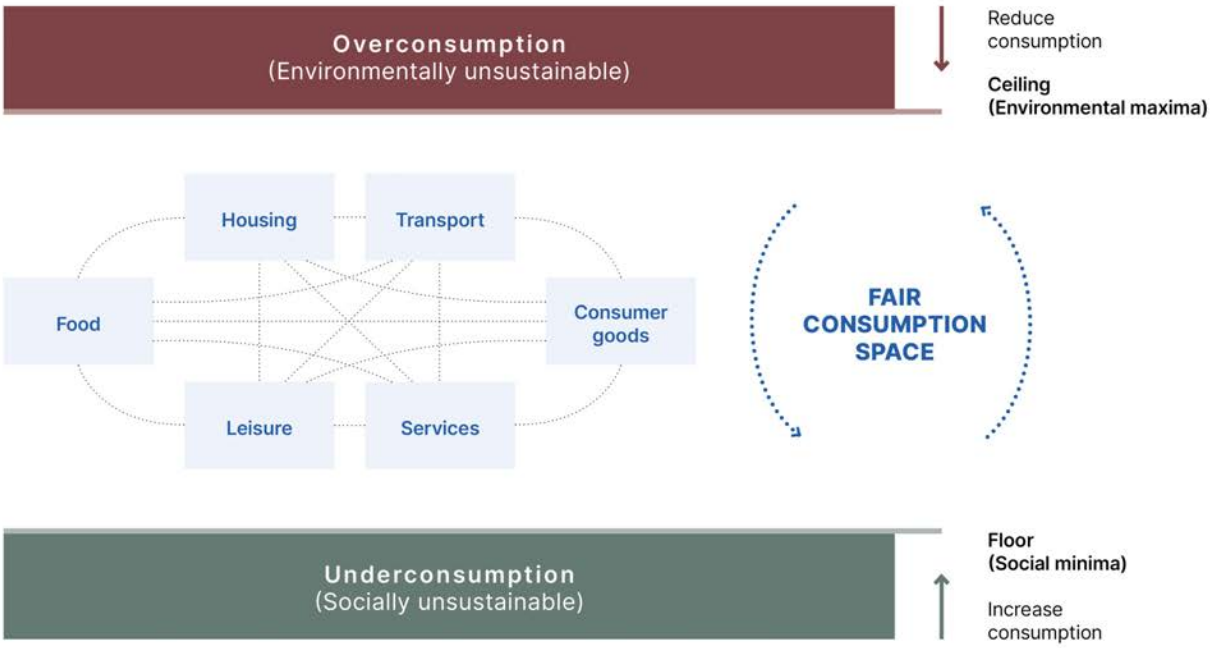
As well as inequality among countries, there is also unequal impacts of consumption across different income groups. The lifestyles of the wealthiest 10% of the world's population (broadly speaking, most middleclass persons living in industrialised countries), are responsible for almost half of the global emissions, while the lifestyles of the wealthiest 1% are responsible for about twice as many GHG emissions as the poorest 50% (Oxfam 2021). These lifestyles also influence global aspirations and drive consumption. With a limited carbon budget and resource capacity, continuously increasing consumption by the already rich precludes the poor from opportunities to increase their own consumption and wellbeing. In addition, the carbon intensive lifestyles in industrialized countries also set the consumption aspirations in the rest of the world.

Efforts to rapidly cut greenhouse gas emissions need to consider these stark inequalities and be based on principles of fairness. This is illustrated by the concept of a fair consumption space (Figure 1), which stresses the need to curb overconsumption while ensuring consumption opportunities needed for meeting basic needs, decent living standards, and human dignity.

BOX 1: GLOBAL TARGETS FOR 1.5-DEGREE LIFESTYLES

Based on the IPCC's assessment of remaining carbon budgets and emission reduction pathways, the 1.5-Degree Lifestyles report estimates that by 2030 the average global lifestyle carbon footprint should not exceed 2.5 tonnes CO2e (t CO2e) per person per year, and by 2050 it should have fallen below 0.7 tCO2e. In 2019, the global average lifestyles carbon footprint was 4.6 t CO2e – almost twice the target for 2030 (Akenji et al. 2021).

Figure 1. A fair consumption space for sustainable lifestyles



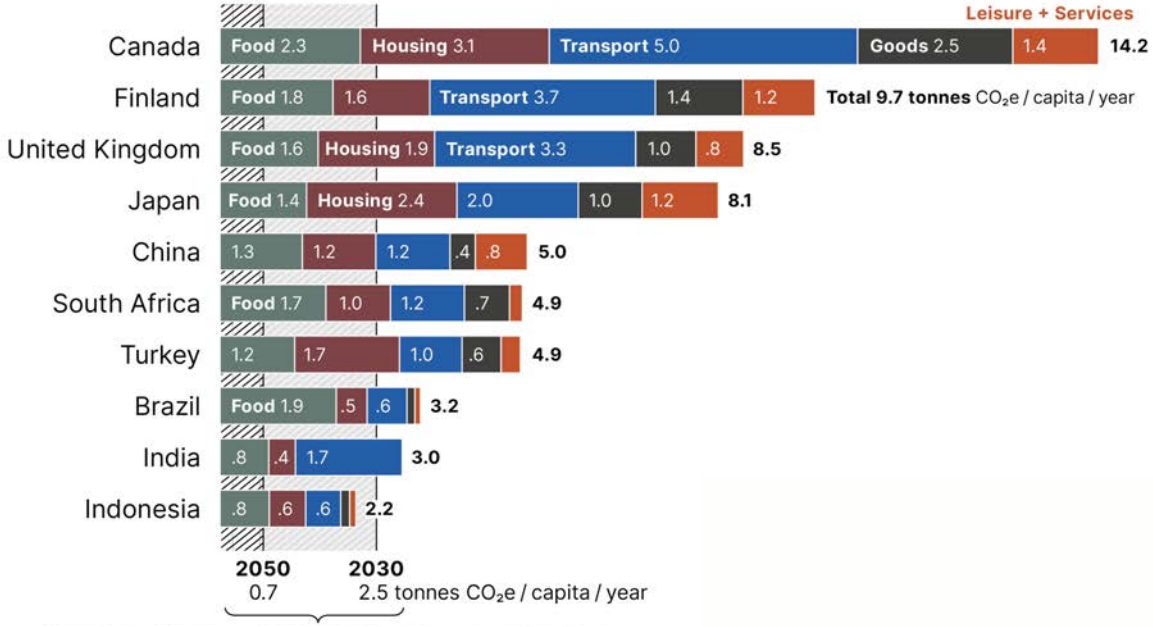
Source: Akenji et al. 2021

These guidelines for policy makers apply a lifestyles perspective to the sustainability challenge, using climate change as a focal point and providing policy direction to how the remaining carbon budget can be fairly allocated in order for people to meet their wellbeing needs in a sustainable and equitable manner. These guidelines are based on, and use data and analyses from the report 1.5-Degree Lifestyles: Towards a Fair Consumption Space for All (Akenji et al. 2021). To address the need for rapid reductions, these guidelines look specifically at how to remove harmful and carbon intensive consumption options, at how to integrate or scale up low carbon alternatives, while offering fairer access for all. Finally, the objective of these guidelines is to put the sustainable lifestyles approach on the agenda of regional, national and local policy-makers.

2. LIFESTYLE HOTSPOTS

Research on the environmental impacts of consumption consistently finds that four domains are the most critical for environmental sustainability: food, housing, transport, and consumption of other goods and services (Tukker et al. 2010). Figure 2 shows the composition of the average carbon footprint by domains of consumption for ten countries analysed in the 1.5-Degree Lifestyles report. The data confirms the significance of the lifestyle domains mentioned above. The figure also shows the gap between current footprints and 1.5-degrees targets for 2030 and 2050; disparities in impacts of lifestyles between high-income and low-income countries; and country-specific hotspots.

Figure 2. Average lifestyle carbon footprints and breakdown between consumption domains for selected countries.



Global targets for lifestyle carbon footprints compatible with 1.5-degree goal.

Source: Akenji et al. 2021

TRANSPORT

In most high-income countries, personal transport is the lifestyle domain with the largest contribution to the overall lifestyle footprint. It is the result of average distance travelled per year, modes of transport used and their respective energy consumption, as well as the carbon intensity of the energy used. For example, in Canada, the average person travels 22,200 km per year with a carbon footprint of 4.99 tonnes CO2e per person per year when all modes of transportation are accounted for, while in Indonesia, the average person travels only 3,300 km per year with a footprint equivalent to merely 0.57 tonnes. In high-income countries, private cars and aviation are responsible for most of the transport emissions. However, country-specific transport data shows how mobility needs can be met in different ways and with fewer negative side effects. For instance, in Japan 33% of trips are made with public transport compared to 9% in Finland and 15% in Canada.

Flying is carbon intensive in terms of emissions per passenger kilometre and high-altitude emissions have a stronger heating effect than at ground level (Akenji et al. 2021). Although the majority of the world population does not fly, aviation makes a considerable contribution to footprints in countries where frequent flying has been normalised.

An estimated 1% of the population emits 50% of the CO2 from commercial aviation (Gössling and Humpe 2020), which makes flying one of the most inequitable areas of consumption.

HOUSING

Housing is another hotspot, with carbon footprints mainly due both to energy consumption in the use phase, and emissions associated with materials and construction processes throughout the life cycle of a building (embodied impacts). High-income and higher-middle income countries tend to have larger living space per person, but the carbon footprint of housing can be strongly influenced by other factors such as insulation, climate, behaviour, efficiency of heating/cooling equipment, and building materials and design.

For example, Japan has a relatively modest living space and the lowest energy use per square-metre among the high-income countries studied – 100kWh/m2/year compared to 280kWh for Finland. However, this is offset by Japan's carbon-intensive energy system with high shares of fossil gas and coal power.

Meanwhile, inadequate housing, severe crowding, and lack of access to clean energy are serious social issues that impact people's health and wellbeing – especially, but not only, in low-income and middle-income countries.

FOOD

The highest environmental impacts from food come from animal products, particularly meat from ruminants and also dairy products. Consumption of animal-sourced food tends to correlate with income. For example, in Indonesia the average per-capita meat consumption is only 14 kg/year – about an eighth of Finland's consumption of 80 kg/year.

This difference is a major factor in the countries' food footprints: 0.8 tonnes CO2e per capita per year for Indonesia, compared to 1.83 tonnes for Finland. Food consumption also has major health implications, both due to undernutrition and to unbalanced diets and overeating. According to latest estimates, 768 million people suffer from hunger while over 2 billion are overweight or obese (Food and Agriculture Organisation [FAO] et al. 2021) and high consumption of red meat is associated with increased risk of cancer and cardiovascular disease. (Richi et al. 2015). At the same time, around 17% of food goes to waste, driving unnecessary production and higher emissions (UNEP 2021).

FASHION

Of the other goods and services consumed, fashion is emerging as a carbon footprint hotspot, to a large extent due to practices associated with the business model of "fast fashion." Decreasing prices for garments has led to people (especially in high-income societies) buying more items while spending a smaller percentage of their disposable income and using the garments for increasingly shorter times – in the process. This generates increasing amounts of waste and fuels inexpensive and fast production in low-income countries. In the EU, fashion and other textiles represent the fourth highest greenhouse gas emission pressure category and have major impacts in terms of resource use, land use, and environmental pollution, as well as other negative environmental and social impacts (European Environment Agency [EEA] 2019).

Current global fashion consumption patterns reflect stark differences among regions and highlight wealth distribution inequalities. While on average, globally a person buys 5kg of clothes per year (World Wide Fund for Nature [WWF] 2017), in Europe and North America this figure is as high as 26kg (EEA 2019).

3. FACTORS SHAPING LIFESTYLES AND CONSUMPTION

While greenhouse gas emissions and other environmental impacts can be attributed to individuals based on their consumption of goods and services, it is important to see this consumption as part of broader lifestyles patterns.

Lifestyles encompass much more than just consumer spending and the use of consumer goods, including also non-economic aspects of our lives, such as caring for children or elderly parents, spending time with friends, play, study, making art and music, volunteering, or activism. All of these activities can affect, directly or indirectly, wellbeing and life satisfaction as well as carbon footprints.

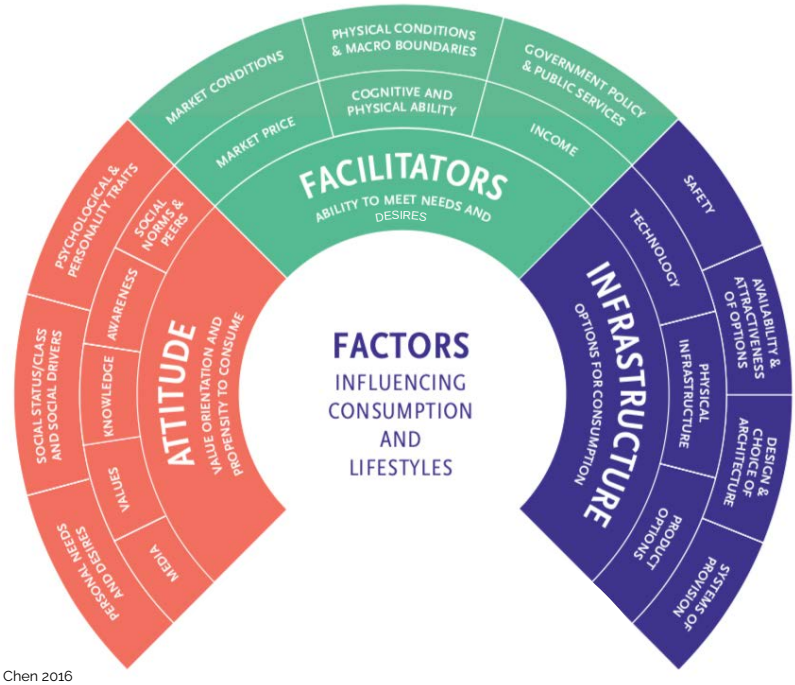
Many of the needs that we today try to meet through material consumption–fueled in particular by the enormous amount of money invested by industries in advertisement**[1]**, might be better met through alternative and less climate-damaging means. This is especially the case with psychological needs such as self-esteem, social recognition, and creativity (Max-Neef 1991).

Addressing climate change through lifestyles improvements requires us to consider the range of factors that shape carbon-intensive ways of living.

These guidelines apply a policy model based on three lifestyle-shaping factors: Attitudes, Facilitators, and Infrastructure (See Figure 3) (Akenji and Chen 2016). Attitudes reflect intention, such as pro-sustainability behaviour or lack thereof; facilitators are enablers, which translate intention into action; infrastructure shapes behavioural patterns or lock-ins.

Significant changes in lifestyles are more likely to happen when all three are present, and work in conjunction with each other to reinforce sustainability. This calls for multipronged policy approaches that simultaneously create awareness and demand, provide information and incentives, and ensure that low-carbon options are available and easy to access.

Figure 3. Factors shaping lifestyles and consumption: the Attitudes-Facilitators-Infrastructure framework.



Source: Akenji and Chen 2016

[1] Magna Global, Press Release 6 Dec 2021: Global advertising market reaches new heights and exceeds pre-COVID levels – 22% increase in advertising spending in 2021, to reach an all-time high $710 billion. Digital advertising sales represent 62% of total advertising sale worldwide.

Policies aiming to accelerate the adoption of more sustainable lifestyles and consumption patterns can be more effective if implemented together with measures to discourage or even eliminate carbon-intensive options. The latter is particularly relevant to high-polluting products and services that mainly benefit a wealthy minority. By adopting such an approach, policy frameworks for low-carbon lifestyles can transform the choice architecture (Johnson et al. 2012) around households, editing out carbon-intensive options and ushering in alternatives that are more sustainable and offer fairer access for all. Choice architecture refers to the practice of influencing choice by "organizing the context in which people make decisions" (Thaler et al. 2013).

4. APPLYING CHOICE-EDITING POLICIES

Governments seeking to engender sustainable lifestyles are tasked with addressing three interlinked and defining challenges: a limited and fast-shrinking carbon budget; vast inequalities between the rich and the poor, which are contributing to ill health and creating socio-economic tensions; and ensuring that policies lead to overall wellbeing for individuals, society, and the planet (Akenji et al. 2021).

This requires bringing lifestyles within a fair consumption space, meaning that over-consumers will need to reduce their consumption to within biophysical limits, while under-consumers use some of the freed-up consumption space to increase their own consumption to ensure health, wellbeing, and dignity. One evidence based approach to ensuring these limits and to stimulating socio-technical innovation is through choice-editing (Sustainable Consumption Roundtable 2006).

Choice-editing is already common practice and has long been a strong basis for public policy. Choice-editing involves the use of specified criteria and standards to filter out harmful or unsuitable options in the range of products and services being brought to the market. Traditional government use of choice-editing is common for public health and safety reasons.

For example, in many countries, hard drugs and smoking in public places are prohibited, while seatbelts are mandated for car drivers. Awareness of the climate crisis has led to widening application of choice-editing. The phasing out of incandescent light bulbs from domestic use, and bans on non-essential single-use plastic items by several countries are basic examples – but not nearly enough, given the urgency and magnitude of the transition needed.

Traditional choice-editing has primarily been through the filters of public safety, health, and security. However, given the climate emergency, governments need to incorporate and prioritize sustainability.

Applying choice-editing requires a careful assessment of existing options and alternatives, based on transparent criteria and a logical framework. A number of assessments are available to decision makers to support this. For example:

- **Impact and sustainability assessments** reflect on the biophysical capacity and ask the question of whether our consumption choices are ecologically affordable.
- **Needs and wellbeing assessments** ask the question of how products and services affect people's health and wellbeing.
- **Cost assessments** reveal whether alternative satisfiers being considered are economically and socially affordable.

There are three main ways to go about choice-editing: removing harmful consumption options from the market, bringing more sustainable satisfiers into the market, and ensuring equitable access to essential satisfiers for all (See Box 2).

BOX 2: A BALANCED APPROACH TO CHOICE-EDITING POLICY FOR SUSTAINABLE LIFESTYLES

- **Edit out:** Use transparent criteria to remove harmful and carbon intensive consumption options from the market in order to stay within the carbon budget, aiming to keep lifestyle carbon footprints at 2.5tCO2e per person by 2030. This approach makes high-carbon options less attractive or more expensive, restricts access, or removes such options completely from the market.
- **Edit in:** introduce sustainable product and service alternatives to existing options, and encourage rapid social innovation towards sustainable options being the default choice. This approach increases availability of low-carbon options, and introduces alternative satisfiers to our needs in ways that are regenerative and increase wellbeing.
- **Ensure equitable access:** This option ensures that poorer segments of society, vulnerable groups (e.g. people with disability, women, indigenous populations, elderly) and those with minimal options to change their lifestyles are not disadvantaged by the sustainability transition. This option ensures that everyone can meet socially accepted minimum levels of consumption and has access to wellbeing opportunities including, for example, healthy food, energy, thermal comfort, and basic mobility.

4.1 Applying choice-editing policies

The three lifestyle determinants introduced earlier – attitudes, facilitators, and infrastructure – provide entry points for governments to design policy options and suites of tools to rapidly address consumption hotspots. Table I below provides a guide for policy selection, based on these three determinants and the choice-editing approach introduced above.

Table I. Editing lifestyle choices using the Attitude-Facilitator-Infrastructure framework

	Edit in sustainable options	Edit out harmful consumption options	Create equitable access to ensure wellbeing
Attitude	Engender pro-sustainability attitudes among individuals, as well as those that shape the socio-technical context, e.g. businesses, policymakers, and marketers.	Counter misleading conceptualization of sustainability, including greenwashing claims.	Promote broad acceptance of equitable and communal ways of living, including collaborative consumption and shared provisioning.
Facilitators	Introduce policies, and enablers that make it easy to translate pro-sustainability attitudes into action.	Phase out perverse incentives, and other enablers that promote unsustainable options or make it difficult to introduce sustainable alternatives.	Promote equitable access to services and collaborative practices, while removing extremes of poverty and wealth.
Infrastructure	Stimulate the availability of sustainable products or infrastructure that can make sustainable practices the default.	Restrict the availability and use of products and infrastructure that are deemed unsustainable or that create lock-ins of unsustainable practices.	Improve the availability of products and infrastructure that provide for fundamental needs, which are accessible to all and that meet minimum standards for leading a healthy life of dignity.

The above matrix can be transposed to address different lifestyles issues. The following sections apply this choice-editing through suites of policies to address the lifestyle hotspot areas identified in section 2:

i. Personal transport: Making sustainable car-free personal transport the default

ii. Housing: Switching to more sustainable housing and home energy use.

iii. Food: Shifting from animal to plant-rich foods.

iv. Consumer goods: Slowing down fast fashion consumption

The selected issues above are not meant to be comprehensive, but rather illustrative. They identify one challenge within each of these four domains. Taken together they address some of the most significant impacts from lifestyles on climate change.

Similarly, policy recommendations made below are not exhaustive; they are selected to illustrate how the choice-editing approach can be used to identify complementary and synergistic sets of actions in each of the four critical lifestyle domains.

4.2 Making sustainable car-free personal transport the default

Reliance on private motorized vehicles (most often cars and in some countries also motorcycles), interurban/long-distance travels, and flying, contributes greatly to lifestyle carbon footprints (International Transport Forum [ITF] 2021). Car infrastructure, mainly roads, and servicing and parking facilities, take a vast amount of public space at the expense of other social amenities and environmental needs. Because travel tends to be highly infrastructure dependent, private car transport, frequent long-distance travel and flying tend to be mostly done by the rich in society, thus reinforcing the inequality between income groups and countries. To decrease the lifestyle carbon footprints from car use and high travel demand, the avoid-shift-improve approach (UNEP 2020) leads to a number of policy options: decrease travel distance; switch from motorized vehicle to active travel (walking and cycling) and public transport; and decrease the carbon intensity of vehicle stock. Sample policies and actions for this are presented below.

Table II: Reducing car dependence and carbon-intensive long-distance transportation – examples of actions

	Edit in sustainable options	Edit out harmful consumption options	Create equitable access to ensure wellbeing
Attitude	Engage health professionals in campaigns on health benefits of alternatives to private cars. Make courses and tests on climate change a mandatory part of acquiring a driver's license, with a particular emphasis on changeable habits, e.g. minimizing idling and short trips, and maximizing carpooling. Require car advertising to inform about the benefits of active travel and public travel, as done in France.	Broaden criteria to designate more low-speed driving zones (e.g. to include cultural hubs, places of worship, high bicycle traffic routes), and set stricter speed limits (E.g. in Paris) or set a fee to enter the city center (E.g. in London and Stockholm). Introduce temporary car-free hours or days around cultural, entertainment or heritage centres. Regulate advertising of carbon intensive transportation modes (e.g., driving, flying). (E.g. in Amsterdam's subway).	Divest funds from private car infrastructure to public, low-carbon transport systems – especially rail and buses. Address safety, including perceived safety, concerns of using public transport, walking, and cycling. Pay special attention to the position of potentially vulnerable groups based on socio-economic status, age, gender, ethnicity, and disabilities.
Facilitators	Develop guides and policies to ease introduction of shared mobility multimodal services. Announce concrete dates for phasing out fossil fuel cars, limiting car size and efficiency, and reducing infrastructure for private car use. Make public transportation more reliable, clean, safe, and accessible. Offer financial incentive through employers for employees commuting actively (E.g, in The Netherlands) or by public transport (E.g. in the USA).	Establish equitable personal/per-household carbon allowances for fossil fuel use in transportation and further link to private car purchases and use. Apply carbon tax to flights, private cars, particularly high emissions vehicles like SUVs, progressive tax on car size and multiple car purchases per household. (E.g. China's ownership quota). Abolish customer loyalty programmes (e.g. frequent flier miles) that encourage high-impact modes and long distance travel as suggested in the UK.	Subsidize or provide free public transport (including long distance trains) and access to shared mobility services to remove financial barriers - e.g. through public transport credit for no-car households. (E.g. free public transport in Luxembourg or in Estonia) Use revenues from carbon tax for private car ownership and flying to develop universal access to basic transport services.
Infrastructure	Introduce and expand private car-free zones in cities (E.g. "superblocks" in Barcelona). Prioritize development of public transport systems and multimodal travel chains combining public transport with other low-emissions and micro-mobility options (e.g. trains and trams with bicycles, electric scooters, and walking). (E.g. in India with the Karnataka Active Mobility bill)	Halt expansion of private car infrastructure (and airport development) and reduce overall availability (such as parking lots and multiple driving lanes). (E.g. Welsh government suspended all future road building plans) Replace fossil fuel refilling stations with charging stations for electric cars and other electric mobility services. (E.g. Shell EV charging hub in the UK)	Convert private car infrastructure such as parking lots and multiple driving lanes to public spaces and commons – e.g. parks, playgrounds, and craft and skills training centres. Modify zoning to have mixed land-use planning to improve access to daily needs in neighbourhoods. (E.g. 15-minute cities)

4.3 Switching to more sustainable housing and home energy use

Addressing home energy consumption calls for special attention to heating and cooling, and home size and number of properties. While there is potential to decrease carbon footprints from housing in high-consuming societies, it is important to recognize that introduced policies do not compromise meeting basic energy needs and living contexts.

Table III: Addressing unsustainable energy use in residential buildings – examples of actions

	Edit in sustainable options	Edit out harmful consumption options	Create equitable access to ensure wellbeing
Attitude	Introduce digital simulations showing economic and energy commitments for housing options during pre-construction and/or purchase phase. (E.g Catapult's Home Energy Dynamics in the UK) Increase and share knowledge on low-carbon technologies and solutions such as refurbishments and renewable energy systems.	Revise house categories and tax codes to reflect sustainability factors – e.g. insulation, energy source, and resource consumption. Create campaigns to challenge prevailing norms of thermal comfort, over-heating or cooling depending on local climate and season (E.g Japan's Cool Biz and Warm Biz campaigns, which encourage dressing and other activities that reduce demand for heating/cooling in winters and summers.)	Remove buying and selling of houses from speculative investments. Demonstrate co-benefits of low-carbon housing, including co-housing, communal housing, eco-communities, etc. (E.g UK's Lilac cooperative (report on carbon emission))
Facilitators	Establish funds to address financial barriers of retrofitting and energy efficiency improvements of buildings and energy systems. (E.g. recommendations from UK's Green Finance Institute). Ease administrative processes for accessing information and resources for retrofitting and household energy systems (e.g., joint procurement schemes), feed-in tariffs to incentivize take up of renewable energy system uptake.	Redesign building codes and use building permits/ administrative processes to restrict nonrenewable construction materials, incentivise smaller dwellings, phase out high-carbon heating and cooling systems, and set targets for energy efficiency. Introduce progressive taxation for multiple home ownership and other financial disincentives for excessive size of individual homes, amount of energy consumed per capita, etc.	Provide low-interest loan guarantees to banks for retrofitting homes and energy efficiency improvements. (E.g. France's MaPrimRenov' - in French) Refurbish social housing stock, subsidize loans to incentivize uptake of refurbishment and energy system investments. (E.g. Danish Green Recovery Scheme) Facilitate development of decentralised community owned renewable energy systems. (E.g. UK's Repowering or Odanthurai village in India)
Infrastructure	Build public-private partnerships to develop and ensure access to smart grids – including micro- and feed-in grids. Develop district heating systems and prioritise their adoption where appropriate. Read EU's guide to develop district heating. Plant trees in cities to cool down neighborhoods and reduce demand for cooling. Read this global overview and US EPA's article	Set deadlines for homes to switch from fossil-fuel based energy sources to renewables while creating infrastructure and incentives for more integrative (neighborhood and grid) renewable energy systems. (E.g. UK's phasing out fossil fuel heating in homes) Create a labeling system for efficient home appliances that regularly phases out the lowest rated appliances (like Japan's Top Runner programme).	Set quotas and incentives for planning and building permits to advance multipurpose buildings, shared facilities such as laundry rooms in building blocks, and access to coworking spaces in residential areas to enhance shared and more efficient use of building infrastructure.

4.4 Shifting from animal to plant-rich food consumption and reducing food waste

Excessive consumption of animal-based food and food wastage are two major contributors to lifestyles carbon footprints and major causes of other environmental challenges such as biodiversity loss (Machovina, Feeley, and Ripple 2015). Meat and dairy products, as well as certain kinds of seafood, have high environmental impact, not only per kilogram of food but also per calorie and per gram of protein.

Plant-based protein sources, such as beans, peas, and lentils, can meet nutritional needs of most healthy adults with a far smaller carbon footprint. In addition, the enormous amount of food wasted has a huge environmental footprint and needs to be addressed. The following recommendations are focused on: shifting to plant-rich diets and reducing food waste.

Table IV: Addressing excessive consumption of animal-based food products and food wastage – examples of actions

	Edit in sustainable options	Edit out harmful consumption options	Create equitable access to ensure wellbeing
Attitude	Increase the number, variety, appearance and quality of plant-rich dishes on menus in school, institutional and business cafeterias. Introduce regular sustainable food campaigns (E.g. 'meat-free day') and make them increasingly frequent. Depict a "good meal" in advertising or popular culture (such as on screens) by showing plant-rich meals and moderate portions. (E.g., China's policy on binge-eating)	Regulate advertising on selected high-carbon foods such as meat, certain types of fish and dairy products. (e.g. Spain limiting advertising of unhealthy foods to children to tackle obesity.) Reflect environment and health impacts of animal products in school curricula and training programmes for professionals in the food and hospitality industry.	Increase the share of plant-based catering in public events. (E.g. the city of Helsinki announced it will stop serving meat in its events from January 2022.) Run campaign on food as a right and awareness of unfair impacts of high consumption of animal-based products. Promote community supported agriculture and award the most productive, inclusive and regenerative schemes. Check FAO's recommendations.
Facilitators	Develop dietary guidelines considering both health and ecological impacts, including GHG emissions. Develop national food system roadmaps with minimum requirements for food production and retail, (E.g the World Health Organisation (WHO) Action Framework for Developing Public Food Procurement and Service Policies for a Healthy Diet.) Subsidize farmers to switch from animal to vegetable farming as suggested by these researchers (full paper)	Remove subsidies on and other incentives for production and consumption of animal-based products. Read FAO, UNDP and UNEP recommendations Restrict licenses for sale of animal-based products and maximum quotas per producer/retailer based on GHG emissions limits from meat. (E.g. The Netherlands' livestock numbers reduction) Exclude value added tax from products soon to expire, in order to reduce wastage. (E.g. in the EU).	Restrict food loss and waste. E.g. outlaw contracts with wasteful and counterproductive clauses on quality of produce supplied by farmers; ban throwing away excess/unsold (soon-to-expire) food especially by large retailers (as done in France) and reduce food-waste in restaurants (as done in China). Equitable access to nutritionally balanced diet can be enhanced through integrative locally grown and subsidized school meals programmes (e.g. Kenya), school lunch subsidies (e.g. USA), or free school meals (e.g. Sweden or Malaysia)
Infrastructure	Reprioritize zoning and land-use planning to promote regenerative, plant-based agriculture including in urban/peri-urban areas. Reserve permission to operate in premium locations exclusively for climate friendly facilities.	Use licensing and permits for catering establishments, and have retailers prioritise and steer consumers toward plant-rich diets.	Develop redistribution programmes for excess food, and collaborate with retailers to set up centres for collecting and distributing unsold food. (E.g. UK's Food Waste Reduction roadmap by Wrap (results)) Support development of school food gardens and other regenerative farming practices.

4.5 Slowing down fast fashion consumption

There is now a fast-fashion race to the bottom, producing inexpensive and easily disposable clothing, often at the expense of environmental and quality work standards. The fair and sustainable consumption of clothing requires both that basic human needs in terms of socially acceptable clothing are met by everyone and that overconsumption of fashion is discouraged, for example by changing social norms as well a combination of policies to decrease the number of fashion items produced and purchased; switch to circular business models; and incentivize recirculating, upcycling, recycling, and waste reduction. Sample policies and actions for this are presented below.

Table V: Addressing unsustainable fast fashion consumption – examples of actions

	Edit in sustainable options	Edit out harmful consumption options	Create equitable access to ensure wellbeing
Attitude	Use public figures as ambassadors in awareness campaigns to normalise repeated and longer use of garments instead of often buying new ones. Promote local fashion production, and extended use and reuse through awareness raising campaigns. Educate entrepreneurs on sustainability impacts and skills related to circular business models, increasing garments' lifespans as successfully done in the UK.	Establish stricter rules on how sustainability claims can be used in advertising to counter greenwashing. Discourage the promotion of unsustainable fashion behaviours in popular culture (e.g., films, TV series) using guidelines attached to governmental funding or licensing for film production.	Collaborate with clothing producers to include credible social justice and sustainability messages on clothing as done in New-York. Help create a positive image for sufficiency-based fashion approaches, including collaborative consumption, especially non-monetary exchanges that increase access to used garments by more vulnerable social groups.
Facilitators	Require brands to report on consumer-facing circular business activities (e.g. second-hand resales programmes, repair and take-back schemes). Require Life Cycle Assessments of produced garments and alternative services, and provide support to small sustainable businesses (including repair, share, second hand and locally produced).	Outlaw destruction or disposal of unsold clothing items by brands and shops (as done in France), and regulate the practice of planned obsolescence and other wasteful practices. Set up a system and dedicated unit to monitor, and refute unsubstantiated claims, and investigate illegal and unethical practices. To pay for this, ensure a penalty system for non-compliance and raise taxes on garment producers. For example, tax or ban (imported) garments on the basis of (non)recyclable content.	Set industry quotas for use of commons – e.g. land size, water, energy – and regulate for waste generation by industry. Set binding minimum safety and ethical standards, and complementary targets for sustainability and health concerns.
Infrastructure	Require businesses (as part of extended producer responsibility schemes) to set up centres or agreements with tailors and train them for repair and redesign of their clothing items as it will be done in the Netherlands. Prioritise circular business models (make-to-order, take-back schemes and brand-offered repair services, and second-hand retailers through allocation of premium and more visible business locations) as done the Netherlands.	Ban free returns and next-day delivery options in order to minimise impulse purchases and returns of unfit garments. Ban exports of second-hand, to facilitate local job creation in sorting, repair and second-hand fashion retail.	In partnership with industry, create certified overstock clothing centres for unsold fashion items – with discounted pricing or donation programmes to more vulnerable social groups. Establish design hubs and (community) centres for re-purposing and re-design of used clothes. Introduce uniforms or standardized dressing guidelines in high-pressure social and institutional settings such as schools.

5. CONCLUSION

Household consumption in core domain areas drives about two-thirds of greenhouse gas emissions (UNEP 2020), and also contributes to biodiversity loss and resource scarcity. To address these threats, we need dramatic changes in the ways we live. National governments and cities have declared a climate emergency as supported by evidence from the IPCC (IPCC et al. 2021). With less than ten years to cut global GHG emissions in half, we must act decisively.

These guidelines have reviewed how policy makers can take decisive action - because individuals alone do not have the capability to change the interwoven systems that meet our daily needs and let us live our aspirations. Choice-editing, as outlined, can be an effective approach to design policies (Akenji et al. 2021).

Citizens, especially those with carbon-intensive lifestyles, would have to redirect their consumer practices and live with limits to harmful consumption. Sensitive to the inequality of the climate crises, approaches to address consumption and lifestyles also need to consider satisfiers to ensure that everyone (especially low-income and vulnerable people) can meet their needs and lead lives with health and dignity.

Comprehensive choice-editing therefore also requires stimulating social innovations, to find new ways of meeting needs, and without subordinating human aspirations and development to an imperative of economic growth.

Enabling sustainable lifestyles will require a broad shift in the values that underscore national socio-economic programmes and investments in infrastructure. This in turn requires strategies that span individual economic sectors and lifestyle domains. Both national and local governments can establish these strategies to promote and facilitate pathways to future sustainable lifestyles.

These strategies will also directly contribute to related agendas such as social justice and/or circular economy. To realize sustainable lifestyles, engagement is needed from governments, individuals and households, as well as businesses, investors, and other institutions that shape norms and the sociotechnical context for everyday living and aspirations (Akenji and Chen 2016).

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