



1.5 Degree Policy Mix

**Demand-side solutions to carbon-neutrality
in the EU: introducing the concept of sufficiency**

Imprint

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1.5 Degree Policy Mix

Demand-side solutions to carbon-neutrality in the EU: introducing the concept of sufficiency

Executive summary

To deliver the European Green Deal and meet 2030 and 2050 climate targets, the European Union (EU) needs to ensure that policies effectively and absolutely reduce environmental impact on an unprecedented scale.

To this end, EU institutions need to embrace a broader policy mix, complementing current technology-orientated efficiency improvements with ambitious policies tackling scale and patterns of consumption. Both the Sixth Assessment Report of the United Nations Intergovernmental Panel on Climate Change (IPCC) and the United Nations Environmental Programme (UNEP) Emissions Gap Report 2020 feature demand-side mitigation strategies as highly effective measures against the climate crisis¹. However, individual consumption is only one side of the coin. It is public policies that define and shape the direction and open room for manoeuvres. Introducing a sufficiency perspective, this policy brief sheds light on the institutional and systemic possibilities for EU policies to realize a society *living well within the limits of our planet*.

By integrating demand-side policies into current EU policy strategies and agendas such as the European Green Deal, the New Consumer Agenda, or the Sustainable Products Initiative, the EU has the potential to position itself as the leading example on enabling consumption and lifestyle patterns that are oriented towards wellbeing and go along with the Paris targets of limiting global warming to 1.5 degrees. This policy brief introduces practical examples in the realms of mobility, housing, food, and household consumption, showing that measures which keep consumption within planetary boundaries are both desirable and feasible.

Highlights

- **Efficiency measures alone are not sufficient** to tackle climate change and other environmental harm.
- Current consumption (demand) patterns conflict with planetary boundaries and thus **demand-side measures are required**.
- The current policy mix should be widened by a policy approach that targets scale and composition of consumption.
- **Demand-side measures** aimed at supporting lifestyles which are compatible with the 1.5-degree goal set in the Paris Agreement **should be integrated into the European Green Deal and the Next Generation EU package**.
- **1.5-Degree Lifestyles** which respect the physical and ecological limits of the environment **are compatible with higher life satisfaction**, stable societies, and prospering economies.
- **Concrete examples can already be found** in the realms of mobility, housing, food, and household consumption.

Introduction

As Ursula von der Leyen said in her **State of the Union Address 2020**, “*our current levels of consumption of raw materials, energy, water, food and land use are not sustainable*”². Overarching climate strategies under the umbrella of the **European Green Deal** have set ambitious targets for the European Union. Many of the EU climate initiatives refer to lifestyle-related changes. For example, the **2030 Climate Target Plan** explicitly addresses lifestyle choices as a contributor to fighting climate change, and the **European Climate Pact** aims to mobilise civil society in part to “grasp the opportunities that come with decisive action and sustainable lifestyles”¹⁸. Other initiatives such as the European Climate Law and the new, more ambitious

EU Strategy on Adaptation to Climate Change have pledged that climate targets should be integrated across EU policy domains. A growing recognition for this can also be observed in the 8th Environmental Action Programme³ or in the European Parliament’s Committee on the Environment, Public Health and Food Safety (ENVI) calling for binding limits for resource use⁴. Supported by participatory approaches like the Conference on the Future of Europe, this might lead the way to a change driven by and for citizens. However, citizens need more than just information to make such a change. They need policies and a political framework setting which help them overcome lock-in situations where the **unsustainable option is the most rational** – flying is cheaper than traveling by train –, the **structurally convenient** – there is obligatory parking space for cars in residential areas but no bike lanes –, or the **traditionally supported** – cheap meat is a popular offer in the weekly advertising of supermarkets.

Relevant policy initiatives thus far do not unfold their full potential to overcome these lock-ins. Fostering technological advancements and efficiency improvements in production are still the dominating approaches in the field. Therefore, the European Environment Agency came to the conclusion that “many long-term EU environment and climate targets will not be met with existing policy interventions”⁵. Sufficiency-oriented measures also need to be embraced to implement the Green Deal and achieve climate neutrality by 2050.

This policy brief provides the rationale for demand side policies and exemplifies how five EU policy processes in progress can be enriched by a sufficiency perspective, applying the avoid-shift-improve framework.

The challenge ahead

One reason why efficiency gains have so far not achieved the necessary reduction of consumption⁶ are so-called rebound effects. Prominent examples include the increased lighting through LED technology⁷ and the increasing stock and distance travelled by cars compensating fuel efficiency improvements⁵, as illustrated in Figure 1.

Demand-side solutions on the rise in the policy arena

Accordingly, projections by DG CLIMA¹⁰ on how to achieve 2050 climate and energy targets include a 1.5LIFE scenario which builds on the political support of trends among EU consumers towards less carbon-intensive diets, the sharing economy in

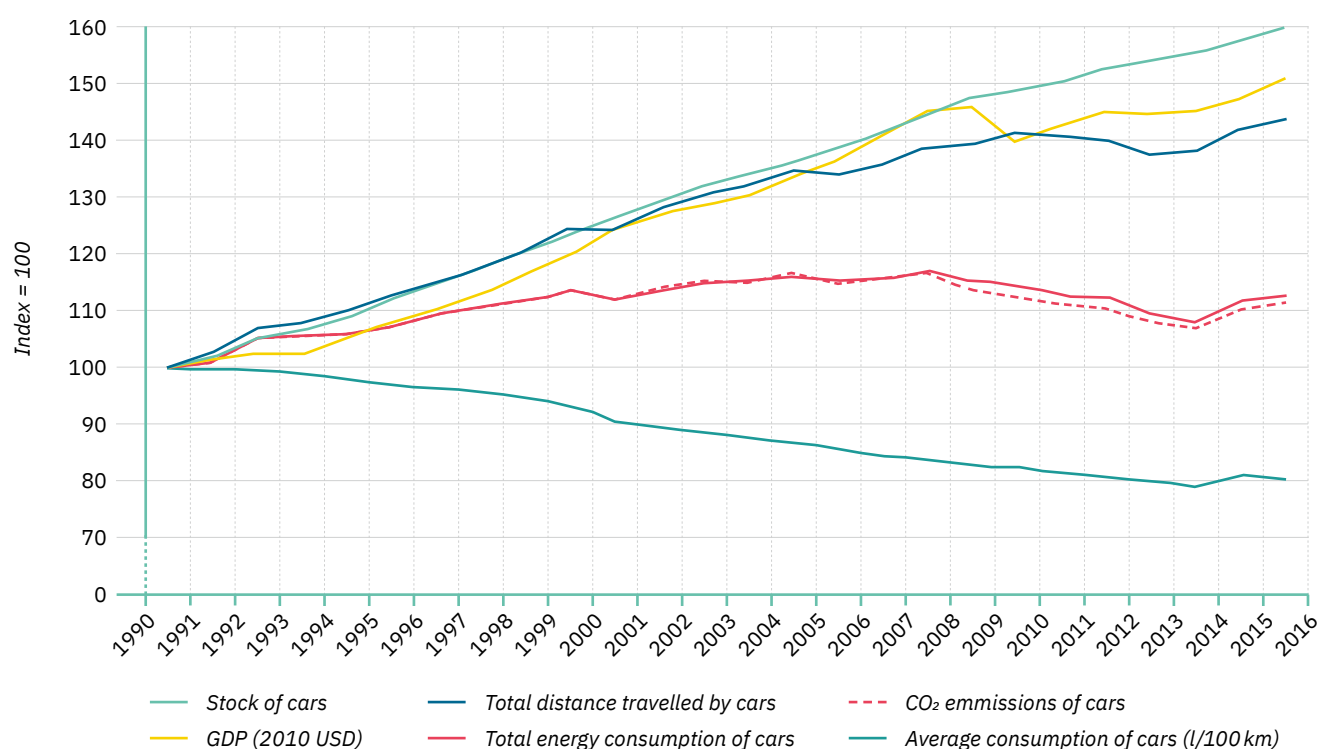


Figure 1: Fuel efficiency and fuel consumption in private cars, 1990–2015 (Source: European Environment Agency⁵)

As technological fixes have not reduced **GHG emissions** to the envisioned level, humanity is in the meantime in the alarming situation that the **remaining global budget** to stay within 1.5-degree global warming of 280 Gt CO₂⁸ emissions is **disappearing with alarming speed**. This **budget constitutes an upper limit** for further emissions. **Current lifestyles and consumption patterns simply do not comply on average with this limit** and nor do policies. Current national climate targets imply global emissions of about 400–560 Gt CO₂, driving societies towards a future characterized by instability and scarce resources⁹.

transport, limiting growth in air transport demand, and more rational use of energy demand for heating and cooling. This represents a remarkable step in scenario modelling where assumptions about demand shifts so far were often absent or were at least not expected to reduce consumption. Based on an in-depth analysis of the DG CLIMA scenarios, the European Environment Agency has highlighted that to achieve 2050 climate and energy targets, a societal shift in consumption is needed¹¹. In line with these insights, the European Parliament's ENVI started an initiative to implement binding targets on the use of material resources⁴, an area responsible for 23% of GHG emissions¹².

Beyond the European Union, the need for demand-side change has also received substantial recognition. The UNEP 2020 Emissions Gap Report contains a chapter on low-carbon lifestyles¹, and the Sixth Assessment Report (AR6) of the IPCC dedicates a full chapter to the demand side of climate change mitigation³.

An OECD publication on the potential of COVID-19 recovery measures takes these considerations a step further by coupling the potential to achieve climate mitigation with the aim for wider well-being. As Figure 2 illustrates, bouncing back to the old form of economies focused on GDP growth and quantity of jobs and profits would be unsustainable and non-climate-resilient, not least due to rebound effects. Bouncing forward towards a green economy, however, is also estimated to be a path of limited success on the way to achieving mitigation goals. Instead, the report encourages stepping forward on the path toward overcoming the sole focus on decoupling environmental impact from GDP by

focusing on wider social and ecological well-being benefits.

The “wider well-being” the report is promoting has already been explored for some decades under the term *sufficiency*^{14,15}. This concept has received most attention in the context of energy sufficiency. Sufficiency is a **complementary strategy** to efficiency which strives to **make efficiency effective**. It helps to ensure that energy efficiency gains are not offset by rebound effects but effectively lead to absolute reductions of resource use. Energy sufficiency policies directly target the demand side. This could include, for example, support for a sharing economy¹⁰, short-distance city planning¹⁵ and the prevention of planned obsolescence. While the concepts of **sufficiency** and **efficiency** are **distinct**, it is important to recognise that they are not at odds.

As the OECD (wider) well-being approach indicates, ecologically informed upper limits are only one side of the coin anyway. In the last decade, it has become

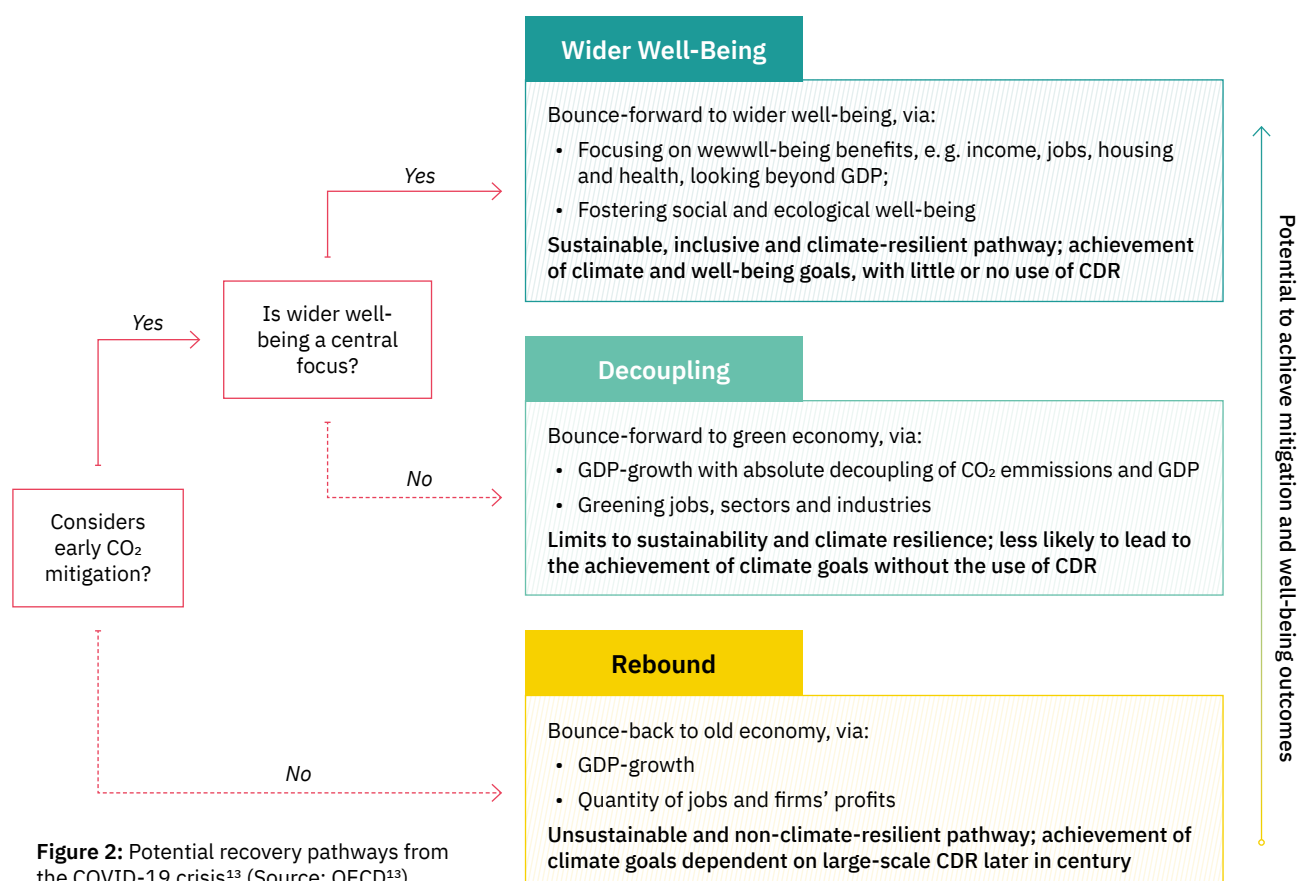


Figure 2: Potential recovery pathways from the COVID-19 crisis¹³ (Source: OECD¹³)

commonly understood in scientific and political debates that GDP does not factor in many variables which most people value as forming the basis for a good life.

Beyond energy consumption, sufficiency as a demand-side approach also takes into account the quality of social relations, the state of the environmental surroundings, and perceived social and economic stability^{16–18}. Policies oriented toward sufficiency ask how citizens could consume and organize their daily lives and societies differently^{15,19}. Sufficiency already appears in various contemporary approaches. **Doughnut Economics**²⁰ also envisions a society which thrives within an upper and a lower limit. The lower limit represents the ‘social foundation’ at which the basic components of a just prosperous society are present (e.g., peace, political participation, social justice, and access to basic goods), while the upper limit represents the “ecological ceiling” past which catastrophic environmental degradation such as biodiversity loss and ozone depletion occur. In contrast to this macroeconomic perspective, the concept of **Consumption Corridors**²¹ takes an explicitly individual starting point and explores how to enhance people's chances of living a good life in a world of ecological and social limits and how this effort needs to be enabled not only by political leadership, but also by mechanisms of citizen engagement and deliberative democracy. Finally, the approach towards a **Safe and Just Corridor for People and Planet** also recently added equity dimensions to the planetary boundaries concept²².

In practice, mainly minimum levels of consumption have been formulated to date on an individual level, e.g., in the context of the UK Minimum Income Standard, which also entails criteria for the minimum requirement of energy services.²³ The upper levels most familiar to us are speed limits on our streets, which are in place for social reasons (protect bikers and pedestrians), health reasons (noise reduction), and environmental reasons (save fuel and emissions). Therefore, generally, requiring minimum levels and accepting maximum levels is normal when we understand how they support wider societal well-being objectives.

The characteristics of a lifestyle perspective

The ceiling

One crucial question is how the upper limit of 280 Gt CO₂ can be translated into individual maxima and which policy tools can ensure these are not usually overstepped. A first study calculating per capita lifestyle carbon footprint targets arrived at an amount of 2.5 (t CO₂e) in 2030, 1.4 by 2040, and 0.7 by

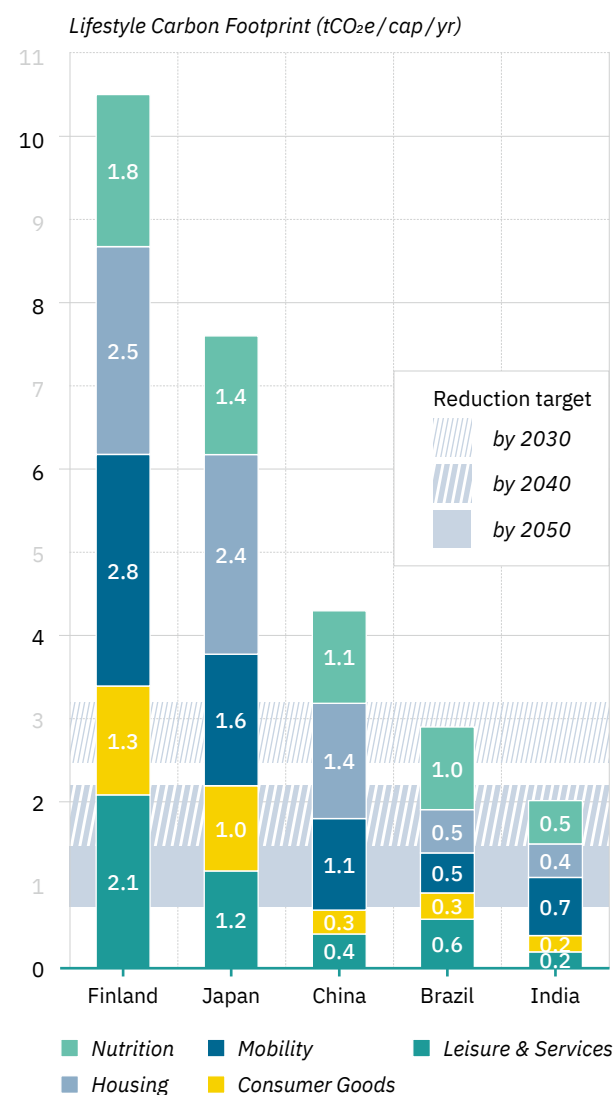


Figure 3: Carbon footprint and its breakdown between consumption domains and globally unified targets for the lifestyle carbon footprints (Source IGES et al.²⁴)

2050. Reaching these targets in developed countries would require a **reduction of lifestyle footprints by 8–12 % every year** from 2019 to 2030²⁴. Exploring in more detail the various spheres of consumption, it appears that the mobility, food, and residential sectors are a particular challenge, as they account collectively for nearly 70 % of total GHG emissions in the EU²⁵, thus being the main contributors to climate change. Figure 3 below shows the average lifestyle carbon footprints of the sample countries Finland, Japan, China, Brazil, and India in relevant consumption categories estimated as of 2017. The lower and upper limits designated by horizontal lines indicate the range in which lifestyles have to land to respectively stay below 1.5 °C (without/with less use of Carbon Capture and Storage (CCS)) and 2 °C with CCS targets.

What these figures indicate is that a **vegan diet, renewable-energy heating, and car free travel** alone could contribute to a **reduction of about 3.2 tCO₂e per capita per year**²⁶. **Avoiding one single flight** has the potential to **save between 0.6 and 4.5 tCO₂e**, depending on the length of the flight²⁶.

The floor

A top-down introduction of lifestyle-oriented policies which focuses solely on an environmental limit, however, runs the risk of being detached from the needs and challenges faced by citizens, especially those with low incomes. The *gilets jaunes* protests in France may serve as an example of the consequences of not considering equity. Such policies would miss the core intention of the **sufficiency** approach to **provide enough for all**²⁷. To unfold its potential, both principles – equity and staying within ecological limits – need to be reflected in sufficiency policies¹⁵. In the case of market-based instruments for example – like the increase of energy or resource taxes – a sufficiency policy portfolio needs to entail financial compensation, e. g., in the form of subsidies and tax exemptions for low-carbon options. However, it is not only about not burdening lower-income groups; it is also crucial for sufficiency policies to explicitly target those who are responsible for the highest GHG footprints – the (very) high income earners²⁸.

Contrary to the common assumption that “one needs to be well-off to afford sustainability”, high-income earners are of particular relevance as they consume large parts of the global emissions budget and thereby create additional burdens for the (global) poor^{29,30}. Figure 4 shows that the richest 1 % of the EU’s population are far from investing in low energy consumption, instead constantly increasing their per capita emissions. The lion’s share of emissions reduction is carried by the bottom 50 %, whether voluntarily or not.

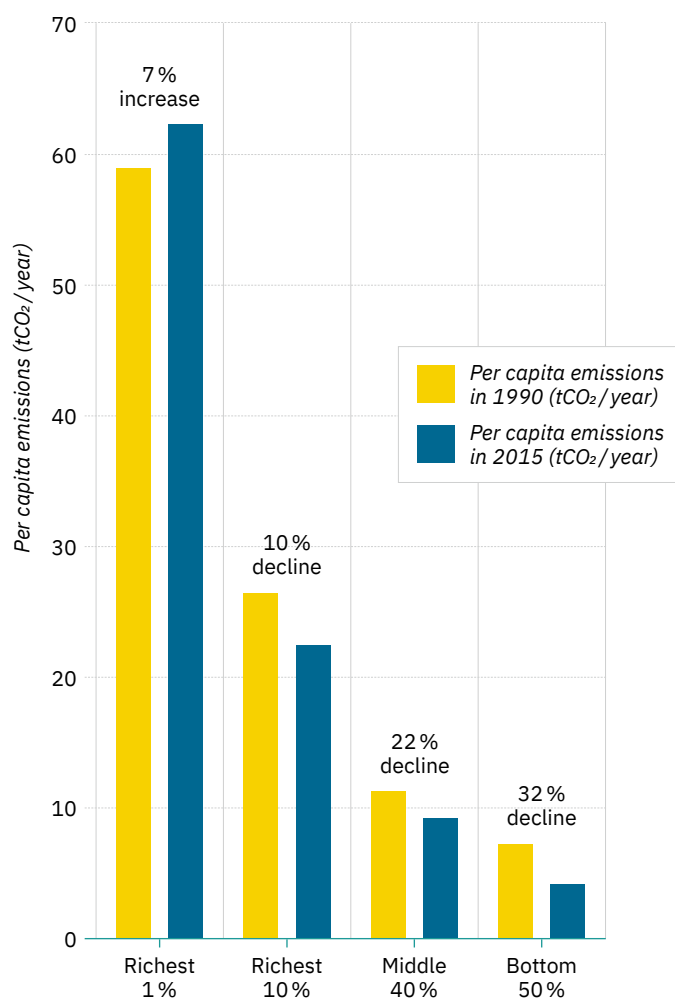


Figure 4: Per capita consumption emissions (tCO₂/year) by EU income group in 1990 and 2015 (Source: OXFAM³¹)

Policy implementation

A number of current processes on the EU agenda have been identified as harbouring an untapped potential for sufficiency-related policies, namely the **Sustainable and Smart Mobility Strategy**, the **Farm to Fork Strategy**, the **Renovation Wave**, the **Sustainable Product Initiative** and the **New Consumer Agenda**.

The **Sustainable and Smart Mobility Strategy** plans to reduce transport-related greenhouse gas emissions through more affordable, accessible, healthier, and cleaner transport alternatives. The emphasis on technological solutions pointing towards clean vehicles, alternative fuels, and digital solutions should be enriched by *policies supporting a modal shift towards non-motorized modes of transport*. A consequent shift to car-free private traveling was estimated in the Finnish context to result in an annual per-capita carbon footprint reduction of 1.5 t CO₂, more than half of the current 2.8 t CO₂³⁴.

The **Farm to Fork Strategy** emphasizes the links between healthy people, healthy societies, and a healthy planet. It names some of the problematic issues in the current nutrition system like obesity and the large contribution of animal production to greenhouse gas emissions and could go beyond calls for better information and empowerment of consumers to make better individual choices through *supporting the broader uptake of a plant-rich diet*

with clear policies. A consequent shift to a vegan diet was estimated in the Finnish context to result in an annual per-capita carbon footprint reduction of 1.15 t CO₂, which is already a big part of the current 1.8 t CO₂³⁴.

The **Renovation Wave** focuses on reducing the energy consumption of the existing building stock in Europe through improving the energy performance of the buildings. Additional measures in a sufficiency context would include *policies providing incentives for reducing individual per capita floor space*, e.g., through allowing for more flexible flat size in the context of the renovation or a reduction of individual space through creating shared areas for common use and recreation. Lowering average individual floor space to, e.g., 35 m² could provide high sufficiency potential particularly in countries like Finland, Germany, and Ireland³⁵.

The **Sustainable Product Initiative** intends to reduce the overall life-cycle climate and environmental footprint of products through longer product lifetimes, more durable, repairable goods, circular material use rate, reduced waste, and higher recycling rates. However good the products are, the production process counts as well. *Strengthening regulatory boundaries for fair and ecologically responsible production* can help to phase out a broad range of unsustainable consumption opportunities.

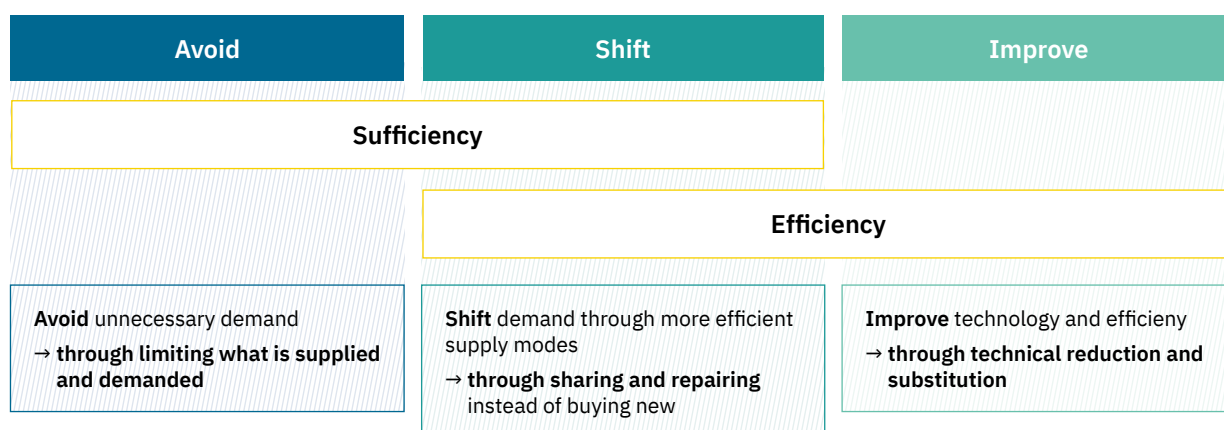


Figure 5: Schematic overview of the Avoid-Shift-Improve framework (adapted from: MCC³³)

The **New Consumer Agenda** focuses on consumer information and consumer rights. The promotion of repair, the encouragement of more sustainable, “circular” products, and the better protection against certain practices, such as greenwashing and early obsolescence, are of high relevance. Beyond the provision of information and the encouragement of informed action, it needs *policies which take the burden from consumers* to be on top of the latest product developments and instead opt out unsustainable product alternatives.

For these policies, we can classify the depth of sufficiency orientation using the avoid-shift-improve (ASI) framework, which is a particularly illustrative

tool to understand the range of policy options³². Within this framework, *improve* mainly refers to changes induced by traditional technological solutions, e.g., increasing the environmental performance of a process, a product, or a service. *Shift* refers to moving consumption towards a mode of consumption with less impact. *Avoid* is about directly reducing demand.

Table 1 sketches out how the sufficiency approach can enrich the policies. It provides a first step on a journey involving all EU services towards living well within the limits of our planet.

Area	EU Policy	Exemplary Measures		
		Avoid	Shift	Improve
Mobility	<i>Sustainable and Smart Mobility Strategy</i>	→ Financial incentives for shared (car) mobility	→ Obligatory space for non-motorized transport → Priority measures for public transport	→ Passenger rights in multimodal transport
Housing	<i>Renovation Wave Initiative</i>	→ Lower the standards for minimum dwelling size (e.g., in residential buildings with more shared and less individual floorspace)		→ Building codes and standards supporting material efficiency → Legal standards for residential energy and water efficiency, facilitated by financial arrangements
Food	<i>Farm to Fork Strategy</i>	→ Binding targets on food waste reduction	→ Financial and regulatory measures → prioritising businesses producing → plant-based and/or vegetarian foods	
Household consumption	<i>Sustainable Products Initiative</i> <i>New Consumer Agenda</i>	→ Regulation on minimum service life for devices and their critical components → Support communities sharing certain household tools such as kitchen appliances, sporting goods, and gardening tools	→ Encouragement toward Member States to reduce value-added tax for repair services	

Table 1: Adding the Sufficiency Dimension to EU Policy Processes

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