1.5° lifestyles: Mainstreaming Everyday Sustainability - A Compendium by the EU 1.5° Lifestyles Consortium

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1.5° LIFESTYLES: MAINSTREAMING EVERYDAY SUSTAINABILITY

JESSIKA RICHTER, HALLIKI KREININ, JOSEFINE HENMAN

A COMPENDIUM BY THE EU 1.5° LIFESTYLES CONSORTIUM

EU 1.5° LIFESTYLES

1.5° Lifestyles: Mainstreaming Everyday Sustainability
A Compendium by the EU 1.5° Lifestyles Consortium

This compendium accompanies the free online course "1.5° Lifestyles: Mainstreaming Everyday Sustainability" accessible on the Coursera platform:
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INTRODUCTION TO THE COMPENDIUM

Jessika Luth Richter and Halliki Kreinin

This compendium describes the first steps towards 1.5° lifestyles based on the findings and insights from a 4-year research project funded by the European Union. The EU 1.5° Lifestyles project's main aim was to foster the mainstreaming of lifestyles in accordance with the aspirational 1.5°C climate target agreed upon by countries around the world through the Paris Agreement.

Throughout this compendium, we will explore many aspects of what we mean by 1.5° lifestyles—living sustainably, having low carbon impacts, and being healthy and happy while living within planetary boundaries. It also means that while the 1.5°C target is important to consider, such lifestyles are relevant and needed for achieving sustainability more broadly. Even if the 1.5°C target is breached, staying as close to this limit as possible will require living 1.5° lifestyles. This is why we also refer to 1.5° lifestyles as low-carbon or sustainable lifestyles.

Transitioning to 1.5° lifestyles requires not only individual changes but also changes on a societal level – from the communities in which we live to the fundamental structures and values of society. Responsibility for achieving 1.5° lifestyles is shared by everyone, each according to their abilities. While individuals have agency over their actions—not only as consumers but also as citizens, employees, community members, educators, and family members—their capacity to act depends on available resources such as finances, time, knowledge, skills, and social support. Additionally, broader structural factors either facilitate or hinder the adoption of 1.5° lifestyles. A comprehensive approach to transforming lifestyles in line with the 1.5°C target must account

for both individual behaviour and structural influences. These structures encompass both tangible elements, such as economic systems, technology, and infrastructure, and intangible aspects, like cultural norms and societal values. For example, living in a city with reliable public transport and well-developed cycling infrastructure makes it easier to forgo car use. Likewise, if social norms no longer equate car ownership with family life, masculinity, or social status, transitioning away from car dependency becomes more attainable.

To understand how we can transition to and mainstream 1.5° lifestyles, we draw on the rich data and insights generated by the EU 1.5° Lifestyles project. Guided by experts from partner institutions across the EU, you will gain a deep understanding of the challenges and opportunities inherent in transitioning towards more environmentally conscious ways of living. From analysing consumption patterns and behavioural drivers to exploring policy implications and societal shifts, exploring 1.5° lifestyles requires a holistic perspective on the complex interplay between individuals, communities, and the environment.

While the project is based on findings from EU countries, we also recognise that different contexts beyond Europe are relevant to understanding 1.5° lifestyles. If we think of 1.5° lifestyles as embedded in a context, then we also should expect that individuals will have different starting points, different pathways or journeys and different contexts in which they navigate those pathways. So, while we start with sharing experiences and stories mainly from an EU perspective, we hope that this sparks conversations about sustainable lifestyles beyond the European context as well.

This compendium brings together insights from academic research, real-world case studies, and expert insights from the 1.5° Lifestyles project. It is structured into three core modules, each addressing a critical aspect of the transition: the scientific and ethical foundation of 1.5° lifestyles, the role of individual and household contributions, and the systemic changes needed to enable sustainable societies. By bridging theory with practical action, the compendium offers a roadmap for aligning daily life with planetary boundaries.

We first introduce the 1.5°C target and how we can think about climate targets from a consumption-based approach in **Module 1, "Societies, Households, and the 1.5° Challenge"**. It sets the stage by explaining the science behind the 1.5°C target as well as covering critical topics such as resource overuse, carbon budgets, and global climate justice, emphasizing the historical responsibility of high-emission societies. This module also introduces key concepts like consumption-based carbon accounting and the role of individuals within larger systemic frameworks.

In Module 2, "1.5°C Targets and Gaps: Individual and Household Contributions", we look more into the potential contributions of individuals and households in adopting lifestyle changes. In particular, we look at changes in the domains of nutrition, mobility, housing, and leisure. This module provides a deep dive into 50 sustainable low-carbon lifestyle options, analysing their potential impact and feasibility. It also discusses the rebound effects of lifestyle changes and presents case studies of individuals and communities pioneering 1.5° lifestyles in various urban and rural settings.

In Module 3, "1.5° Societies and Structural Change", we will explore the broader transformations needed to enable sustainable living at scale and discuss the limitations and barriers for individuals and households to make the changes alone. Here, we explore the

structural changes and policies needed for a transition to a low carbon society, including the role of economic structures, inequalities, vested interests, and policy mechanisms such as environmental cost internalisation and welfare policies. Additionally, we will highlight the role of businesses, education, and alternative narratives in fostering a collective vision for a 1.5° society.

By offering a holistic perspective on the challenges and solutions, this compendium aims to equip readers with the tools and knowledge necessary to drive meaningful change. Whether you are a student, working professional, business leader, policymaker, educator, or simply curious about the intersection of lifestyle choices, climate action, and sustainable societies, we hope this compendium will provide a platform for transformative learning and actionable insights. Join us as we embark on a journey towards a vision of a more sustainable future.

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MODULE 1 — SOCIETIES, HOUSEHOLDS, & THE 1.5° CHALLENGE

CHAPTER 1 _ THE 1.5°C TARGET AND 1.5° LIFESTYLES

Magnus Bengtsson, Bea Meo, and Luca Coscieme

This chapter presents the concept of the 1.5°C temperature target and how it became part of the Paris Agreement. It also underlines the major differences between 1.5°C and 2°C of warming, and what they mean in terms of expected negative impacts. Finally, it explores ways and scopes to address the need for reducing CO_2 global emissions.

Limiting global warming to 1.5°C is a widely supported objective in climate action and has been central to international climate negotiations. This chapter explores the adoption of this temperature target, its inclusion in the 2015 Paris Agreement, and the scientific rationale behind it. A key focus is the contrast between a world warmed by 1.5°C and one with 2°C of warming, highlighting the increased risks to human societies and ecosystems. Additionally, this chapter outlines the practical implications of the 1.5°C target, including the urgent need for rapid global decarbonisation to remain within this limit.

The ambition to limit global warming to 1.5°C has developed over time. The 1992 United Nations Framework Convention on Climate Change (UNFCCC) committed countries to preventing "dangerous" climate change, but it was not initially clear what level of warming would be considered tolerable. In 2010, at the Cancun Climate Conference, governments formally adopted the goal of keeping global temperature rise below 2°C above pre-industrial levels while acknowledging the possibility of strengthening this target based on emerging scientific evidence. The Paris Agreement of 2015 marked a turning point, with 195 countries committing to keeping temperature rise well below 2°C and making efforts to limit it to 1.5°C. The inclusion of the 1.5°C target reflected both advancements in climate science and advocacy from vulnerable nations, particularly low-lying island states at risk of submersion due to rising sea levels.

Temperature increases of 1.5°C should not be considered a "safe" threshold. Even at approximately 1.2°C of warming, which the world has already experienced, significant impacts on ecosystems and human societies are evident, particularly in the Global South. The risks associated with higher temperatures increase exponentially. For instance, with 2°C of warming, 37 percent of the global population is projected to experience severe heatwaves at least once every five years, compared to 14 percent if warming is kept below 1.5°C. The difference is even starker for natural ecosystems; while 75% of coral reefs would be at risk at 1.5°C of warming, nearly all would be lost at 2°C.

Beyond 1.5°C of warming, there is an increasing likelihood of crossing critical climate tipping points — large-scale planetary systems that, once destabilised, could trigger irreversible and self-reinforcing climate changes. Among these are the thawing of permafrost in Siberia and northern Canada, which could release significant amounts of methane, a potent greenhouse gas; the potential transformation of the Amazon rainforest into savanna; and the accelerated melting of ice sheets in Greenland and Antarctica, contributing to rising sea levels.

The Paris Agreement does not specify precise methods for measuring global temperature thresholds. Some estimates suggest that the global average temperature in 2023 was already around 1.5°C above pre-industrial levels, though short-term fluctuations, such as those driven by El Niño events, can cause temporary spikes. Most climate experts interpret the 1.5°C target as referring to a long-term global average over 10–20 years. On the current trajectory, this threshold is expected to be reached in the 2030s.

The window for staying below 1.5°C is now extremely small and closing rapidly. Since the Paris Agreement was signed, global emissions have continued to rise, making the target even more difficult to achieve. Some experts now argue that surpassing 1.5°C is inevitable. Meeting this target would require global emissions to decline at an unprecedented pace, faster than the reductions seen during the COVID-19 pandemic when industrial activity and transportation were temporarily reduced. Achieving this would necessitate a rapid transition to renewable energy, widespread electrification, and large-scale energy efficiency improvements.

However, technological shifts alone will not be sufficient. Research underscores the necessity of lifestyle and consumption changes, including shifts in dietary habits, transportation choices, material consumption, and housing design. Even if the world does not succeed in keeping warming below 1.5°C, every fraction of a degree matters. Minimizing temperature rise as much as possible remains crucial to mitigating the severe and potentially irreversible impacts of climate change on both human and natural systems.

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CHAPTER 2 _ RESOURCE USE, CARBON BUDGETS, AND JUSTICE

Michael Lettenmeier and Anri Liikamaa

This chapter examines the overshoot of natural resource use, the concept of carbon budgets and emission gaps, and the issue of climate justice. It explores how human activity has exceeded planetary boundaries, particularly through the Great Acceleration, and how this threatens global stability. The chapter also outlines the urgent need for emission reductions to stay within the 1.5°C target, highlighting the growing emissions gap and the challenge of achieving negative emissions. Finally, it discusses the historical responsibility of high-emitting nations, the disparities in mitigation capacity, and the need for a just transition to a low-carbon future.

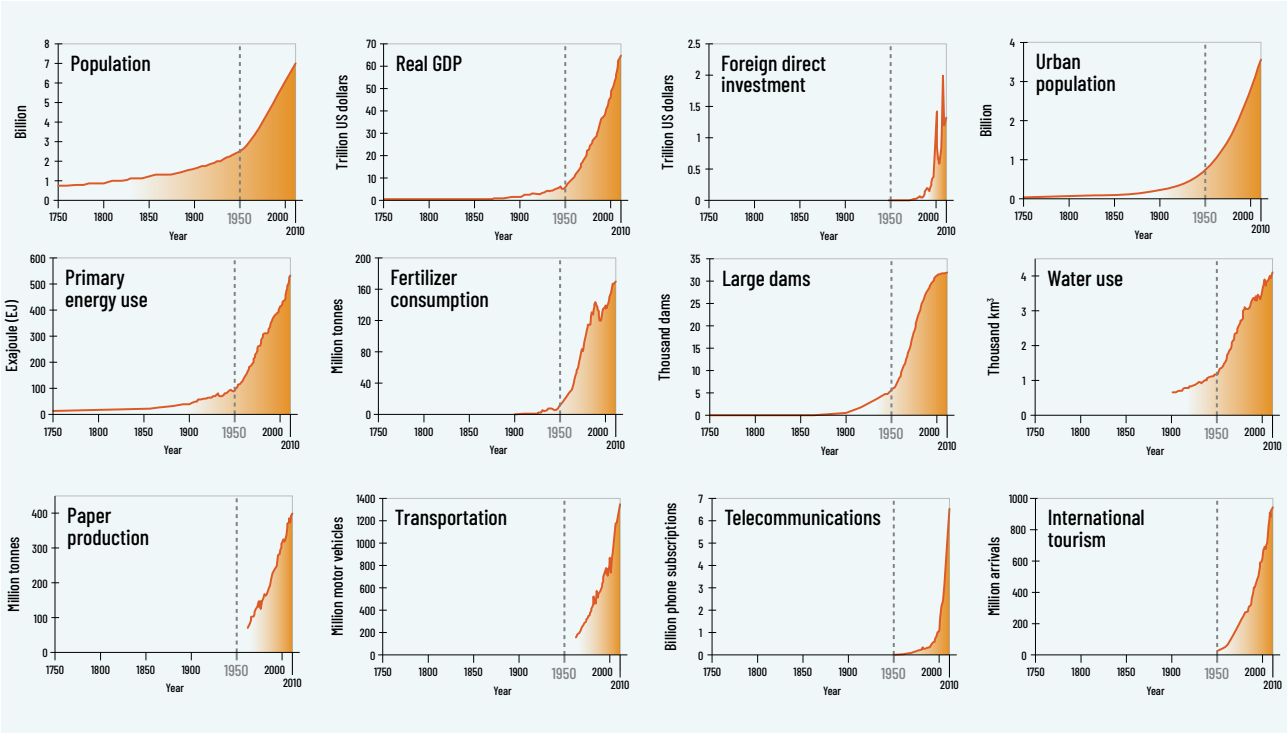
OVERSHOOT OF NATURAL RESOURCE USE

Humanity's use of natural resources is exceeding sustainable limits. The Earth's capacity to regenerate and absorb human impact is being surpassed, leading to the transgression of planetary boundaries. Crossing these boundaries increases the likelihood of triggering irreversible changes in the Earth's system. Many of these boundaries have already been breached or are on the verge of being exceeded.

To understand this development, it is necessary to examine the historical trajectory of human activity. Over the past century, human societies have undergone a period of rapid and unprecedented growth across multiple dimensions — population, economic output, technological advancement, and urbanisation. This period, known as the Great Acceleration, has resulted in profound environmental consequences, including increased greenhouse gas emissions, ozone depletion, ocean acidification, and large-scale deforestation.

THE GREAT ACCELERATION	
EXAMPLES OF SOCIOECONOMIC TRENDS:	**EXAMPLES OF HUMAN IMPACT ON EARTH SYSTEMS' TRENDS:**
Population growth	Greenhouse gas emissions
Economic growth	Stratospheric ozone depletion
Technological advancements	Ocean acidification
Urban population growth	Deforestation
Energy use increases	

The combined effects of population growth, rising consumption, and technological development have intensified industrial activity, agricultural expansion, and fossil fuel use. This has led some geologists to classify the current epoch as the Anthropocene — a period in which human influence on the planet is so extensive that it functions as a geological force. The Great Acceleration represents a historical anomaly, with human activity altering fundamental Earth systems at an unprecedented scale. Without intervention, these pressures threaten to destabilise the very systems that sustain human and non-human life.

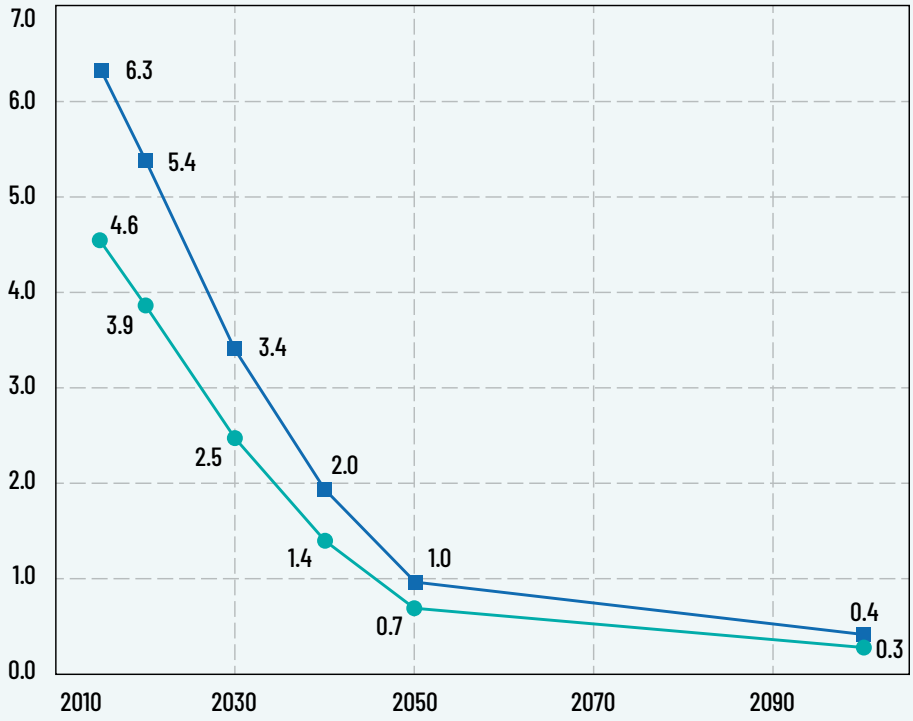


Trends from 1750 to 2010 in different globally aggregated socio-economic indicators
Source: Steffen et al. (2015)

CARBON BUDGETS AND EMISSIONS GAPS

A key measure of climate action is the carbon budget — the total amount of greenhouse gas emissions permissible before exceeding a specified temperature threshold. Carbon budgets are derived from scientific analysis, modelling, and expert judgment, incorporating assumptions about technological developments, demographic trends, and production and consumption patterns.

To make carbon budgets more tangible, they can be expressed on a per capita basis by dividing the total global carbon budget by the estimated population. United Nations projections are typically used to estimate future population sizes for this calculation.



Carbon Footprint Budget
(tCO_2e/cap/yr)

If global emissions were to continue at 2023 levels, the carbon budget for limiting warming to 1.5°C would be depleted before 2030. However, significant emission reductions before 2030 would allow for some continued emissions afterward, albeit at a sharply declining rate. The discrepancy between current emissions and necessary reductions is known as the emissions gap. This gap underscores the magnitude of the required reductions, with many experts warning that exceeding the 1.5°C threshold may necessitate achieving negative emissions — where annual emissions are lower than the carbon removed from the atmosphere through reforestation, soil restoration, and carbon capture technologies.

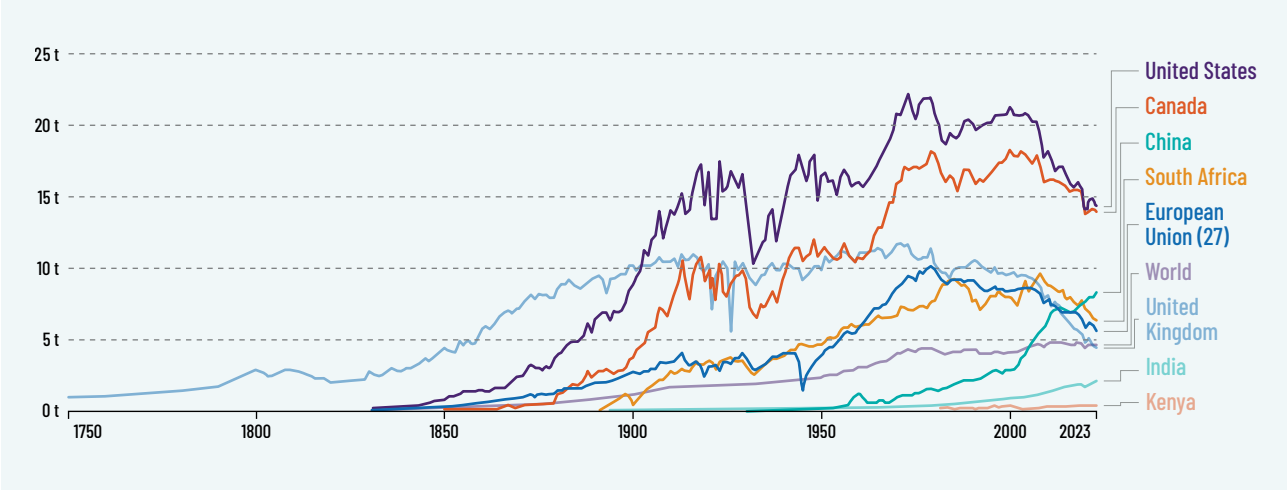
As global emissions have not been reduced at the necessary pace, the required reduction curve is becoming increasingly steep. The gap between current emission levels and the 1.5°C target has grown so vast that limiting warming to 1.5°C — or even approaching it — now presents

significant challenges. Without urgent action, comprehensive policy shifts, and fundamental changes in production and consumption, the target is slipping beyond reach.

Currently, high-income countries emit three to four times the per capita emissions level compatible with the 1.5°C goal. Even middle-income countries exceed the required threshold by approximately a factor of two. At the same time, some low-carbon nations have per capita emissions near the 2030 target. However, even these countries will need to continue reducing emissions beyond 2030 to maintain alignment with global climate goals.

RESPONSIBILITY AND JUSTICE

Different nations have varying capacities to reduce emissions due to disparities in economic resources, infrastructure, and technological development. This makes climate responsibility and justice central concerns in international climate negotiations. While there is no alternative to overall emissions reductions, the equitable distribution of these reductions remains a crucial issue.



Per Capita CO_2 emissions (Carbon dioxide (CO_2) emissions from fossil fuels and industry. Land-use change is not included.)
Source: Our World in Data, https://ourworldindata.org/grapher/co-emissions-per-capita

A core question is whether all countries should be held to the same per capita carbon budget, or whether differentiated targets are more appropriate given historical emissions and existing inequalities.

Historically, high-income nations have contributed disproportionately to greenhouse gas accumulation, benefiting from economic prosperity while extracting resources from the Global South. Many developing countries argue that they should be granted more lenient emissions allowances due to their historically low contribution to global emissions. However, continued emissions growth in these countries could create long-term challenges, making the transition to low-carbon economies even more difficult by 2050.

Assigning more flexible carbon budgets to developing nations could also incentivise carbon-intensive infrastructure and consumption patterns, leading to path dependencies that are counterproductive to global climate goals. This underscores the importance of mitigation capacity — a country's ability to effectively reduce emissions. Wealthier nations generally

possess greater financial and technological resources to invest in renewable energy, energy efficiency, and decarbonisation efforts.

Industrialised nations, while facing significant challenges in meeting the 1.5°C target by 2030, bear historical responsibility for past emissions. Consequently, they must take the lead in reducing emissions by implementing ambitious climate policies, transitioning to low-carbon infrastructure, and shifting toward sustainable consumption patterns. Additionally, they have an obligation to support developing nations in reducing their emissions through financial assistance, technology transfers, and capacity-building efforts. The continued export of carbon-intensive industries, outdated technolowgies, and resource-extractive economic models to the Global South must cease immediately.

Balancing historical accountability with current emissions realities and mitigation capacities is essential for a just transition. Achieving a sustainable, equitable, low-carbon future will require shared responsibility, collective action, and significant reductions in consumption among the world's highest emitters. Addressing climate change is not merely a technical challenge but a fundamental question of justice — one that will determine the future of life on Earth.

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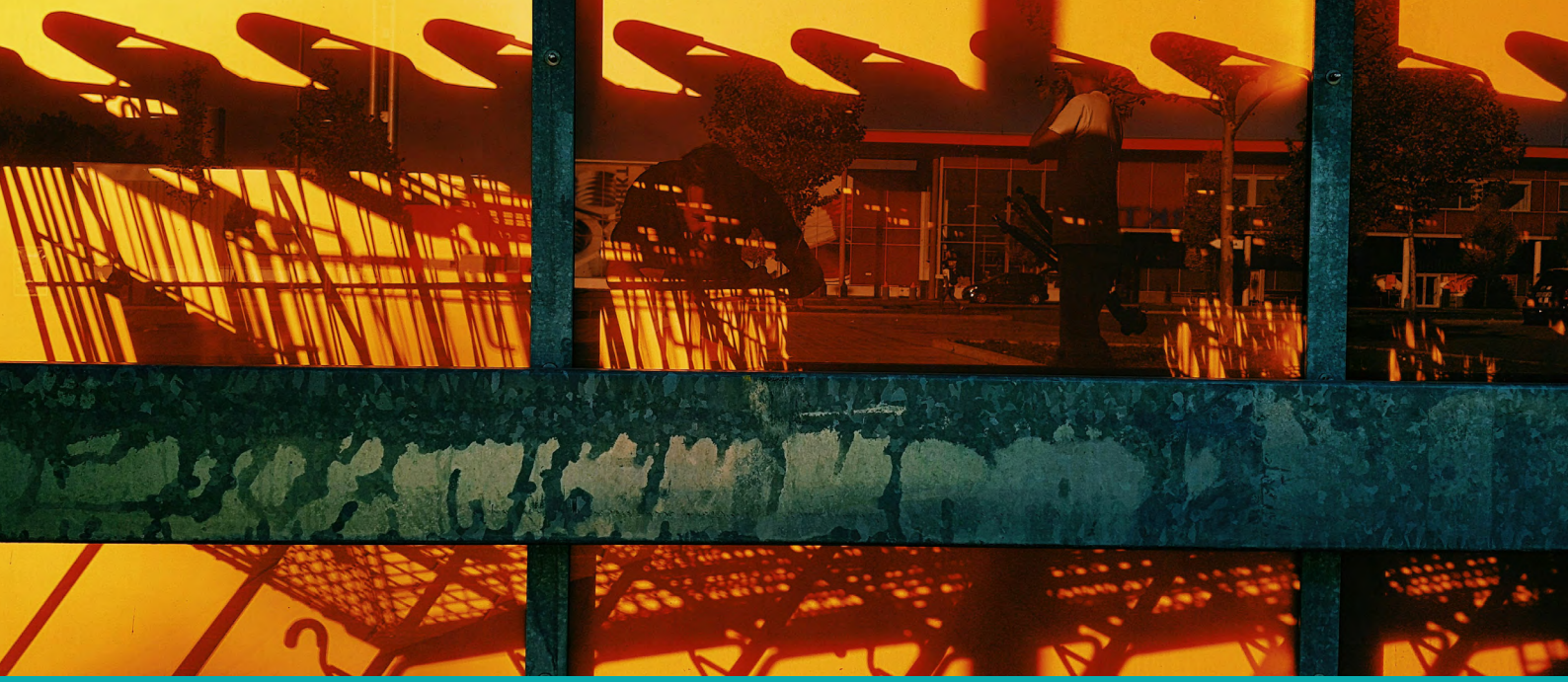

CHAPTER 3 _ CONSUMPTION-BASED ACCOUNTING

Laura Scherer

This chapter explores the concept of carbon footprints, building on consumption-based emissions accounting. It explains how carbon footprints are calculated using a life cycle perspective, considering direct and indirect greenhouse gas emissions from products and services. The chapter also examines the differences in emissions accounting methods and how individual and household consumption patterns contribute to climate impacts. Finally, it discusses the usefulness of carbon footprints in identifying high-emission areas and their role in broader systemic changes needed for a sustainable transition to a 1.5°C world.

PRODUCTION- VS. CONSUMPTION-BASED EMISSIONS ACCOUNTING

One of the most common ways to account for greenhouse gas emissions is through a production-based perspective. This approach monitors the emissions from each power plant, factory, and other sources within a country, summing them to determine the total domestic emissions. Governments can influence these emissions directly by implementing policies such as transitioning to cleaner energy sources.

The Kyoto Protocol was an international treaty aimed at reducing greenhouse gas emissions from a production-based perspective. The treaty set binding reduction targets for developed countries, including EU nations. While this approach successfully reduced domestic emissions in some regions, it was less effective in mitigating climate change. One reason for this limitation is the potential for emissions outsourcing — moving emission-intensive industries abroad while continuing to consume the same products through imports. This practice shifts emissions geographically rather than reducing them overall, allowing climate change to progress unimpeded.

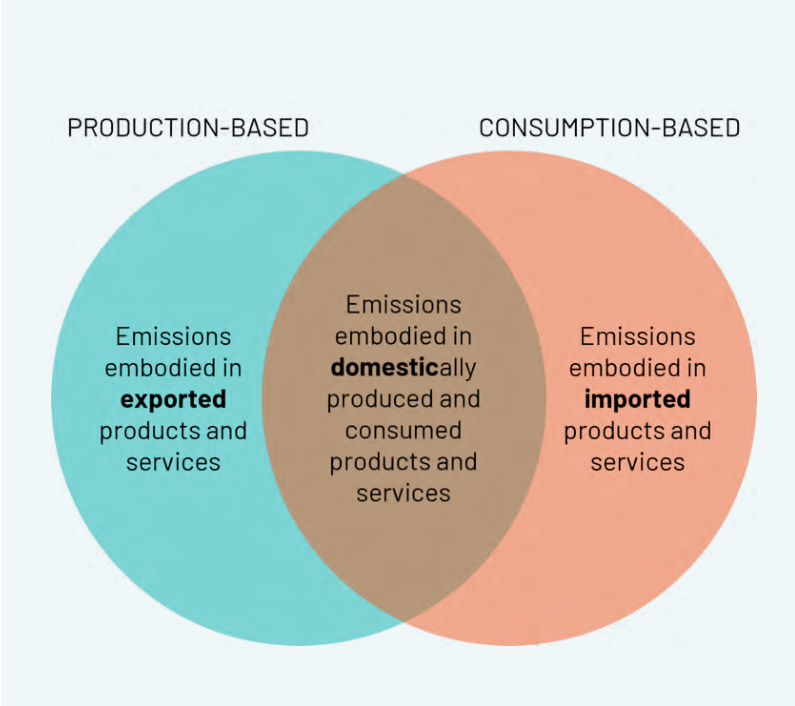

Figure 1. Production- vs. consumption-based emissions accounting. Source: Modified from Figure 1 in Erickson, P., Chandler, C., Lazarus, M. (2022). Reducing greenhouse gas emissions associated with consumption: A methodology for scenario analysis. Stockholm Environment Institute.

In contrast, a consumption-based perspective accounts for the emissions associated with country's or other actor's consumption, regardless of where those emissions occur (Figure 1). This approach considers emissions driven by consumers, including individuals. Since products and services are often produced in different parts of the world, their associated emissions can be globally distributed. Consumers may have indirect influence over these emissions by selecting what they purchase and from where. More critically, reducing overall consumption of high-emission products can lead to a decrease in supply and associated emissions over time.

LIFE CYCLE PERSPECTIVE

Consumption-based accounting employs a life cycle perspective (Figure 2), which considers both direct and indirect emissions from products and services. For instance, while the emissions from driving a conventional car come largely from fuel combustion, the full life cycle of the vehicle also includes emissions from manufacturing, transportation, and disposal.

A useful example is the production of beef. The majority of emissions come from animal husbandry, with methane released during digestion and from manure. However, the life cycle of beef production extends beyond this, encompassing feed cultivation (which may involve fertilizers, pesticides, and irrigation), slaughter, processing, packaging, refrigeration, and eventual consumption. Even cooking emissions, though relatively minor, contribute to the total footprint. Additionally, waste man-

Figure 2. Life cycle perspective. Source: Modified from Figure 1 in Hellweg, S., Milà i Canals, L. (2014). Emerging approaches, challenges and opportunities in life cycle assessment. Science, 344(6188), 1109-1113.

agement processes for discarded meat also produce emissions. Different stages of this cycle may occur in various locations, requiring transportation and contributing further to the footprint.

It is important to note that not all life cycle assessments consider every stage comprehensively. Due to complexity and data availability constraints, some life cycle stages may be omitted. The inclusion or exclusion of particular stages can considerably impact comparative analyses, such as those between conventional and electric vehicles.

UNDERSTANDING CARBON FOOTPRINTS

A carbon footprint quantifies the life cycle greenhouse gas emissions of a product, service, individual, or country. Despite its name, a "carbon footprint" includes more than just carbon dioxide emissions (Figure 3). Other greenhouse gases, such as methane and nitrous oxide, contribute substantially to global warming. Some argue that a broader indicator name, such as "climate footprint", would be more accurate; however, "carbon footprint" remains the widely used term.

The selection of greenhouse gases included in a carbon footprint is crucial for accurate comparisons. While a footprint could theoretically account for over 200 different gases, most assessments focus on the three major contributors: carbon dioxide, methane, and nitrous oxide. These gases are expressed in carbon dioxide equivalents (CO_2e) to account for their different global warming potentials (GWP). GWP measures the ability of each gas to trap heat relative to carbon dioxide over a specified time horizon, typically over 100 years. However, shorter time horizons, such as 20 years, highlight the stronger short-term warming effects of gases like methane due to their shorter atmospheric lifetime.

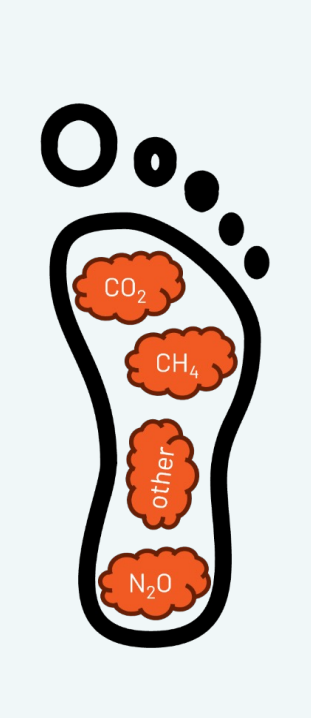

Figure 3. Carbon footprint made up of various greenhouse gases.

In summary, a carbon footprint provides a valuable measure of greenhouse gas emissions through consumption-based accounting. By considering emissions across national borders and product life cycles, it offers insights into how consumption patterns contribute to climate change. Understanding and addressing high-emission areas is essential not only for individual action but also for systemic change to support a sustainable transition to a 1.5°C world.

This topic will be discussed further in Chapter 6, by Stephanie Cap - in the next module.

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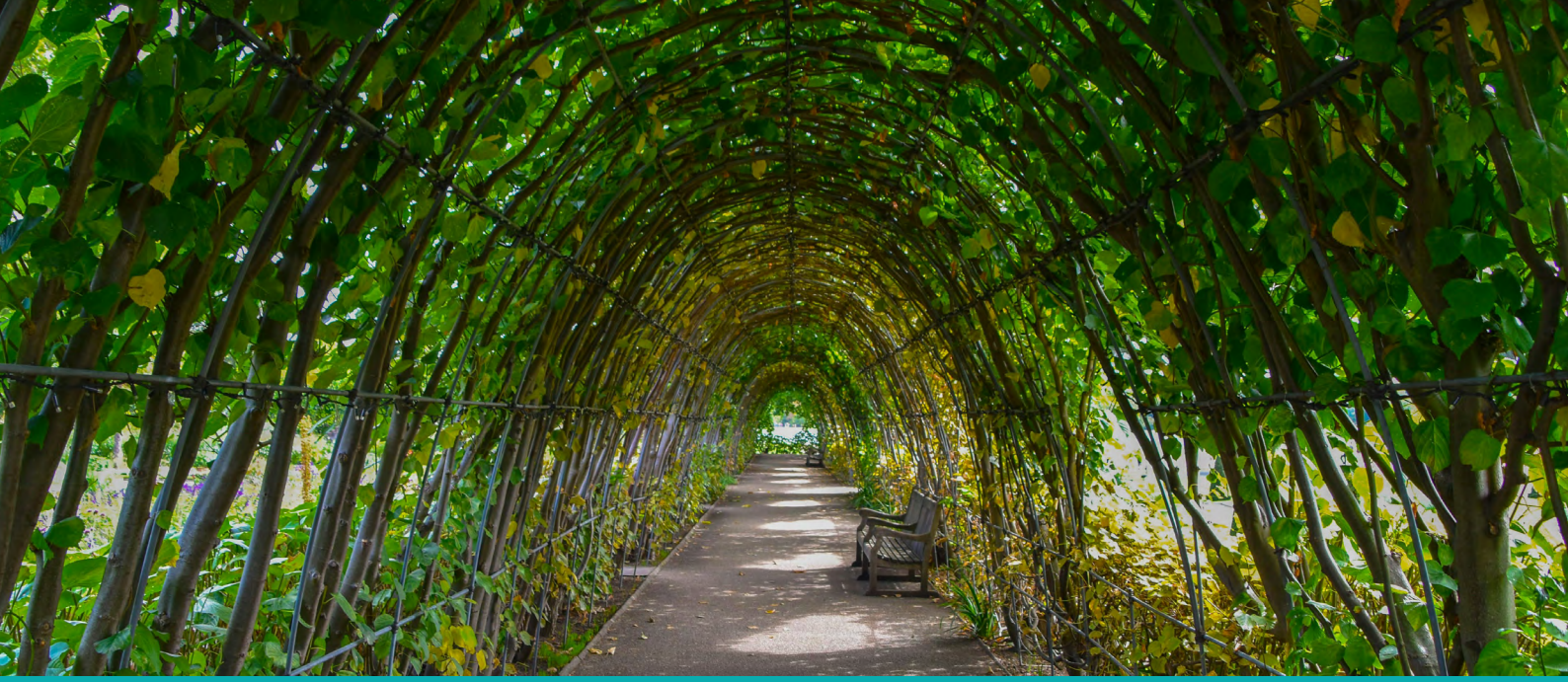

CHAPTER 4 _ SYSTEMIC PERSPECTIVES AND THE 1.5° TRANSFORMATION: SHARED RESPONSIBILITY FOR CHANGE

Doris Fuchs and Sylvia Lorek

Achieving 1.5° lifestyles is a shared responsibility, with individuals contributing according to their abilities and resources. While personal agency plays a role, broader structural factors — both tangible, like infrastructure and technology, and intangible, like cultural norms — significantly shape lifestyle choices. A holistic approach to 1.5° living must consider both individual behavior and systemic changes to create an environment that enables sustainable choices.

PRODUCTION-BASED VS. CONSUMPTION-BASED BEYOND INDIVIDUAL ACTIONS

Sustainability extends beyond surface-level actions such as eco-friendly cruise ship engines, paper straws, and carbon offsetting. At its core, sustainability is about systemic change that reshapes societal norms, political structures, and economic systems.

A key distinction in sustainability discourse is between individualistic and systemic perspectives. The former focuses on personal consumer behaviour, technological innovation, and management practices while often ignoring the broader political and societal structures that drive overconsumption. This approach tends to place the burden of responsibility on individuals as consumers, promoting values of agency and self-improvement. However, it fails to challenge the systemic drivers of unsustainable lifestyles.

A systemic perspective, by contrast, considers the embedded nature of lifestyles within technological, societal, economic, and political structures. Decisions, such as dietary choices, are influenced by social norms and material infrastructure. For example, achieving sustainable transportation is not solely about individuals opting for public transport but also about ensuring that well-functioning and affordable systems are in place. Sustainability, therefore, must be treated as a political and collective endeavour.

CONSUMPTION CORRIDORS: A SYSTEMIC APPROACH

One prominent systemic framework is the Consumption Corridors approach (Fuchs et al., 2021). This concept posits that sustainable lifestyle choices exist within defined minimum and maximum consumption limits:

- Minimum limits ensure that every individual can meet basic needs by securing access to essential ecological and social resources.
- Maximum limits acknowledge the finite nature of global resources and the ethical obligation to preserve them for future generations. Excessive consumption by some restricts the ability of others to meet their needs.

Between these limits, individuals retain the freedom to shape their lifestyles according to personal preferences. However, this framework challenges the notion that sustainability is purely an individual responsibility. Instead, it highlights the necessity of structural and systemic change, engaging citizens in defining consumption limits and fostering sustainable societal norms.

The operationalisation of these limits involves a combination of participatory processes, empirical assessments and policy integration. Deliberative democratic processes - such as town hall meetings, public consultations and multi-stakeholder dialogues - can be used to negotiate acceptable and fair limits that reflect societal values. These negotiated limits can then inform regulations, incentive structures and infrastructure planning to align consumption patterns with sustainability goals. Crucially, these limits are not static; they require ongoing evaluation and adaptation as social needs, technologies and environmental conditions evolve.

THE ROLE OF CITIZEN ENGAGEMENT

A crucial aspect of the Consumption Corridors approach is recognizing individuals not only as consumers but also as political actors. By participating in democratic processes, citizens can help shape policies that support sustainability on a broader scale. This perspective integrates individual actions with collective decision-making, reinforcing the interconnectedness of personal agency and systemic transformation.

Sustainability should not be viewed as the cumulative result of isolated individual actions but as a collective effort to reshape the structures that underpin society. The Consumption Corridors framework provides a holistic pathway for achieving 1.5° lifestyles by balancing personal freedoms with societal responsibility. To effectively address the climate crisis, biodiversity loss, and resource depletion, systemic changes must complement conscious consumer choices. Only by challenging the existing consumption and provisioning systems can true sustainability be realised.

Further reading

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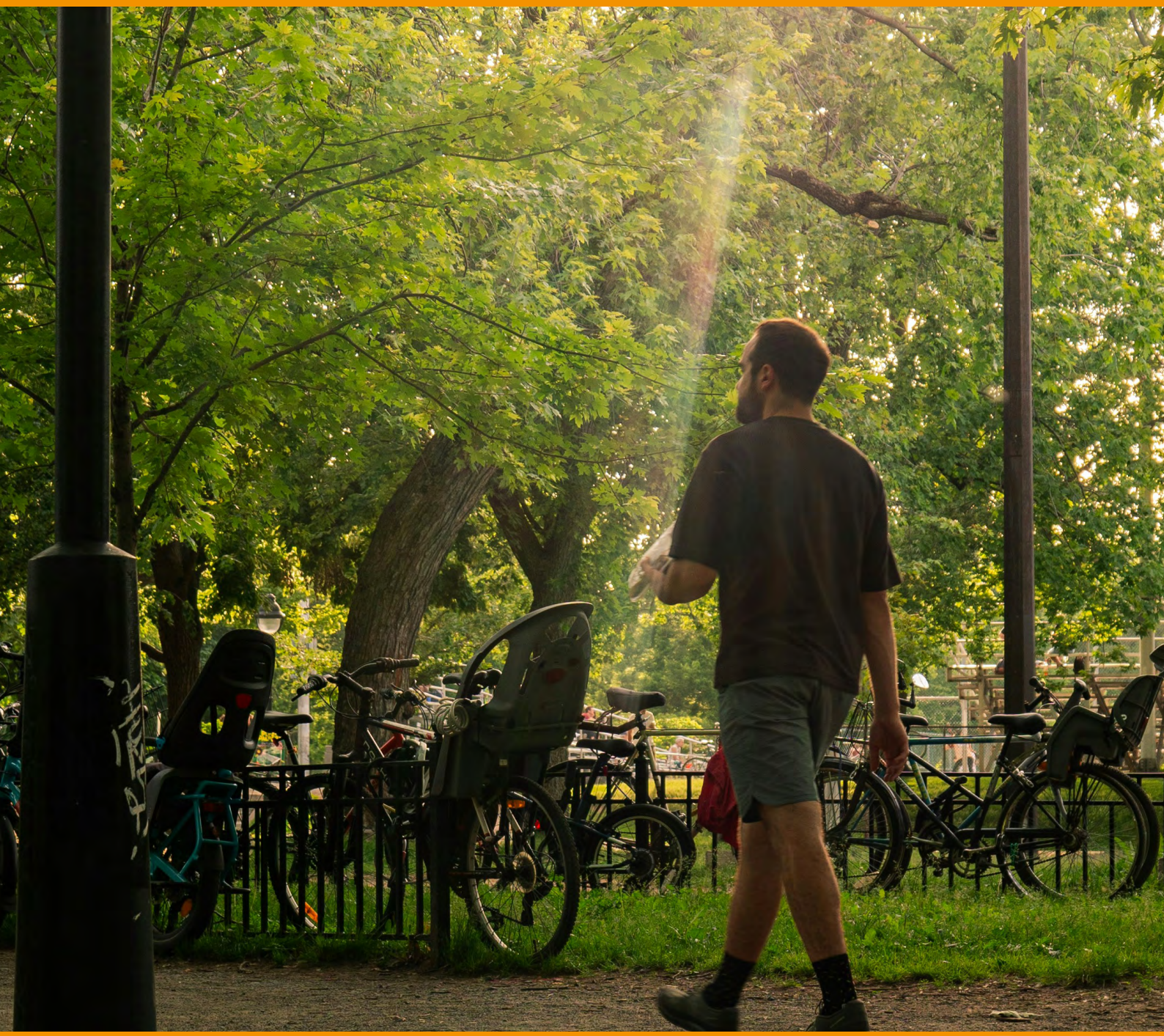

MODULE 2

1.5°C TARGETS AND GAPS: INDIVIDUAL AND HOUSEHOLD CONTRIBUTIONS

CHAPTER 5 _ INTRODUCTION TO MODULE 2

Jessika Luth Richter

Achieving the 1.5°C target will require significant changes in countries where current systems and lifestyles contribute to substantial climate impacts.
To reduce these impacts, both systemic changes and shifts in individual lifestyles and community practices will be necessary. Envisioning a future in which we meet these challenges is essential. What does a 1.5° lifestyle look like in practice? What changes are required, and how will it feel to live in such a future?

Working toward a positive future demands a clear vision of that future and involves more than just individuals to ensure a successful transition. These changes begin with imagining the possibilities.

Let us imagine it is 15 years from now. Consider the efforts made to transform the systems around you, enabling a lifestyle with fewer environmental impacts. You may eat a healthy diet, live in a small apartment, or share housing with others. You have access to public spaces where you can socialise with friends and family. Traveling to work is easy and safe, whether by walking, biking, or public transport. In your free time, you often choose to stay within your local community, where there is so much to do right where you live.

While this is an idealised vision, each individual's experience will look different. In this section, we will explore what a 1.5° lifestyle looks like from both individual and community perspectives. As you learn about different options for 1.5° lifestyles, we encourage you to reflect on what an ideal 1.5° lifestyle and community would look like for you in the future.

CHAPTER 6 _ CARBON FOOTPRINTS

Stephanie Cap

This chapter explores the major contributors to carbon footprints, how these factors evolve over time, and the challenges of aligning carbon footprints with the 1.5°C lifestyle target. A carbon footprint represents the total greenhouse gas emissions associated with an individual's or entity's consumption of goods and services. Understanding carbon footprints helps assess the impact of daily choices on climate change and highlights key areas for reducing emissions.

UNDERSTANDING CARBON FOOTPRINTS

A carbon footprint is a widely recognised measure of greenhouse gas emissions associated with human activities. Many individuals may have encountered carbon footprint calculators, which estimate personal emissions based on lifestyle choices, or have seen carbon footprints calculated for products they purchase. Some scepticism exists regarding the origins of the carbon footprint concept, as oil companies have been linked to its promotion to shift the responsibility for emissions reductions onto individuals. However, carbon footprints remain a useful tool in understanding emissions at various scales, from individuals to entire societies, and in guiding the transition toward a 1.5°C-aligned world.

A carbon footprint is determined by the quantity of goods and services consumed and the emissions generated throughout their life cycles. One method of quantifying this is the emissions intensity multiplier, which links the total life cycle emissions of various products and services to a standardised unit, such as currency. By multiplying consumption levels by their respective emissions intensities, household or individual carbon footprints can be estimated.

KEY DRIVERS OF CARBON FOOTPRINTS

Several key factors influence an individual's carbon footprint. Dietary choices play a significant role, as diets rich in meat and dairy generally have larger carbon footprints compared to plant-based diets due to emissions from livestock farming, feed production, and transportation. Mobility habits also have a substantial impact, with transportation choices being a major determinant of emissions. Using petrol or diesel-fuelled cars contributes significantly more emissions than using public transport, cycling, or electric vehicles. Household energy use is another critical factor, as the carbon footprint of housing includes emissions from heating, electricity use, and the materials used in construction.

Carbon footprints are also shaped by broader economic and technological factors. Economic productivity can lead to greater consumption and increased carbon footprints unless accompanied by significant efficiency gains. The energy transition towards renewable sources can lower emissions intensity in multiple sectors. Gross Domestic Product growth plays a role as well, since economic expansion often correlates with increased consumption, influencing both national and individual carbon footprints.

MAJOR CONTRIBUTORS TO CARBON FOOTPRINTS IN THE EU-27

In the European Union, three primary categories dominate individual carbon footprints. Mobility accounts for approximately one-third of emissions, including direct emissions from fossil fuel combustion in personal vehicles, as well as indirect emissions from vehicle manufacturing and public transport. Housing and energy use contribute around 25%, with emissions stemming from gas heating, electricity consumption, and building materials. Food consumption is responsible for about 20%, with agricultural production, food processing, and transportation playing significant roles. The remaining portion of an individual's carbon footprint is linked to various goods and services, including leisure activities and additional consumer products.

THE ROLE OF SYSTEMIC CHANGE IN REDUCING CARBON FOOTPRINTS

Beyond individual actions, systemic change is necessary to achieve meaningful reductions in carbon footprints. The shift towards renewable energy, technological innovations in industrial production, and improvements in infrastructure all contribute to lowering emissions. However, relying solely on technological advancements will not be sufficient to meet the 1.5°C target.

The EU 1.5° Lifestyles project examined whether technological and socio-economic change, without significant shifts in lifestyle, could keep global warming below 1.5°C. Findings indicate that even with rapid decarbonisation efforts, no country is currently on track to meet the 2050 target solely through technological advancements. According to the Intergovernmental Panel on Climate Change, individual lifestyle changes must contribute to between 40% and 70% of total mitigation efforts in housing, mobility, and food. This underscores the need for both systemic changes and individual action in reducing emissions.

THE NEED FOR BEHAVIOURAL AND BACKGROUND STRUCTURAL CHANGES

While investments in renewable energy and industrial efficiency are critical, they must be complemented by significant changes in consumption patterns. Achieving sustainable carbon footprints requires dietary shifts, such as reducing meat and dairy consumption in favour of

plant-based diets. Mobility transitions also play a crucial role, with the adoption of low-carbon transport options, such as public transit and cycling, being essential. Efficient energy use in homes, including better insulation, transitioning to heat pumps, and optimizing electricity consumption, is another key factor.

Governments, businesses, and individuals must work together to align carbon footprints with climate goals. Online carbon footprint calculators can help individuals assess their emissions and compare them to the 1.5°C target. However, the effectiveness of these tools depends on infrastructure and systemic support within a given country.

FUTURE TRENDS AND THE ROLE OF TECHNOLOGY

Technological advancements such as improved farming methods, renewable energy expansion, and industrial decarbonisation are essential for reducing global emissions. However, research suggests that technology alone will not be sufficient to achieve the 1.5°C target. While increased efficiency in industrial and energy sectors can lower overall emissions, unchecked economic growth and rising consumption levels can counteract these gains.

A future-oriented approach must include a combination of regulatory policies, sustainable infrastructure development, and behavioural shifts. Renewable energy sources, such as solar and wind, are becoming increasingly cost-effective and could eventually replace fossil fuels as the dominant energy source. This would significantly reduce emissions from the energy sector and any activities reliant on electricity. The use of electric vehicles, for instance, will become more sustainable as power grids transition to renewable sources. Additionally, innovations in carbon capture and storage, alternative fuels, and circular economy models may help offset unavoidable emissions.

However, reliance on future technological solutions carries risks, as their large-scale deployment may not be feasible within the necessary time frame. While cleaner energy sources and advanced efficiency measures will play a crucial role in mitigating climate change, they must be accompanied by reductions in overall consumption in housing, mobility, and food.

CONCLUSION

Reducing carbon footprints to a level compatible with a 1.5°C lifestyle requires both technological innovation and behavioural change. While systemic shifts in energy and infrastructure are essential, personal consumption choices also play a crucial role. The challenge is not solely about reducing individual footprints but creating societal frameworks that facilitate sustainable living. A combination of regulation, technological advancements, and individual action will be necessary to transition to a low-carbon future.

Further reading

- Cap, S., de Koning, A., Tukker, A., & Scherer, L. (2023). (In)Sufficiency of industrial decarbonization to reduce household carbon footprints to 1.5°C-compatible levels. Sustainable Production and Consumption, 35, 50-62. https://doi.org/10.1016/j.spc.2023.12.031

CHAPTER 7 _ IMPACTFUL LOW-CARBON LIFESTYLE OPTIONS

Edina Vadovics

This chapter explores impactful lifestyle changes that individuals can adopt to lower their carbon footprints, categorised into four key domains: mobility, housing, nutrition, and leisure. Transitioning to a 1.5° lifestyle requires significant changes across various aspects of daily life. While governments and industries play a crucial role in mitigating climate change, individual actions are equally essential. Research shows that about 65-70 percent of global greenhouse gas emissions can be traced back to household consumption, making lifestyle choices a key factor in reducing emissions. Even with systemic changes such as renewable energy adoption and improved production efficiency, meeting the 1.5°C target will not be possible without a widespread shift toward low-carbon lifestyles (Cap et al., 2024).

UNDERSTANDING CARBON FOOTPRINTS

The emissions associated with everyday life stem from the ways we move, how we heat and power our homes, what we eat, and how we spend our free time. While structural and technological advancements are essential, individual actions also have a significant influence on overall carbon emissions. Understanding which lifestyle changes are most effective allows individuals to make informed choices that align with climate goals.

A person's carbon footprint is primarily divided into four major areas: mobility, housing, nutrition, and leisure. Mobility encompasses daily transportation habits, including commuting to work or school, traveling for leisure, and using personal or public transport. Housing refers to the energy efficiency of a home, the type of energy sources used, and the overall energy consumption patterns. Nutrition includes food choices, dietary habits, and levels of food waste.

Leisure covers various activities outside of work and essential travel, including vacation habits, entertainment, and recreational choices (Vadovics and Vadovics, 2024).

MOST IMPACTFUL LIFESTYLE CHANGES

Although individuals have numerous options to reduce their carbon footprints, not all choices have the same impact. Based on research conducted across five European countries—Germany, Hungary, Latvia, Spain, and Sweden—the most effective changes fall into three broad areas: reducing dependence on private cars, changing the fuels we use for heating (i.e., de-fossilising our heating as well as improving home heating efficiency), and adopting a more sustainable diet. [1]

Among all lifestyle domains, mobility is typically the most carbon-intensive, particularly for those who rely on private vehicles. The most impactful change is transitioning away from car dependency, either by reducing car use significantly or by eliminating it altogether. For those who require a car, switching to an electric vehicle – preferably a small one, powered by renewable electricity – can also make a difference (Figure 4).

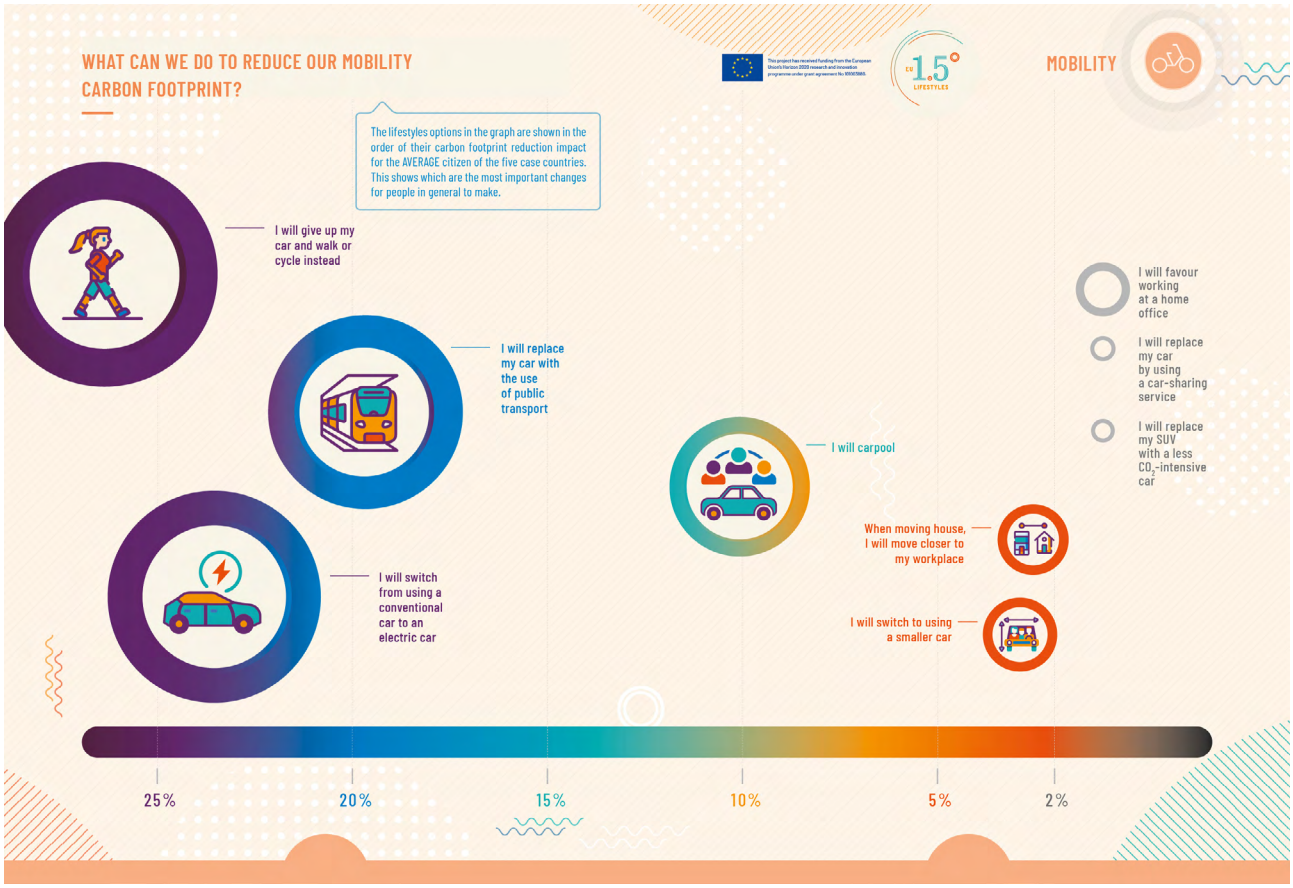

Figure 4: The mobility options available to us according to their carbon footprint reduction impact for an average citizen (source of figure: Vadovics & Vadovics, 2024; and data: Cap, S. et al. (in review))

For individuals accustomed to driving frequently, transitioning to a lower-carbon lifestyle may require gradual changes. A useful approach is to start with smaller steps, such as designating one day per week as a car-free day, increasing the use of public transport, cycling,

1 For more details, please see Vadovics and Vadovics, 2024 and Cap et al., in review.

or participating in car-sharing networks. In some cases, relocating closer to work, schools, or services can also reduce reliance on personal vehicles and encourage more sustainable travel habits.

Housing-related emissions largely come from heating, hot water and electricity use (for exact numbers at the EU and country level please check Eurostat, 2022). The choice of heating systems, the energy efficiency of the home, and the size of living spaces all contribute to an individual's carbon footprint.

Switching to heat pumps connected to solar panels or using biomass boilers fuelled by sustainably sourced biomass is among the most effective ways to lower household emissions (Figure 5). Insulating homes, upgrading windows and doors, and using energy-efficient appliances further enhance sustainability. Using renewable electricity, reducing unnecessary energy consumption, and minimizing heating and cooling needs can also significantly decrease household carbon footprints.

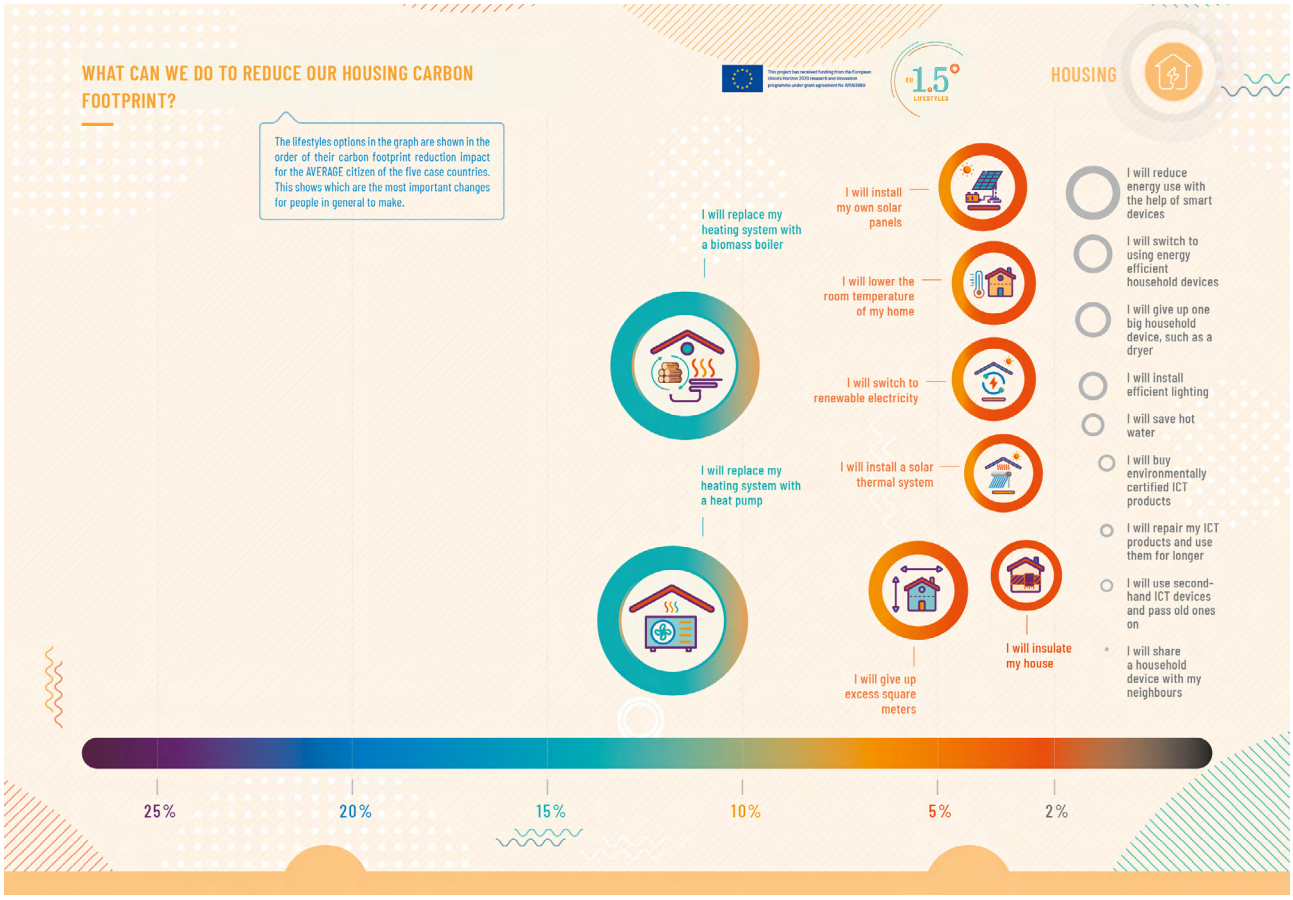

Figure 5: The housing options available to us according to their carbon footprint reduction impact for an average citizen (source of figure: Vadovics & Vadovics, 2024; and data: Cap, S. et al. (in review))

The size of living space per person is another crucial factor. Studies suggest that sustainable living spaces should range between 20 and 30 square metres per person (Lehner et al., 2024). Living in a smaller space reduces overall energy demand, making it easier to achieve carbon neutrality.

Food choices play a significant role in determining individual carbon footprints. Research highlights that shifting to a predominantly plant-based diet is one of the most effective ways to

lower nutrition-related emissions. The impact of diet changes varies, with a fully plant-based (vegan) diet having the greatest effect, followed by an 80% plant-based diet, vegetarianism, and reduced meat consumption (Figure 6). Even small changes, such as reducing red meat intake, can make a meaningful difference.

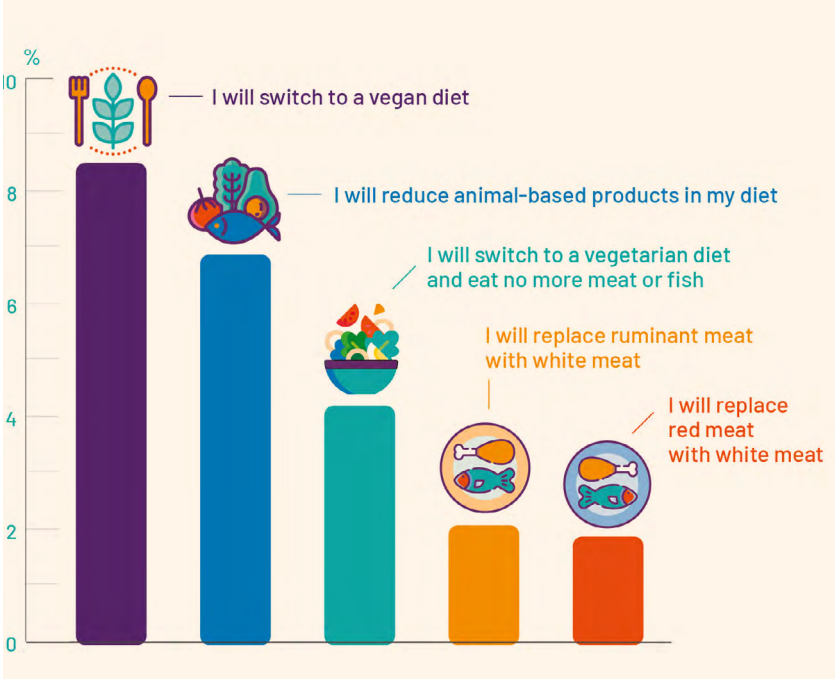

Figure 6: Comparison of the carbon footprint reduction impact of different ways of reducing animal-based products in our diet (source of figure: Vadovics & Vadovics, 2024; and data: Cap, S. et al. (in review))

In addition to dietary choices, reducing food waste is critical. Any food wasted represents wasted resources and unnecessary emissions. Composting food waste can help mitigate its impact, but prevention remains the best strategy. Furthermore, eating only as much as needed for a healthy life not only benefits the environment but also improves personal well-being.

Leisure activities, particularly travel, significantly contribute to carbon footprints. On average, the most effective way to reduce leisure-related emissions is by reducing driving and choosing car free leisure activities. However, if one flies to reach holiday destinations, limiting air travel and opting for sustainable travel alternatives become the most impactful choices. While flying is not a major factor for the average European citizen, frequent travellers can have disproportionately high emissions from flights. A single round-trip flight from Budapest to New York, for example, emits approximately 2.6 tons of CO_2e equivalent per person, nearly matching the entire annual 1.5°C-compatible carbon budget per capita for 2030 (calculated to be 2.5 tCO_2e) (Vadovics and Vadovics, 2024).

Other aspects of leisure, including consumption habits, entertainment choices, and recreational activities, also influence carbon footprints. Opting for experiences with a lower environmental impact, such as local tourism, train travel, and outdoor activities, can help mitigate emissions. Reducing overall consumption, particularly of non-essential goods, further contributes to 1.5° living.

INDIVIDUAL VS. AVERAGE IMPACT

The impact of lifestyle choices varies across countries and individuals. While the general trends outlined above provide guidance at an average, societal level, specific individual lifestyles, personal circumstances, infrastructure, and policies influence the feasibility and effectiveness of different options. Recognizing these variations is crucial when planning national and municipal sustainability strategies.

At an individual level, understanding one's own carbon footprint is essential for identifying the most impactful changes (Vadovics and Vadovics, 2024; Cap et al., *in review*). Although flying may not be a major contributor to average national emissions, it can be a significant factor for those who travel frequently. Similarly, car dependency varies based on location, with rural residents often having fewer public transport alternatives than urban dwellers. To determine which lifestyle changes are most effective, individuals can assess their own carbon footprint using online calculators or personal audits.

CONCLUSION

Adopting a 1.5° lifestyle requires a combination of individual and systemic changes. While technological advancements and policy shifts will help drive decarbonisation, widespread lifestyle changes are necessary to ensure success. The most impactful actions individuals can take involve reducing car use, de-fossilizing heating while also improving home energy efficiency, and transitioning to a plant-based diet. By making conscious choices in mobility, housing, nutrition, and leisure, individuals can contribute to a 1.5° future while also improving their quality of life.

For those looking to take immediate steps, resources such as our 1.5° lifestyles guide (Vadovics and Vadovics, 2024) and carbon footprint calculators[2] provide practical tools for assessing and reducing emissions. However, the transition to a low-carbon lifestyle is not just an individual responsibility but a collective effort toward building a more sustainable society.

Further reading

- Cap, S., de Koning, A., Tukker, A., & Scherer, L. (2023). (In)Sufficiency of industrial decarbonization to reduce household carbon footprints to 1.5°C-compatible levels. Sustainable Production and Consumption, 35, 50-62. https://doi.org/10.1016/j.spc.2023.12.031
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2 You can access the carbon calculators developed in the EU 1.5° Lifestyles project at https://onepointfivelifestyles.eu/carbon-calculator, or check Vadovics and Vadovics (2024) for further options.

CHAPTER 8 _ 1.5° LIFESTYLES IN ACTION: CASE STUDIES OF PIONEERS

Nadin Ozcelik and Adina Dumitru

This chapter explores the perceived benefits of low-carbon lifestyles, the evolving definition of a "Good Life" after adopting sustainable practices, and the synergies between 1.5° lifestyles, well-being, and health. Adopting low-carbon lifestyles is crucial not only for achieving the 1.5°C climate target set by the Paris Agreement and reducing human-induced carbon emissions but also for enhancing personal, societal, and ecological well-being. The transition to sustainable lifestyles requires active participation from individuals, and empowering people with knowledge about the benefits of low-carbon living can drive meaningful behavioral changes.

The adoption of low-carbon lifestyles at an individual level yields multiple environmental and personal benefits. By reducing energy consumption, minimizing waste, and making more sustainable choices in daily life, individuals can significantly lower their carbon footprint. However, the advantages of low-carbon living extend beyond environmental impact, influencing financial stability, life satisfaction, and social well-being.

One of the key benefits of a low-carbon lifestyle is financial savings. Responsible consumption practices often lead to reduced spending, as individuals prioritise quality over quantity, avoid unnecessary purchases, and use energy-efficient alternatives. For example, reducing household energy consumption, choosing sustainable modes of transportation, and opting for locally sourced food can contribute to long-term financial security.

Additionally, adopting a sustainable lifestyle has been associated with increased life satisfaction. Studies indicate that individuals living in a manner aligned with their values—such as minimizing waste, consuming responsibly, and engaging in community-based activities—

experience a greater sense of fulfilment. Low-carbon lifestyles promote mindfulness and a conscious approach to living, allowing individuals to feel more in control of their choices and in harmony with their surroundings.

THE MEANING OF A GOOD LIFE AFTER ADOPTING LOW-CARBON LIFESTYLES

Sustainable living often leads to a shift in mindset, particularly in redefining the concept of a "Good Life." Traditional notions of a fulfilling life have been largely influenced by material wealth and excessive consumption. However, those who embrace low-carbon lifestyles tend to redefine well-being based on sufficiency principles rather than material accumulation.

A Good Life in the context of sustainability is centred on having access to sufficient resources to meet one's fundamental needs rather than seeking endless economic growth and consumption. This shift in perspective encourages individuals to focus on meaningful experiences, relationships, and personal well-being rather than material possessions. Non-consumptive activities, such as spending time in nature, engaging in creative pursuits, or fostering connections with family and friends, become integral components of a fulfilling life. For example, a simple activity such as hiking with loved ones provides an opportunity for relaxation, social bonding, and a deeper appreciation of nature—all without excessive resource consumption.

Moreover, adopting a low-carbon lifestyle enhances awareness about the true sources of happiness. Research suggests that people who engage in sustainable practices prioritise emotional well-being, personal growth, and community engagement over consumer-driven aspirations. By moving away from consumption as a primary source of fulfilment, individuals often experience greater mental clarity, a heightened sense of purpose, and improved overall well-being.

SYNERGIES BETWEEN 1.5° LIFESTYLES, PERSONAL WELL-BEING AND HEALTH

A significant benefit of transitioning to a low-carbon lifestyle is its positive impact on personal well-being and health. Sustainable living is deeply interconnected with various aspects of well-being, including autonomy, mental health, physical health, and social belonging.

Individuals who actively engage in sustainable practices often report a stronger sense of autonomy and control over their lives. Making conscious decisions about transportation, food consumption, and energy use fosters a sense of self-determination, allowing individuals to take ownership of their environmental impact. This sense of agency contributes to greater happiness and life satisfaction, as individuals feel empowered by their ability to make meaningful changes.

Engaging in a more sustainable and mindful lifestyle also enhances the sense of connection with both the environment and society. Many individuals find fulfilment in knowing that their actions contribute to a collective movement toward environmental preservation. This sense of belonging fosters positive emotions and strengthens social bonds, reinforcing the motivation to continue sustainable practices.

Furthermore, adopting a low-carbon lifestyle can improve work-life balance. Research suggests that prioritizing sustainability often leads individuals to reassess their time management, placing greater emphasis on leisure, family, and personal well-being over excessive work and material pursuits. This shift in priorities allows for a healthier and more balanced lifestyle, reducing stress and increasing overall life satisfaction.

PHYSICAL AND MENTAL HEALTH BENEFITS

Sustainable living is also closely linked to physical and mental health. A more active lifestyle—incorporating walking, cycling, and outdoor activities—promotes physical fitness and reduces the risk of lifestyle-related diseases. Choosing plant-based diets or reducing the consumption of highly processed foods can lead to improved nutrition, lower cholesterol levels, and better overall health.

In addition, reducing reliance on motor vehicles and spending more time in natural environments has been shown to enhance mental well-being. Exposure to nature and green spaces is associated with lower levels of stress, anxiety, and depression. Engaging in outdoor activities such as gardening, hiking, and cycling provides psychological benefits, including increased relaxation and a greater sense of well-being.

However, while the benefits of low-carbon living are substantial, some challenges may arise. People transitioning to sustainable lifestyles may experience social isolation or lack of support from peers who do not share similar values. Some individuals may also develop eco-anxiety—a heightened sense of concern about environmental issues—due to their increased awareness of climate challenges. To mitigate these challenges, individuals can seek out like-minded communities, participate in sustainability initiatives, and focus on collective action to foster a sense of empowerment and social connection.

CONCLUSION

The transition to a low-carbon lifestyle offers multiple benefits, extending beyond environmental impact to personal and societal well-being. Financial savings, increased life satisfaction, enhanced physical and mental health, and a redefined perspective on what constitutes a Good Life are among the key advantages of adopting sustainable practices. By prioritizing sufficiency over excess and engaging in meaningful activities, individuals can cultivate a greater sense of fulfilment while also contributing to a more sustainable world.

While challenges such as social isolation and eco-anxiety may arise, these can be mitigated by fostering supportive communities and engaging in collective action. Ultimately, low-carbon lifestyles are not only necessary for achieving climate goals but also offer an opportunity to create a more balanced, fulfilling, and resilient way of living. As individuals continue to embrace sustainability, they can play a crucial role in shaping a healthier, more equitable, and environmentally responsible society.

Further reading

- Akenji, L., Bengtsson, M., Toivio, V., Lettenmeier, M., Fawcett, T., Parag, Y., Saheb, Y., Coote, A., Spangenberg, J. H., Capstick, S., Gore, T., Coscieme, L., Wackernagel, M., Kenne, D. (2021). 1.5-Degree Lifestyles: Towards A Fair Consumption Space for All. Hot or Cool Institute, Berlin
  https://hotorcool.org/1-5-degree-lifestyles-report/

CHAPTER 9 _ THE REBOUND EFFECTS OF LOW-CARBON LIFESTYLE CHANGES

Matthias Lehner

In this chapter, we discuss rebound effects. Rebound effects occur when improvements in (energy) efficiency lead to behavioral or economic responses that offset some of the expected (energy) savings. This phenomenon helps explain why, despite technological advancements that make cars, appliances, and industrial processes more efficient, overall energy consumption continues to rise.

WHAT ARE REBOUND EFFECTS?

We humans are really good at making things more efficient. Cars today use a lot less fuel than they did a few decades ago, lightbulbs need a fraction of the electricity they did in the past, and your home's heating or cooling system has become a lot more energy-efficient. So, how come we use so much more energy today than in the past?

A lot has to do with the so-called rebound effect. The rebound effect refers to any consequence of improving energy efficiency that reduces expected energy savings and carbon reductions. For example, if you buy a more fuel-efficient car, you might drive more because it costs less, or you might spend the money you save on other carbon-intensive activities, such as flying.

The rebound effect was first described by the English economist William Stanley Jevons. He studied coal consumption during the early years of the Industrial Revolution and observed the paradox that more efficient industrial use of coal increased, rather than decreased, coal demand. Since then, it has been observed that more efficient use of a resource reduces its cost of use and, paradoxically increases overall demand.

So, from a climate change perspective, rebound effects are important because they often undermine efforts to reduce emissions. That is why researchers often point out that

technological innovation leading to efficiency gains will not be enough to reach the 1.5° climate target. Therefore, it is crucial to understand and account for rebound effects when designing and evaluating energy and climate policies.

TYPES OF REBOUND EFFECTS

On an individual level, we distinguish between direct and indirect rebound effects.

Direct rebound effects describe situations where energy efficiency improvements lower the effective price of energy services, such as heating, lighting, or mobility, stimulating greater demand for those very same services. For example, if you turn up the heat or choose to keep your indoor lights on all night because of lower costs, that is a direct rebound effect.

One of the most studied sectors for direct rebound effects is transport, where improving the fuel efficiency of vehicles often leads to more driving. For example, one study estimated that the rebound effect for car travel in the UK was about 20%. This means that if a car becomes 10% more energy-efficient, the actual energy saving from car travel is only 8% because 2% are lost to increased driving. These specific numbers for rebound effects are difficult to establish as they depend on many factors. In another study, for example, researchers found that the rebound effect for car travel in China was much higher, at about 60%, due to higher unmet demand for driving there. If the rebound effect reaches 100% or more, it is called a 'backfire effect', meaning that there are no net energy or carbon savings from efficiency gains. This is rare but can happen.

Another sector where direct rebound effects occur is buildings, where improving the home insulation or the efficiency of appliances can lead to increased heating or cooling, and electricity use. For example, one study found that the rebound effect for space heating in the UK was about 30%. Another study found that the rebound effect for air conditioning in India was as high as 70%, again due to higher unmet demand for air conditioning there.

Next to direct rebound effects, there are indirect rebound effects. Those describe any situation when cost savings from energy-efficiency lead to increased spending elsewhere. One example would be savings from driving a more energy-efficient car being spent on an additional long-distance flight. Indirect rebound effects are even harder to quantify than direct rebound effects.

In general, though, while rebound effects are difficult to understand and measure, they are likely to occur whenever energy savings also lead to cost savings, and that rebound effects are a real challenge for achieving low-carbon lifestyles.

Rebound effects do not only occur on an individual level. Efficiency improvements usually also have macroeconomic effects. Macroeconomic rebound effects are caused by new business opportunities made possible by more efficient vehicles, machines, tools, etc. As a result, economic growth increases across the whole economy, which in turn increases the energy demand of the whole economy again, and results in the phenomenon we have been able to observe across the world since the Industrial Revolution: energy demand continues to grow despite ever more efficient use.

WHAT CAN BE DONE ABOUT THIS? HOW CAN THE REBOUND EFFECT BE AVOIDED OR MINIMISED?

The most effective of all is to prevent falling costs from improved energy efficiency – for example, by implementing a price on carbon and energy. If there are no cost savings from efficiency improvements, there is no rebound effect.

Second, individual awareness matters. Research has shown that individuals with good knowledge and awareness of climate change are more likely to avoid rebounding by redirecting their additional spending towards low-carbon behaviour.

And finally, structural factors play a huge role in how additional income is spent. In many ways, individual behaviour is locked into so-called "systems of provision". These are, for example, the way energy or transport are provided to you, so whether energy is primarily produced from renewable or fossil sources, or whether driving or biking is made easier in a city. While it is, of course, the individual that decides to hop into their car or onto their bicycle, that choice greatly depends on the availability of bike paths, the price of fuel, the safety of riding a bike, or the speed with which a destination can be reached on a bike compared to a car. To reduce rebound effects, these provisioning systems need to encourage low-carbon behaviours and discourage high-carbon behaviours.

Further reading

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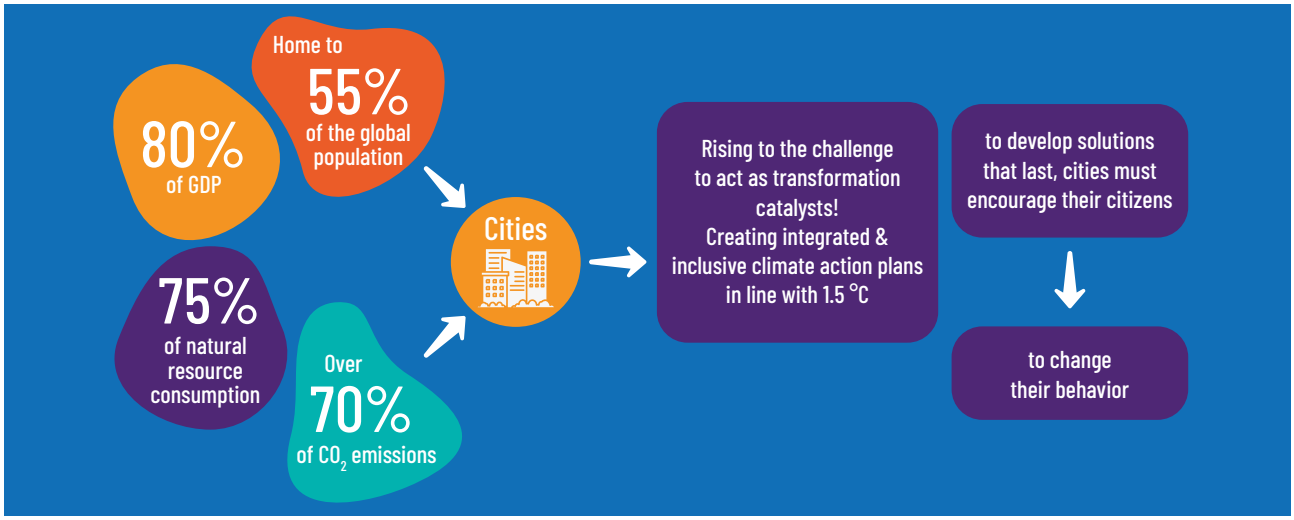
CHAPTER 10 _ 1.5° LIFESTYLES IN ACTION: 1.5° LIFESTYLES IN THE CITY

Jennifer Lenhart

In this chapter, we will explore the interactions between cities and urban dwellers in their journey towards 1.5° lifestyles. Globally, cities are emerging as leaders in the fight against climate change. They are committing to ambitious climate goals and working across sectors to rapidly reduce greenhouse gas emissions. Whatever actions a local government wants to undertake, these actions will be influenced by the physical surroundings, the technical and political systems, and by its citizens. At the same time, the proposed action will influence them.

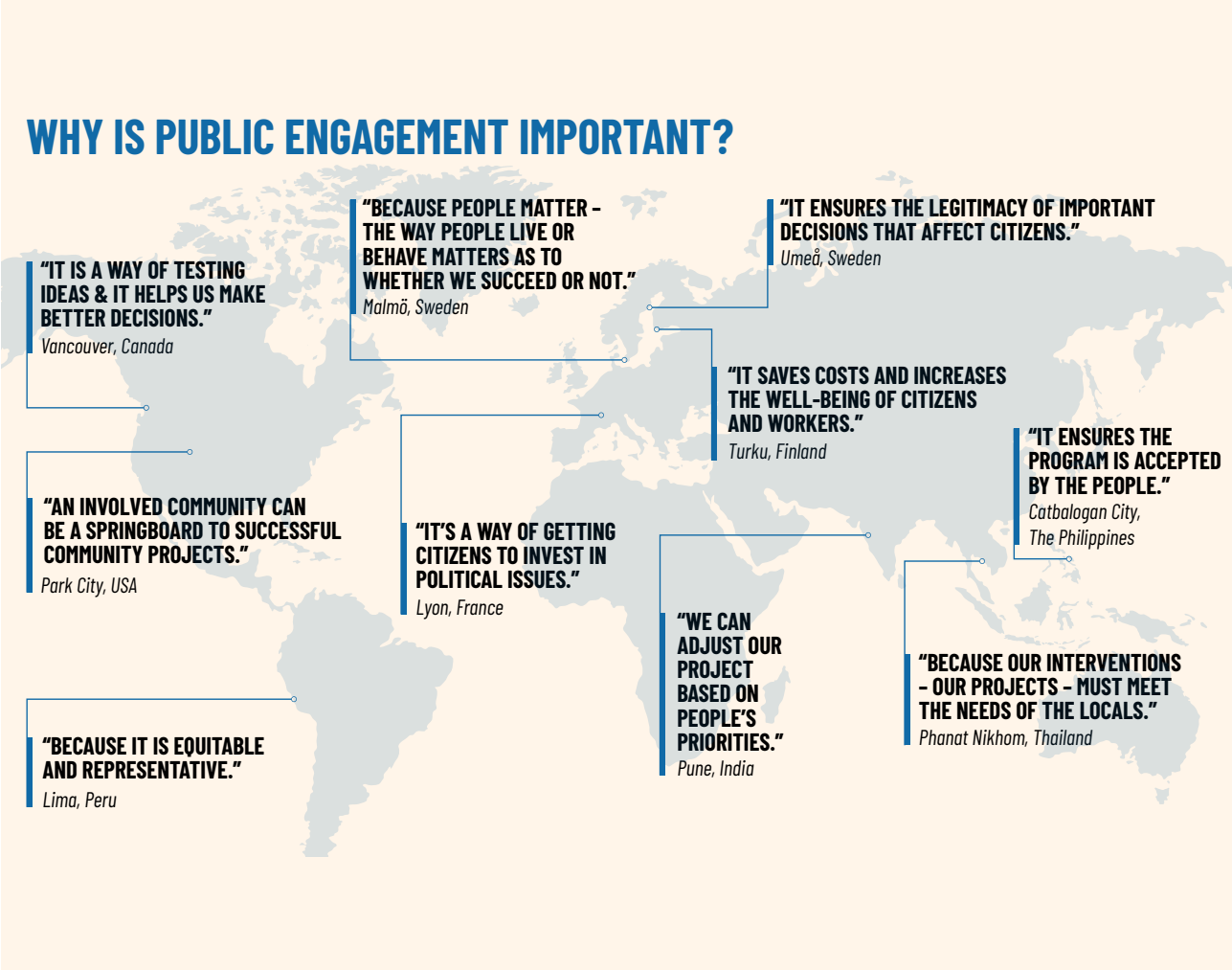
INFRASTRUCTURE AS GROUNDWORK



Some of the most important tools local governments can utilise within a climate action plan are urban and transport planning and procurement strategies to, for example, increase access to public transportation, allot space for urban agriculture, or purchase renewable energy. However, it is equally important that citizens choose to use these services to meet our climate goals.

However, it is equally important that citizens choose to use these services to meet our climate goals.

IMPORTANCE OF ENGAGEMENT



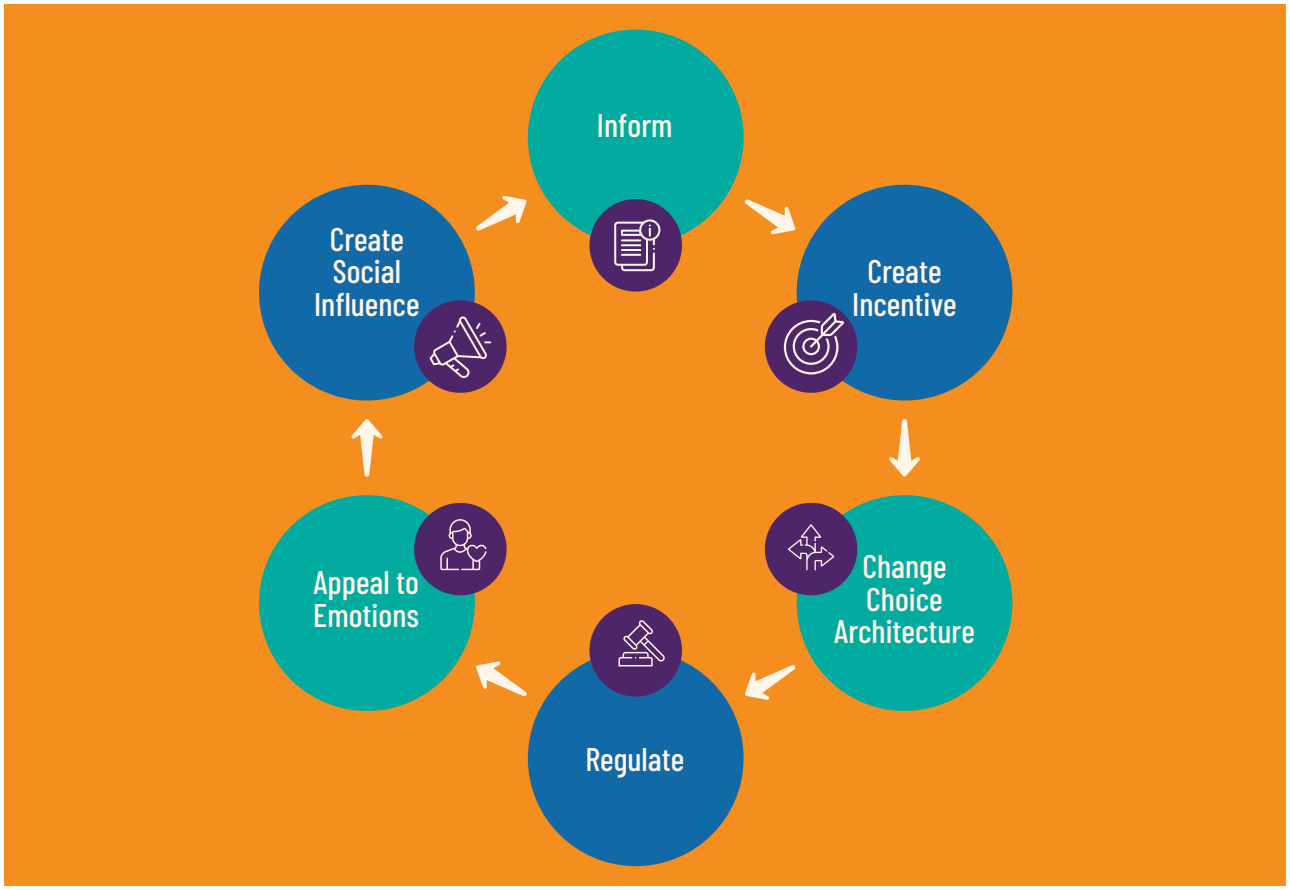
The importance of citizen engagement is paramount. It is crucial that stakeholder groups, such as citizens, companies, universities, and NGOs, are involved from the beginning of policy development and throughout the process. Doing so can ensure that these groups can help co-create and co-own the solutions developed. When a solution is co-produced, multiple groups are invested in its success, and it is much more likely to be implemented. WWF has compiled key factors and successful examples of public engagement in a Public Engagement Guide, which is available for you to get more insights on how to work with citizens.

BEHAVIOUR CHANGES TO ACHIEVE 1.5°C LIFESTYLES

Even if a local government invests in new bike lanes or expands bus routes, then what? What does it take for an urban resident to use them, instead of opting for a slightly more convenient trip by car? Unless local governments educate and encourage citizens to act sustainably with behaviours in line with our 1.5°C target, no amount of infrastructure or opportunity will move the needle enough. However, altering behaviour is no easy task! People make decisions based on emotions, what their peers do, or what others expect them to do. These decisions are not always logical and are often subject to available resources and time. Individuals also frequently use habits or educated guesses to avoid the process of rational decision-making. Though human decision making is complex, behavioural science can help us understand and encourage citizens to make more sustainable choices.

So, what can policy makers do? To start, they first need to identify their target audience. For example, if they wish to increase bus ridership, identify a specific group of local commuters, such as environmentally-conscious students. After this, explore the group's current behaviours, motivators, barriers, needs and goals. Once the target group is understood, policymakers can choose mechanisms to tackle specific behaviours.

LEVERS



When it comes to behaviour change, there are six levers that local policymakers can use – in combination with public policy to mobilise urban citizens towards more sustainable lifestyles. After deciding which to use, policy makers should create the intervention, deliver it, and then measure and adapt as needed, before scaling up. We will now review the six levers and some city examples where they have been applied.

The first lever is to INFORM, providing information about a desired behaviour, why it matters, and how to do it. It is important to communicate effectively with positive language, build awareness and offer guidance. For example, in Zurich, Switzerland, the city partnered with a household appliance company to provide energy efficient labels on different appliances to inform consumers when purchasing new appliances. The city also offered subsidies to incentivise consumers to purchase more energy efficient models.

The second is to CREATE SOCIAL INFLUENCE. Humans are social animals, often conforming to those around us. This lever makes the chosen behaviour the perceived norm, by lifting cases of success, making engaging in the behaviour easily observable, and eliminating excuses for not participating. In Brighton, UK, the Tidy Street community participated in a two-month energy-saving initiative. Each household was given tools to measure their daily energy consumption, thereafter uploading it to the project's website. Results were painted on the road, with icons representing each household. The art show demonstrated the street's average consumption, while comparing it to the whole city of Brighton. Being able to see what their neighbours were doing to conserve energy helped them achieve a collective drop of between 15-30%.

The next is to APPEAL TO EMOTIONS. Many of our decisions are driven by how an action makes us feel, or connects to personal interests and concerns. With this strategy, it is important to leverage emotions such as pride, joy, hope, fear, or curiosity. Use pictures, names, or local evidence to make it personal and show community benefits. WWF launched a campaign in Mexico City to encourage residents to cook traditional dishes using regional ingredients to protect the country's natural heritage and biodiversity. Appealing to local pride, history, and memories of food and cooking, it generated positive emotions, making it relatable and engaging.

The fourth lever, CREATE INCENTIVE. The costs and benefits, specifically if they involve time, money, or effort, influence what an individual chooses to do. Here it's important to focus on shifting the perceived costs and benefits, making the targeted action easy and rewarding, while making the alternative harder. In 2019, Bari in Italy, became the first Italian city to pay its citizens to bike to work. By equipping over 1000 personal bikes with GPS devices, the city rewarded riders with up to 20-euro cents per kilometre for their commute.

Fifth is to CHANGE CHOICE ARCHITECTURE. How we frame a choice, contextually and physically, can impact its outcome. To influence behaviour, it's important to direct attention to the desired choice, streamline the decision process, and make the desired behaviour the default. In Addis Ababa, Ethiopia, several Sundays a year, the city shuts 9 km of streets for citizens to walk, bike, play and dance. By doing so, they invite citizens to try out cycling and walking to move around the city. That being said, Latin American cities like Bogotá, Colombia; Santiago de Chile; and Quito, Ecuador, have closed their streets every Sunday for over 20 years.

Our last lever is REGULATION. A straightforward way to influence behaviour is to mandate or prohibit it, through regulations and policies. The City of Barcelona passed a Solar Thermal

Ordinance, requiring all new and renovated buildings to use solar energy for 60% of hot water supply. As a result, the surface area of installed solar panels in Barcelona grew from less than 2000 square metres in 2000 to almost 90,000 square metres in 2010 alone, helping Barcelona reduce the carbon intensity of its electricity by about 30%.

For a deeper dive, and to learn about the entire process step by step, you can check out WWF's Behaviour Change on Urban Climate Action.

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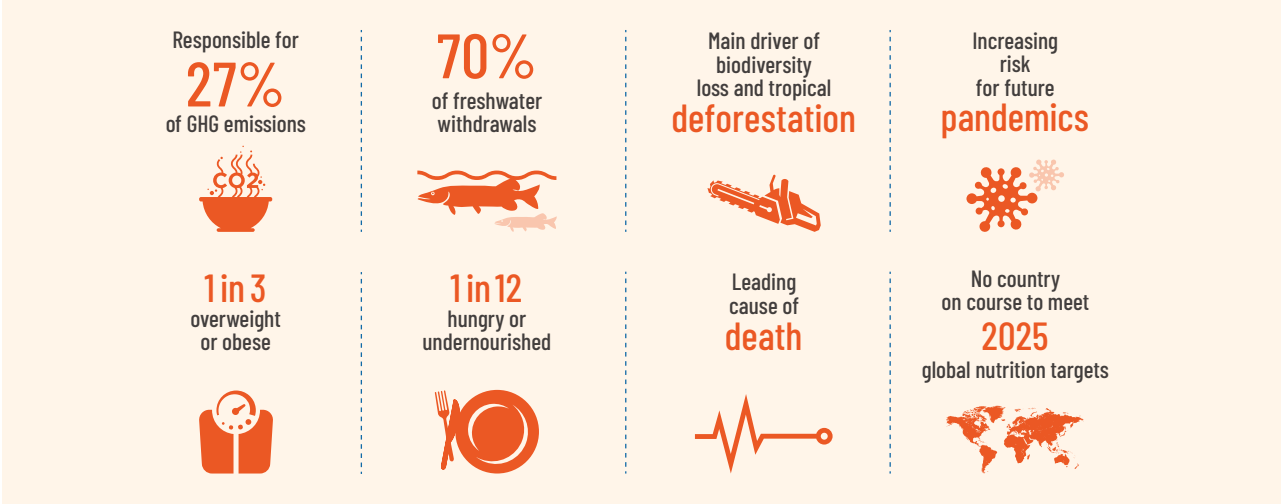
CHAPTER 11 _ 1.5° LIFESTYLES IN ACTION: SUSTAINABLE DIETS AND URBAN FOOD SYSTEMS

Anna Richert and Aaron Juarez

In this chapter, we will dive into the landscape of urban food systems - we'll explore what urban food systems are, why they are central to achieving 1.5° lifestyles, as well as key interventions for making our urban food systems more sustainable.

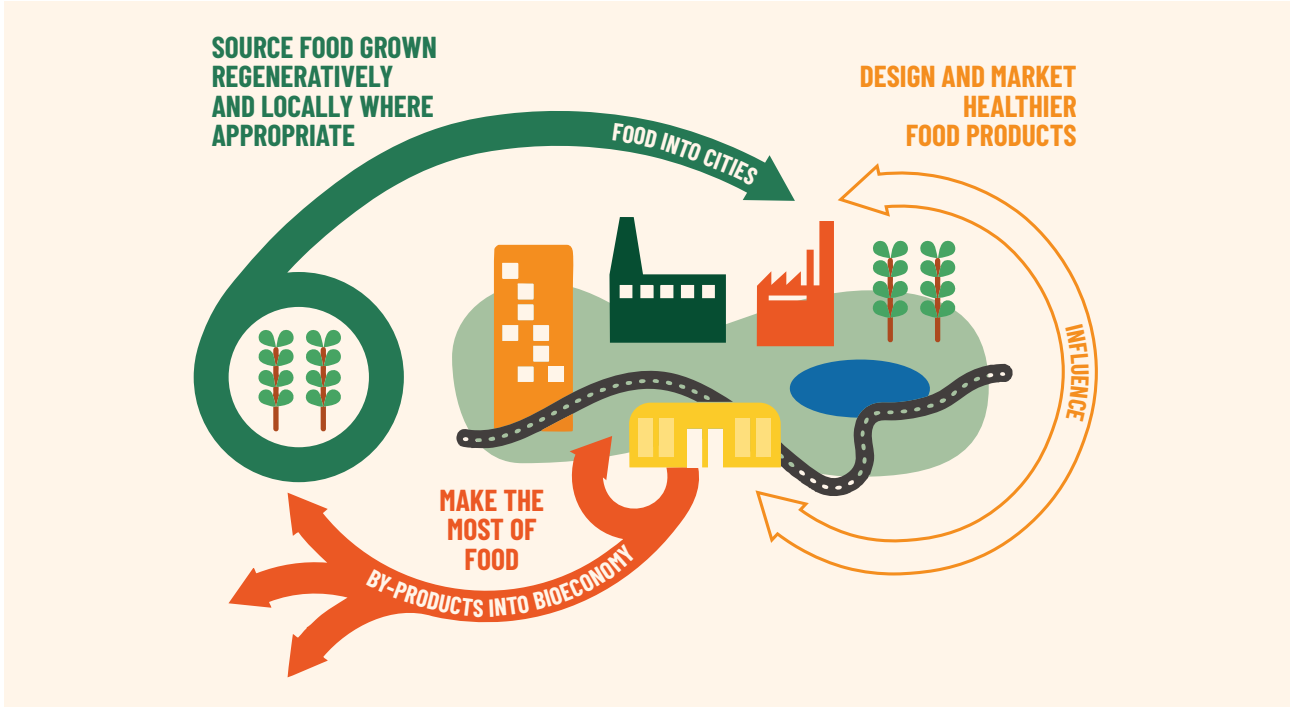
Our current food system accounts for almost one-third of all greenhouse gas emissions produced globally. It's also responsible for 70 percent of biodiversity loss and is the leading cause of deforestation. At the same time, diet-related diseases are increasing. Globally, 1 in 12 are undernourished or hungry, while 1 in 3 are overweight or obese. We can't solve the climate, biodiversity, or health crises, without fixing food systems.



Food systems are deeply interconnected with many of the global challenges we face, including climate change, resource depletion, and public health. Cities, as hubs of population, consumption, and innovation, are critical focal points for transforming food systems toward sustainability. While they occupy only 3 percent of the Earth's landmass, cities are home to 55 percent of the world's population—a number expected to rise to 80 percent by 2050. Moreover, urban centres account for 70 percent of global carbon emissions and consume 70 percent of all food produced. This concentration of people, resources, and environmental impact makes cities an effective starting point for addressing food system challenges.

UNDERSTANDING URBAN FOOD SYSTEMS

Food systems in cities are not just about consumption. They involve food production, transportation, distribution, and waste management. Each of these aspects must be addressed holistically to achieve a sustainable and circular food system. This comprehensive view, known as the "Food Systems Approach," considers all components and relationships within food systems. Recognised in international policy, this approach provides a structured way to identify opportunities for transformation.



A circular food system
Graphic by Ellen MacArthur Foundation

COMPONENTS OF AN URBAN FOOD SYSTEM: PRODUCTION AND PROCESSING

Most food production occurs outside city boundaries, but urban areas play a crucial role in food processing, logistics, and local agriculture. Community gardens and urban farms help increase access to fresh produce while also providing education, green spaces, biodiversity benefits, and social cohesion. Cities can also foster relationships with rural stakeholders by supporting farmers' markets and community-supported agriculture programs. These initiatives

create shorter, more resilient supply chains, increasing food security and strengthening local economies.

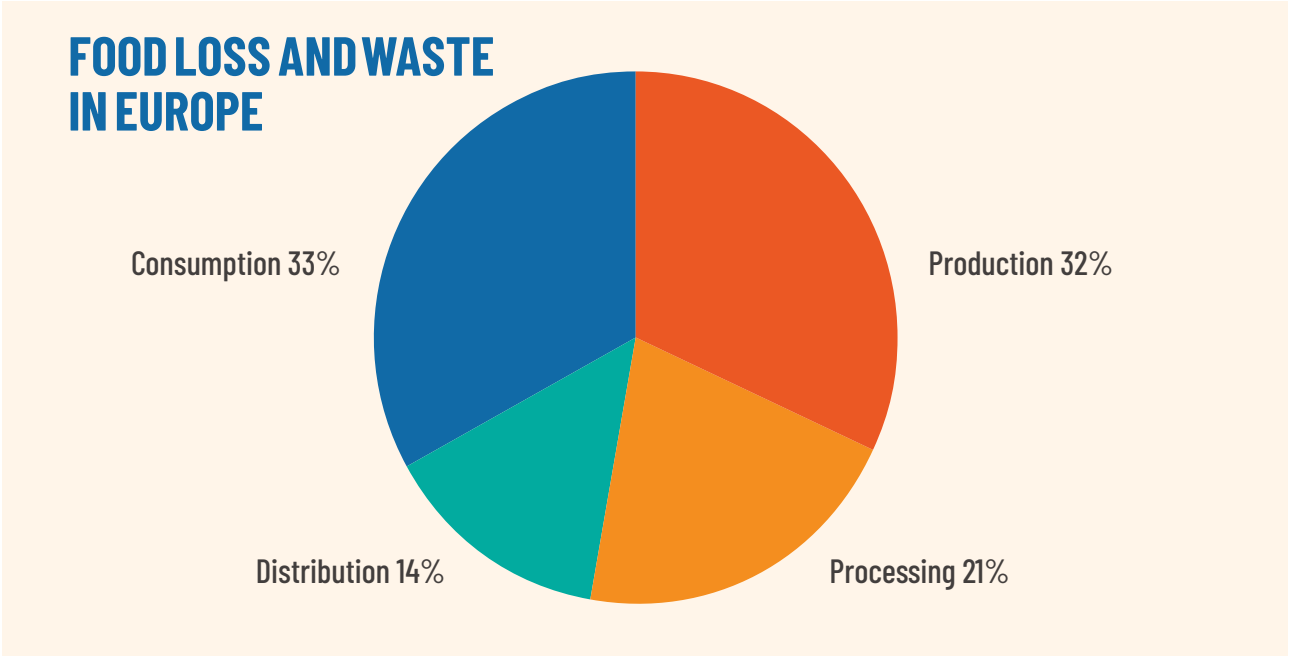
CONSUMPTION PATTERNS

Consumption is a critical aspect of the urban food system, and shifting dietary habits can significantly reduce environmental impact. The adoption of more plant-based diets is among the most effective individual strategies for lowering carbon footprints. In many Western countries, meat-heavy diets contribute substantially to food-related carbon emissions. Globally, approximately 75 percent of food-related emissions stem from animal-based products, while only 25 percent come from plant-based foods.

Transitioning to plant-based diets involves prioritizing vegetables, grains, and legumes while reducing meat and dairy consumption. Studies, such as those from the EAT-Lancet Commission, indicate that such dietary shifts could prevent millions of premature deaths annually while reducing greenhouse gas emissions.

FOOD WASTE MANAGEMENT

Waste is a significant yet often overlooked component of the food system. Approximately 40 percent of all food produced never reaches a plate. Each year, about 700 million tonnes of food is wasted during distribution and consumption alone. Addressing food waste at every stage—from production to disposal—is essential for creating more sustainable urban food systems.



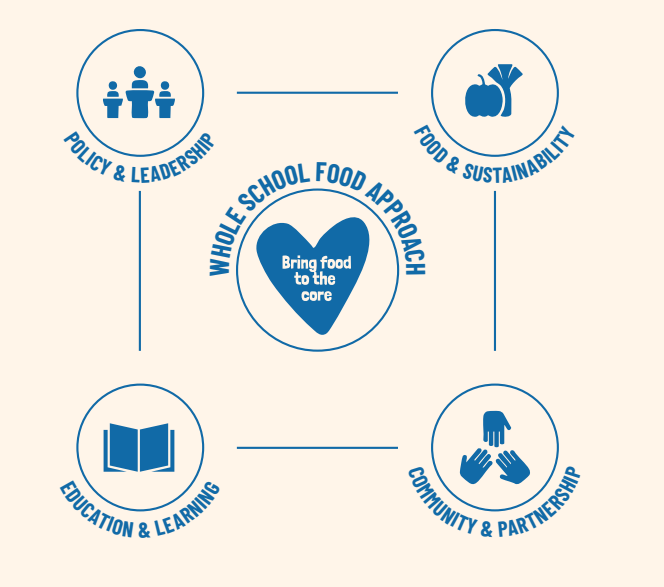
STRATEGIES FOR TRANSFORMING URBAN FOOD SYSTEMS

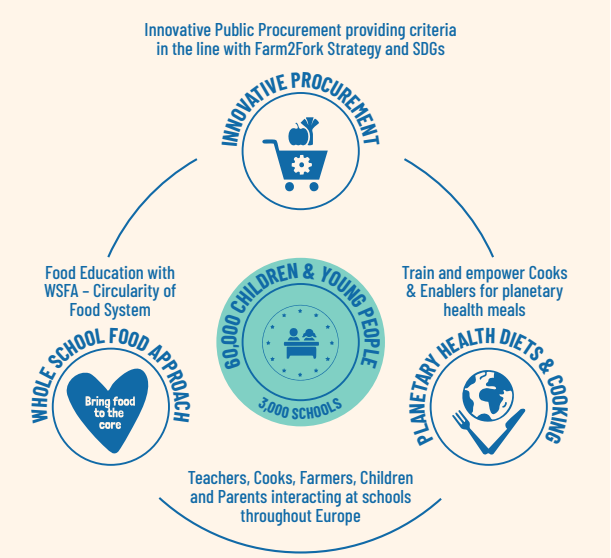
Given the complexity of food systems, interventions must be targeted and multifaceted. Cities, institutions, and individuals each have roles to play in shifting towards more sustainable food practices.

CITY-LEVEL INTERVENTIONS

Municipal governments wield substantial influence over food systems through policy and infrastructure. One of the most impactful strategies is sustainable food procurement for public institutions such as schools, hospitals, and government offices. This can involve (1) reducing the amount of meat served while prioritizing high-quality, sustainably produced meat; (2) sourcing from local, small-scale farmers; or (3) supporting producers who use organic, regenerative, and animal welfare-certified practices.

Cities can also shape food environments by regulating advertising for unhealthy foods and using zoning laws to promote the availability of affordable, nutritious food. Additionally, many leading cities have established local food policy councils to bring together stakeholders across the food chain to co-develop sustainable food policies.





Source: Whole School Food Approach and Triple Action Approach by SchoolFood4Change

THE ROLE OF SCHOOLS AND EDUCATIONAL INSTITUTIONS

Schools can be powerful drivers of dietary change. Educators, school administrators, and local governments can integrate sustainable food education into curricula while shifting procurement policies to prioritise plant-based, local, and nutritious meals. By adopting a "Whole School Food Approach," schools can serve as models for healthier and more sustainable eating habits among young generations.

COMMUNITY AND INDIVIDUAL ACTIONS

While systemic changes are necessary, individuals also have agency in shaping sustainable food systems. Consumers can take several steps to contribute to sustainability, such as: incorporating more vegetables, fruits, and fibre into their diets; reducing meat consumption and only choosing sustainably produced meat options; raising awareness within their social circles about the benefits of sustainable diets; as well as engaging with local initiatives focused on food sustainability and advocating for policy changes.

CONCLUSION

Cities have a critical role in aligning food systems with the 1.5°C climate target. By implementing strategic policies, fostering community engagement, and supporting sustainable consumption and production practices, urban centers can drive large-scale transformations in how food is produced, consumed, and managed. The transition to a sustainable food system requires collaboration at all levels—from policymakers and institutions to individuals making informed choices in their daily lives. The challenge now is for each of us to consider: What role will we play in shaping the future of our food systems?

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CHAPTER 12 _ CO-CREATION AND POSITIVE NARRATIVES FOR 1.5° LIFESTYLES

Lena Domröse and Maren Tornow

This chapter explores how co-creation and positive narratives can support the transition to 1.5°C lifestyles and highlights insights gained from participatory workshops within the EU 1.5° Lifestyles Project. Achieving 1.5°C lifestyles requires transformative change across all sectors of society. While policy and technological advancements are crucial, behavioral changes at the individual and community levels play an equally important role. To drive this transformation, participatory methods such as co-creation formats and positive narratives have emerged as powerful tools. Co-creation fosters collaboration, inclusivity, and collective problem-solving, while positive narratives help to inspire action, provide hope, and counteract feelings of ecological anxiety.

THE ROLE OF CO-CREATION IN DEVELOPING SUSTAINABLE SOLUTIONS

Co-creation is a participatory method where individuals from diverse backgrounds collaborate to generate innovative ideas and solutions. These collaborative sessions involve brainstorming, creative exercises, and problem-solving activities, enabling participants to use their collective expertise and perspectives to co-develop actionable outcomes. Co-creation fosters inclusivity, teamwork, and the mutual exchange of ideas, creating a dynamic environment that stimulates learning and engagement.

In the context of sustainable lifestyles, co-creation processes facilitate behavioural change by expanding knowledge, sharing best practices, and building positive experiences among participants. They are widely used in fields such as design, business, and technology, but within the EU 1.5° Lifestyles Project, they played a central role in envisioning low-carbon futures.

POSITIVE NARRATIVES: ENCOURAGING SUSTAINABLE LIFESTYLES

The power of storytelling and positive framing is instrumental in shaping attitudes and behaviours. Positive narratives highlight success stories, innovative solutions, and the benefits of sustainable living, such as improved health, environmental protection, and community resilience. By focusing on what can be gained rather than what must be sacrificed, positive narratives foster optimism and motivation, making sustainable choices feel achievable and desirable.

Additionally, positive narratives counteract ecological anxiety and feelings of helplessness by offering a sense of agency. They help individuals see themselves as part of a larger movement, reinforcing social norms and collective action necessary for widespread adoption of sustainable practices. This framing encourages individuals to adopt and maintain lifestyles that prioritize environmental and social well-being.

ENVISIONING A SUSTAINABLE FUTURE

As part of the EU 1.5° Lifestyles project, we invited participants to engage in a guided visioning exercise. This process encouraged them to imagine waking up in a world that had successfully transitioned to a 1.5°C-aligned society. The vision was built from lifestyle options with the highest greenhouse gas reduction potential and was informed by citizen and stakeholder input.

In this envisioned future, society had successfully reduced global net emissions to approximately 1 ton of carbon equivalents per person per year. This transition occurred through a process of global solidarity, redistribution, and socially just downscaling in the Global North. Economic systems had been restructured to prioritize human and environmental well-being over unlimited growth. You can read the edited version of this vision below.

THE EU 1.5° LIFESTYLES VISION OF 2040

Let go of tension with every slow breath. You feel calm and well. There is nothing to be achieved right now, nothing to be competed over. Everything is already there, there is enough for all – a good life for all.

We find ourselves waking up in 2040, some years in the future. Today is an important day. This day is celebrated as the Global Fossil Free Day. Global net emissions have been reduced significantly to not much more than 1t of carbon equivalents per person and year. This has happened without shifting tremendous costs to other spaces, species, or generations, but in a process of global solidarity, redistribution and socially just downscaling in the Global North. There has been large-scale change in the economic system, to bring it in line with the goals of human and environmental flourishing.

On this day of global celebration, you wake up in your bed and wonder: how will I celebrate this day? Slowly, you leave your bed, and you open the window to take a breath of fresh air.

You look out into this world, what do you see from your windows?

What do you hear?

You go inside to have breakfast in your living arrangement, with people you selected yourself and the way you always imagined to live. Who else is there with you?

What does this place look like?

In the recent past, millions of houses were renovated and insulated to increase energy efficiency and provide for better quality of living. To provide the basis for a good life for all while reducing emissions, we also adapted our ways of living. New forms of co-living and sharing increased people's quality of life, the strength of community, all while reducing emissions.

While preparing your food, you are full of gratitude for everyone involved in its production. You imagine the place where the food comes from. As a solution for moving towards sustainable, healthy and climate-neutral food systems, societies reduced their agricultural production of meat, dairy and other animal products by 90%. Whether we are vegans, vegetarians, or not, we all now eat much more plant-based food. Meat, dairy, and other animal products play only a small role in our everyday lives. Societies also banned the majority of pesticides and synthetic fertilisers previously used and produced by fossil fuels, as they threatened the pollinating insects, we needed to grow crops. After having lost 90% of insects in 2022, we have focused our attention to the biodiversity crisis and insect species are now in recovery.

You leave your house and move through your city. The ways of mobility and getting around changed completely in the transformation of the last decade, in the bid to reduce emissions and allow for better public mobility. Car ownership and use has declined to a fraction of its size, with new forms of public mobility and cycling infrastructure allowing all citizens to get around. Your home city is more of a cycling city now. Instead of owning a car, people now rent one for the few occasions they need one, like when they are moving house. To get around for our daily needs, we can take one of the tramlines and the buses that are now electrified. Today in 2040, the streets look very different compared to 15 years ago. So much public space has been freed up for other activities. Some roads are now only for non-motorised mobility, safe to cycle and easy to walk, with space for children to play, fruit and nut trees growing on the roadside, and raised beds for growing vegetables and cultivating mushrooms. What other new solutions have the municipal utilities come up with for public transport that you can see around you? Which type of mobility do you choose today to get around? How do you feel outside in these new streets?

The way we spend our leisure time and go on vacation has also changed tremendously, with these new forms of mobility. We now have more time in nature, and enjoy intensive community-life, and to see friends and family. Your thoughts wander to the days ahead of you. Since work plays a much smaller role in life, you plan what you are doing instead. You meet a friend on the streets. And you talk about the rest of the world out there.

Aviation was reduced by over 90 percent to decrease the emissions from leisure and business. and while some people were initially sad, new forms of sustainable travel have taken its place, including long-distance rail networks, high speed night trains, and low-carbon ocean-liners combining sails with solar energy and battery power. While travel can be a bit slower these days, we also have more free time to get to our destinations.

Where do you plan to go and how do you organise your vacation in this world?

What else has changed for us when we travel?

How do you personally connect between different places?

Since you have more time-freedom, what is it that you will do passionately today, what is its purpose?

What will you do for yourself, what for others?

How do others around you spend their free time?

When you look around, you see that a lot has changed. Not everybody was happy with the decisions taken, some were scared. Most people soon realised that compromises had to be made to stay within a “safe and just” space and allow societies to thrive. While not everything that used to be normal is possible now, most people think that’s okay, since we have seen an

increase in wellbeing and happiness. You take a moment to think back to what it was that helped most people to develop trust in the changes - and which people, circumstances, and efforts contributed to that.

In this world, there is still conflict, since we are humans. How is it mediated? How are decisions made?

The day is coming to an end. On your way home you take another look around and enjoy what you see. People are alive, you are alive.

How do you spend your evening and your free time?

You are back at home. Before you fall asleep, you are still ruminating on some questions:

- What do you like about your life now in this changed world?
- What has been a challenge?
- What system changes were needed to help you transition?

Before long, you are asleep. You wake up, back in the present.

This is the end of our vision, but the start to you thinking about your own vision for the future.

- What did you like about this vision?
- What would you change?
- What does your own vision look like?

CONCLUSION

Co-creation and positive narratives are essential tools for envisioning and achieving 1.5°C lifestyles. By engaging individuals in participatory processes, co-creation fosters innovation, inclusivity, and shared responsibility. Positive narratives help to counteract fear and resistance by emphasizing the benefits of sustainable living, providing hope, and inspiring collective action.

Ultimately, the transition to sustainable lifestyles is a collective endeavour. By fostering dialogue, collaboration, and positive storytelling, we can build the momentum needed to make 1.5° lifestyles a reality.

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MODULE 3

1.5° SOCIETIES & STRUCTURAL CHANGE

CHAPTER 13 _ INTRODUCTION TO MODULE 3

Halliki Kreinin

Achieving 1.5° lifestyles requires not only individual behavioural shifts but also deep structural changes across economic, political, and societal systems. While personal choices—such as adopting sustainable diets, reducing consumption, and choosing low-carbon mobility—are crucial, these choices are often shaped, enabled, or constrained by the larger structures in which we live. Module 3 explores how societal structures either enable or hinder transformation towards sustainable lifestyles and examines the role of individual and collective actions in shaping these structures.

Striving for 1.5° lifestyles, aligned with the Paris Agreement's climate goal, is a task that falls on each of us according to our unique capabilities. This responsibility extends beyond our roles as consumers; it encompasses our roles as professionals, employers or employees, citizens, community members, educators, and family members. Our ability to act—and the level of responsibility we hold—is influenced by our access to resources, decision-making power, and the structural factors that either support or obstruct sustainable lifestyles.

However, our societies today are not structurally designed for sustainability. The dominant economic model, focused on endless growth, often prioritises profits over ecological and social well-being. Economic inequalities create disparities in access to resources, making sustainable choices difficult for many. Vested interests—from powerful corporations to financial elites—continue to exert influence over policies and regulations, protecting high-emission industries and delaying ambitious climate action. Additionally, the true environmental costs of production and consumption are frequently externalised—meaning that industries often shift the costs of pollution, resource depletion, and carbon emissions onto society, rather than paying for them themselves.

In Module 3, we examine how these structures operate and what can be done to change them. We explore seven key areas that are fundamental for shifting societies toward sustainability, equity, and resilience.

While individuals can make a difference through personal choices, systemic transformation requires collective action. Societal change happens when governments, businesses, and citizens work together to redefine the rules of the game. Public policies, citizen movements, and corporate leadership must align to reshape economic incentives, infrastructure, and cultural norms.

Throughout this module, we will explore how people working together can drive meaningful structural shifts. The transition to 1.5° lifestyles is not just about avoiding harm, but about creating a world where well-being, equity, and sustainability are at the core of human progress.

By the end of this module, you will have a deeper understanding of how societal structures shape behaviour, how these structures can be transformed, and how you can contribute to the transition toward a just and sustainable future.

CHAPTER 14 _ STRUCTURAL CHANGE FOR 1.5° SOCIETIES: THE 7 KEY STRUCTURES

Pia Mamut and Jeremy Philipp

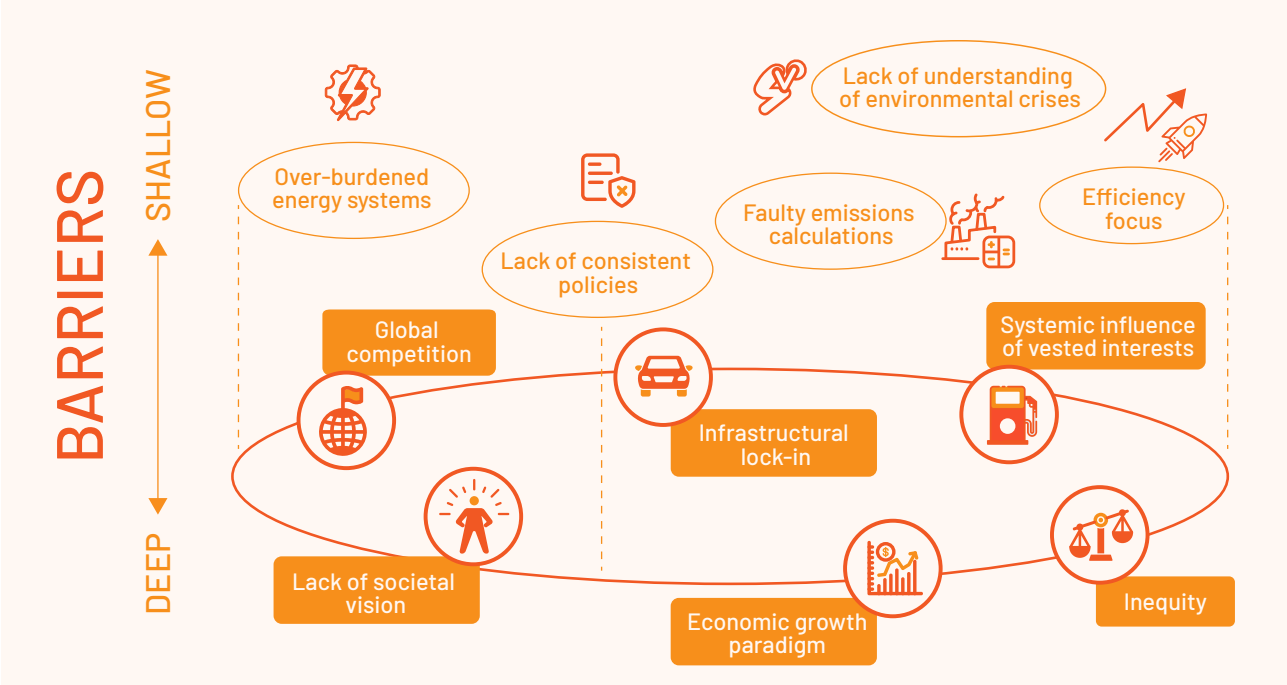
Achieving 1.5° lifestyles requires not only individual behavioral shifts but also deep structural changes across economic, political, and societal systems. This chapter explores how societal structures either enable or hinder transformation towards sustainable lifestyles and examines the role of individual and collective actions in shaping these structures.

STRUCTURAL BARRIERS AND ENABLERS

When discussing "structures," we refer to the underlying systems and frameworks that shape our actions. These include both tangible, material aspects like economic and technological factors, and intangible, ideational factors like cultural norms and values. For instance, living in an urban area with efficient public transport and good cycling infrastructure makes it easier to adopt a low-carbon lifestyle by reducing reliance on cars. Similarly, societal norms that separate social status from car ownership support a transition away from car dependency.

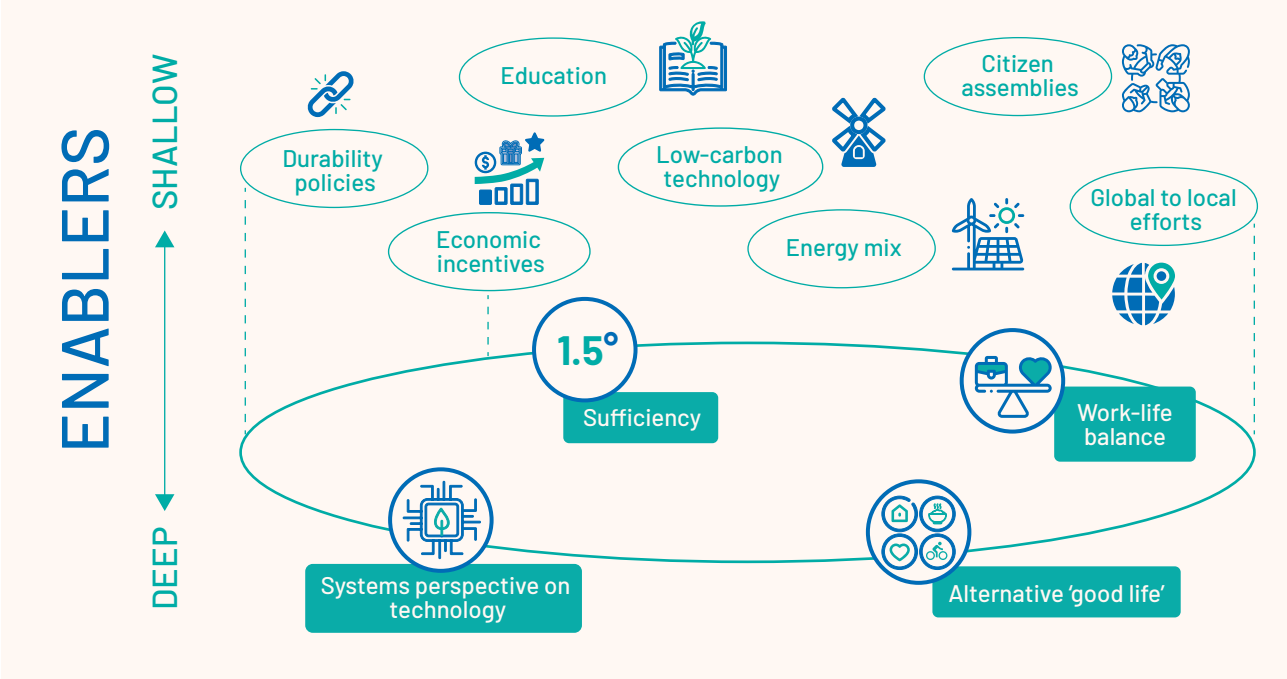
To better understand structural change, we can categorise structures as either barriers to or enablers of 1.5° lifestyles, and as shallow or deep, based on the extent and nature of their influence.

Shallow structural barriers, akin to the visible tip of an iceberg, are easily identifiable and directly impact behaviour, typically relating to immediate, concrete aspects. Examples include inadequate policies, pricing gaps, and deficient technological infrastructures, all of which impede sustainable living. In contrast, deep structural barriers, like the vast, concealed portion of an iceberg below the waterline, are deeply ingrained and wield a more extensive influence.



They usually involve entrenched power imbalances, economic growth paradigms, and societal acceptance of high-consumption lifestyles.

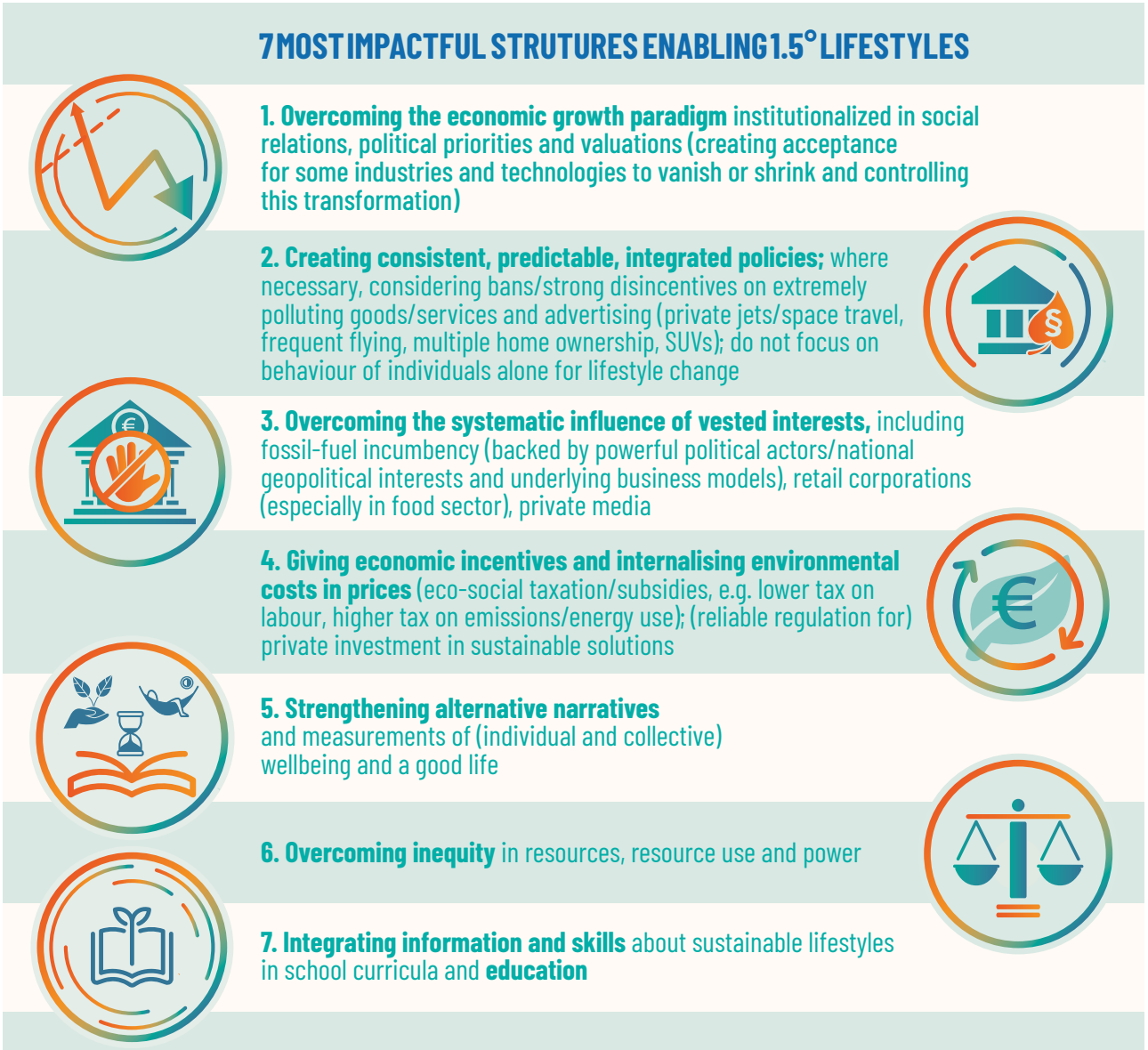
Conversely, shallow structural enablers such as legislative measures, financial incentives, and sustainability criteria can facilitate 1.5° lifestyles. Technological advancements and a rising demand for sustainable products also fall into this category. Deep structural enablers, which are less apparent, involve fundamental shifts in societal norms and power structures. These include strong political commitment and cultural shifts toward new value systems, such as the promotion of local economies and sharing systems.



KEY STRUCTURAL BARRIERS AND ENABLERS FOR ACHIEVING 1.5° LIFESTYLES

A thorough study involving a detailed look at international research and expert interviews as part of the "EU 1.5° Lifestyles" project has identified the most impactful structural barriers and enablers.

The first three structures identified—the economic growth paradigm, inequities in resource access and power, and the influence of vested interests—explain why, despite growing ecological and social pressures, a shift towards sustainable lifestyles has not yet gained the necessary momentum. The economic growth paradigm is the most significant barrier, as experts argue that transforming the economic framework is crucial, far outweighing technological solutions. However, such transformation requires addressing deep-rooted inequalities and power imbalances, particularly between the Global North and South. More radical lifestyle changes will require challenging vested interests in sectors such as private media, retail, and fossil fuels.



Source: Whole School Food Approach and Triple Action Approach by SchoolFood4Change

Further structural factors include economic incentives, internalizing environmental costs, consistent policy development, education reforms, and the promotion of alternative well-being narratives. These elements act as catalysts that facilitate the structural transformations necessary for a 1.5° shift. Economic incentives for sustainability could include tax changes, subsidies for green solutions, and clear regulations. Effective policies might ban or discourage highly polluting activities, like frequent flying and excessive home ownership, without focusing solely on personal behaviour changes. Education should integrate sustainability principles into all learning programs. A key part of the transition involves promoting alternative narratives of well-being that focus on quality of life rather than material consumption.

INDIVIDUAL AND COLLECTIVE RESPONSIBILITIES FOR STRUCTURAL CHANGE

A transformation towards 1.5° lifestyles requires both individual and collective responsibility. While structural barriers exist, individuals retain some agency and decision-making power, making them partly accountable for outcomes. Structural factors should not be used as excuses for inaction or to justify highly polluting behaviours.

Everyone, in their capacity as a consumer, citizen, employer, or employee, can contribute to environmental protection and social justice by shaping structures and promoting sustainable consumption and production patterns. Reducing personal carbon footprints is essential, but so is expanding one's "handprint" by influencing institutions and businesses. This can involve advocating for sustainable options in workplaces, schools, and communities, engaging in political activism, and forming new alliances to push for systemic change.

In conclusion, achieving 1.5° lifestyles requires challenging societal norms, adopting new values, and prioritizing well-being over material wealth. This transformation is a shared responsibility that demands bold systemic shifts to create a sustainable and equitable future.

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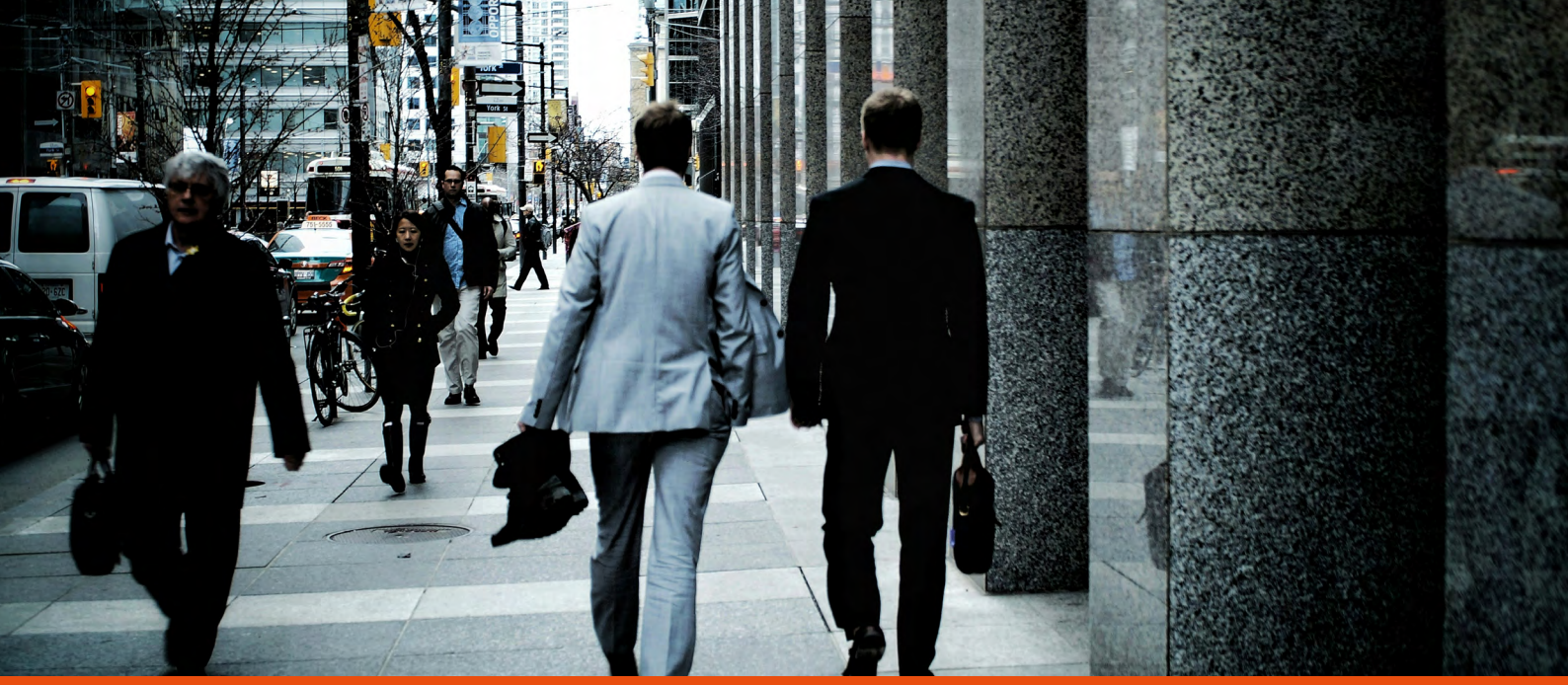


CHAPTER 15 _ OVERCOMING THE ECONOMIC GROWTH PARADIGM

Halliki Kreinin

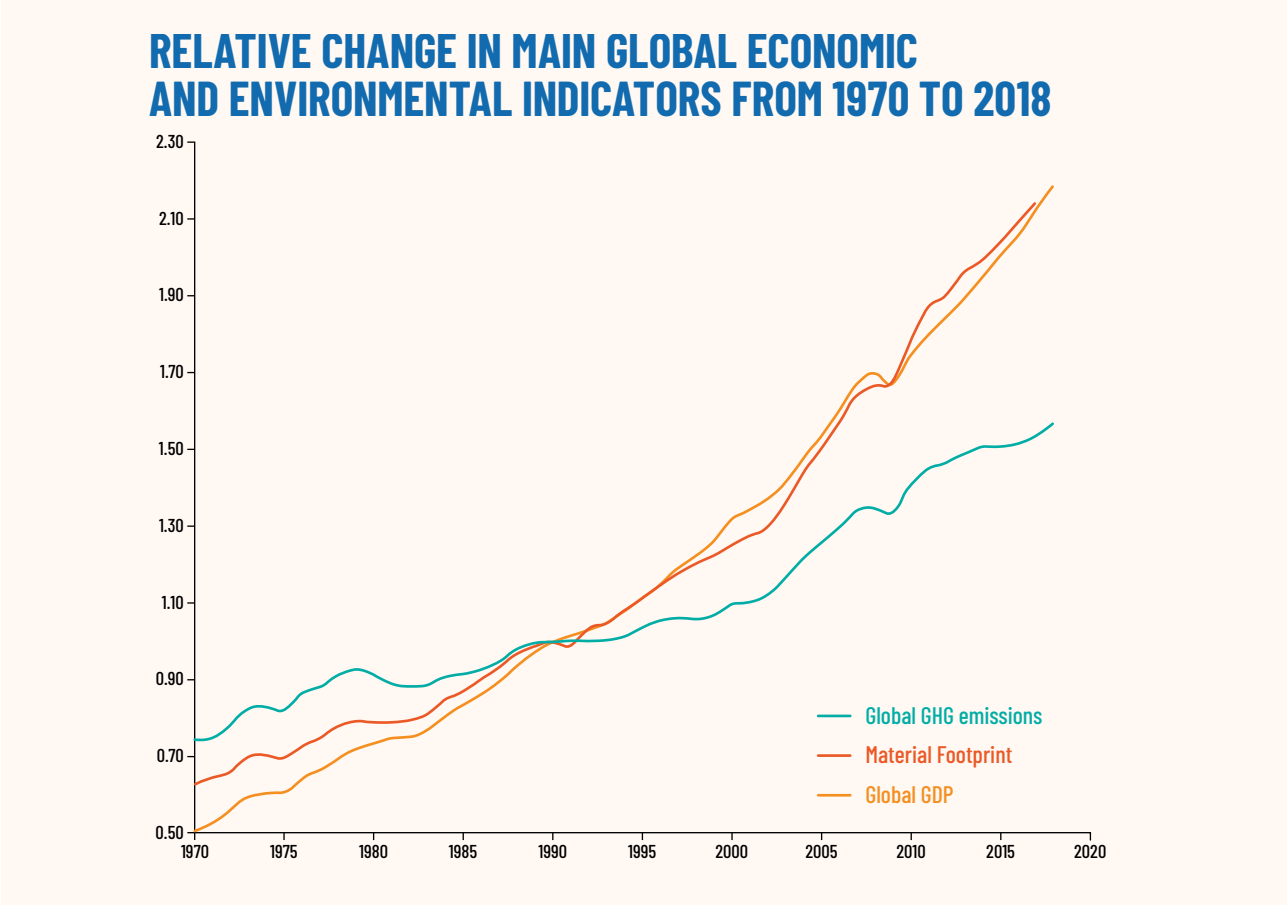
In this chapter, we will explore the relationship between economic growth and sustainability. In the pursuit of progress, societies have historically leaned heavily on perpetual growth. Economic growth is no longer merely a means to meet our basic needs; it has become an ideology—this is what we mean by the economic growth paradigm. The reliance on economic growth as a foundational structure for societal well-being, and a deep belief in its benefits despite its negative environmental effects – is now considered the most important structural barrier to achieving 1.5° lifestyles.

Economic growth is measured by indicators like the Gross Domestic Product or GDP. GDP acts like a scoreboard for a country's economy and production in a given timeframe, typically annually or on a quarterly basis. It adds up the value of everything made and done in that country, like the stuff we buy, the money businesses invest, what the government spends, and the difference between what the country sells to other countries and what it buys from them.

However, GDP does not account for the well-being of a country. Even if a country has high GDP, it doesn't necessarily mean that many or even most people in that country are enjoying a high quality of life or prosperity. Indeed, it is possible for GDP to go up while life expectancy and welfare decreases. GDP doesn't consider factors related to health, life expectancy, or education, or the value of unpaid activities such as care work. Furthermore, GDP does not reflect the social and political conditions or instability within a country.

GDP of course also does not consider the impact of economic activities on the environment, such as pollution, deforestation, or resource depletion, which might undermine future societal and also economic goals.

The graph below shows the close relationship between GDP growth, emissions, and material use globally. The blue line (greenhouse gas emissions) grows slightly less rapidly than the green line (global GDP), indicating that we have become somewhat more efficient in production, emitting slightly less relative to economic output. However, overall, when GDP increases, emissions also rise. The red line, representing the material footprint, closely follows GDP, suggesting that while reducing GHG emissions relative to GDP may be somewhat achievable, decoupling economic growth from material use remains highly challenging. This highlights the difficulty of mitigating the environmental impact of increased GDP and production



Source: European Environmental Agency (2021) "Growth without economic growth"

THE HISTORY OF GROWTH DEPENDENCE AND THE GROWTH PARADIGM

The roots of the growth paradigm can be traced back to the Industrial Revolution. The 19th century played a crucial role in shaping the belief in modernity, technology, and economic growth. The time when the Industrial Revolution was in full swing is often referred to as an "empty" world, due to the perceived abundance of natural resources and pristine nature. Fuelled by the rapid industrialisation of the time, the pursuit of continuous economic growth appeared not only sensible but almost inevitable. This made sense in a world where most people lacked access to life's basics. The prevailing belief was that increased production and advancements in science and technology could emancipate the world—make life easier, longer, and more satisfying.

Countries also engaged in fierce competition for resources and this expansion of production was also marked by the dark shadows of war, colonialism, and the exploitation of slaves for production. Colonial ambitions fuelled exploitation and resource extraction, often at the expense of indigenous populations. In retrospect, while this time marked an era of remarkable technological progress, it is crucial to acknowledge the moral and ethical challenges that were intertwined with the pursuit of economic growth.

This optimism and pursuit of progress extended into the 20th century. The post—World War II era marked a turning point, where globalisation and new technologies became key drivers of economic growth. In the capitalist context, economic growth was intertwined with the very fabric of the economic system. With its focus on private ownership and market-driven forces, capitalism relies on continuous expansion and wealth accumulation. But the focus on economic growth was the cornerstone of all economic models of this era. The Soviet Union, despite its ostensibly different ideology, also focused on productivity and GDP growth, albeit through a centralised, planned economy. The Cold War rivalry between the capitalist West and the communist East, in essence, became a competition not just of political ideologies but also of economic growth models.

As we transitioned into the 21st century, the landscape has dramatically changed. The world is no longer "empty"; instead, we grapple with the consequences of human activity on the environment and confront the limits of finite resources. While many people still lack access to life's basics, or underconsumption, we now live in a world of plenty, where almost all goods are overproduced on the market. The issue of underconsumption now is a question of a better division of infrastructure, goods and resources. The recognition of environmental degradation, climate change, and social inequality has led to a re-examination of growth models.

Concepts like degrowth and postgrowth—which focus on prioritising human well-being, sustainability, and equity over economic growth—have gained traction as alternatives to the growth paradigm. While economic growth might have led to progress in human development and welfare for some over the last few centuries, it is clear that we are now facing new challenges, which require 21st century solutions and new economic and social paradigms.

IMPACT ON NATURAL RESOURCES, ECOSYSTEMS AND SOCIAL STRUCTURES

Economic growth is fundamentally linked to increased energy use. Growth rates in the past have been primarily due to the availability of cheap energy from coal, oil, or gas – which has fuelled new technologies and higher rates of productivity. The pursuit of economic growth, especially the associated increased use of energy, has had profound implications for our natural resources and ecosystems. From fossil fuels to minerals and water, the demand for resources exceeds the planet's capacity for renewal. Resource exploitation poses a threat to biodiversity, disrupts ecosystems, and exacerbates climate change.

While there are hopes for renewable energy to power our societies in a sustainable way, since renewable energy sources also require materials and natural resources, even they will not be able to power endless economic growth. This means that we need to reconsider the goal of economic growth.

Economic growth doesn't affect natural systems alone; it echoes through social structures

as well. Income inequality, labour exploitation, and unequal access to resources are societal challenges exacerbated by certain growth models.

The benefits of growth, especially in the past two decades, have been distributed extremely unevenly, with material benefits of growth accruing mostly to those with existing wealth and high levels of overconsumption, with many of the poorest members of global societies becoming effectively poorer. According to Oxfam's (2024) analysis, between December 2019 and December 2021, the richest 1 percent of the global population captured 63 percent of the $42 trillion in new wealth created, amounting to approximately $26 trillion, more than the bottom 95 percent combined.

Many countries continue to face significant challenges in meeting the basic needs of their populations, including access to clean water, sanitation, healthcare, education, and infrastructure. In such contexts, improving living standards would likely also create economic growth, which, in itself, is not a problem. High-income countries that already have achieved relatively high levels of economic development and meet the needs of their populations should reduce excessive consumption and production and pivot away from the focus on economic growth. This would give low-income countries space to develop and meet the needs of their populations.

CHALLENGES OF DECOUPLING

Decoupling refers to the ability to separate economic growth from environmental degradation, particularly resource use and carbon emissions. It is often presented as a solution within the economic growth paradigm, where technological advances and efficiency improvements are expected to allow economies to achieve "green growth", or growth without a corresponding increase in environmental impacts.

But why discuss decoupling at all? The primary objective should be to improve human welfare and well-being, not to perpetuate the growth ideology. However, the reality is far more complex and significant challenges remain.

Despite advances in technology and efficiency, true decoupling—where economic growth is completely decoupled from emissions for extended periods of time—has been difficult to achieve. While some decoupling has been observed by high-income countries (at least in the short term), this progress falls significantly short of what is needed to meet global climate targets. Even the best-performing nations cannot achieve the necessary rates of decoupling to stay within their fair share of the carbon budget for limiting warming to 1.5°C (or 1.7°C) (Vogel & Hickel, 2023).

At current decoupling rates, high-income countries would need over 220 years to reduce CO_2 emissions by 95 percent, exceeding their carbon budgets by more than 27 times in the process (Vogel & Hickel, 2023). This shortfall means that continued economic growth in these nations not only exacerbates climate breakdown but also risks appropriating the carbon budget shares of lower-income countries and effectively undermining the Paris Agreement's goals. This reveals the limitations of green growth narratives, which often mask the real environmental impacts of continued economic expansion.

One of the key obstacles to decoupling is the Jevons paradox, a phenomenon that has been observed since the 19th century. This paradox occurs when improvements in efficiency,

rather than reducing overall consumption, actually increase resource use. For example, as technology makes energy use more efficient, the cost per unit of energy falls, which can lead to higher consumption as activities that were previously too resource intensive become feasible. In essence, efficiency gains can make resource use cheaper, thereby encouraging more consumption rather than conserving resources.

This paradox illustrates the limitations of relying solely on technological solutions within the current economic model. While innovations such as renewable energy, electric vehicles and smart technologies are crucial, they will not automatically reduce environmental impact if overall consumption patterns remain unchecked. So, efficiency alone is not enough; systemic change is essential. We need to address the underlying drivers of consumption and growth, such as societal values, economic incentives and market structures that prioritise profit and growth over sustainability and well-being.

While decoupling GDP growth from emissions is unlikely to be the answer, it is possible to decouple welfare from growth. Rather than equating progress with economic expansion, societies can focus on improving quality of life, promoting social equity and ensuring access to basic needs without continuously increasing production and resource consumption. This shift requires redefining what constitutes a good life, prioritising policies that support well-being, reducing excessive consumption and promoting sustainable practices at all levels of society.

Ultimately, the decoupling challenge highlights the need for a profound shift in the way we think about growth, prosperity and progress. The evidence suggests that to align with climate targets, high-income countries must shift from growth-driven models to degrowth and post-growth approaches that focus on sufficiency, equity, and well-being, reducing less essential production and consumption and accelerating decarbonisation efforts.

DEGROWTH

Degrowth is a research field and movement advocating for the scaling down of destructive production methods and moving away from growth-dependence, focusing on prioritising human well-being, ecological sustainability, and social equity. The approach focuses on limiting unnecessary growth in high-income nations, which consume beyond their fair share, acknowledging that economic growth could be a byproduct of ensuring adequate need satisfaction in low-income nations. Degrowth challenges the traditional belief in infinite growth and emphasises the need to reduce production and consumption to achieve sustainability, social well-being and equity. It advocates a deliberate downsizing of the global economy to align with the planet's ecological limits, prioritising human needs over relentless economic expansion. Key principles of degrowth include promoting sustainability, fostering localised economies, increasing social equity and ensuring that well-being is decoupled from high resource consumption. In response to the environmental and social challenges posed by the current growth model, degrowth seeks to redefine progress in ways that are ecologically sustainable and socially equitable.

POSTGROWTH

While degrowth research focuses on the need to reduce levels of production and growth, postgrowth approaches focus on how to transition to a society where economic growth is no longer the goal, and how to achieve welfare in social and economic systems without economic growth.

CONCLUSION

Societies today must grapple with the challenge of redefining prosperity beyond the traditional metrics of growth. It is an invitation to reimagine progress within the boundaries of ecological sustainability and social equity. We can and must overcome the growth dependence of modern societies to enable sustainable societal welfare and 1.5° lifestyles.

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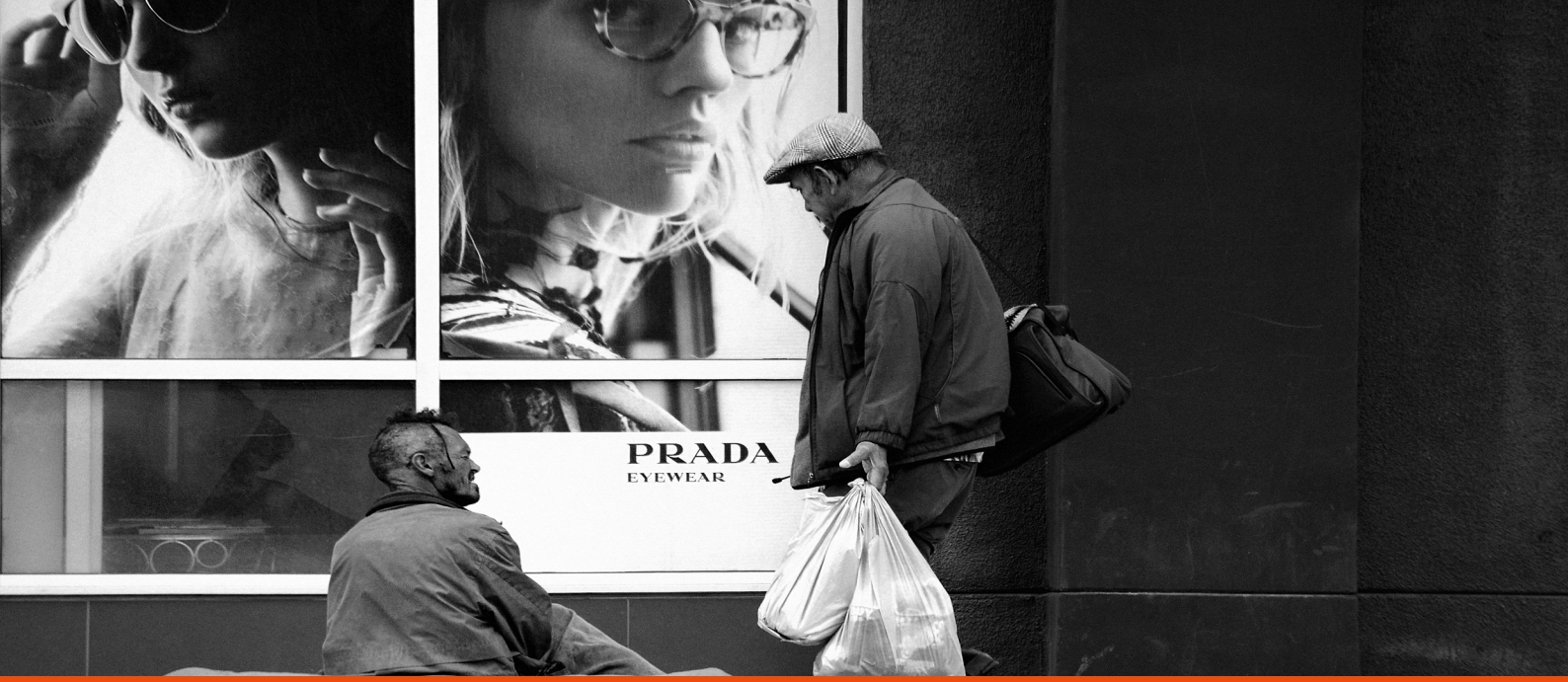

CHAPTER 16 _ OVERCOMING INEQUALITIES

Luca Coscieme, Magnus Bengtsson, and Dana Vigran

Inequality plays a crucial role in shaping social and environmental outcomes. While modern societies have made significant progress in improving living standards, this progress is not distributed equally within and between countries. Income disparities create inequalities in opportunities, well-being, and environmental impacts. Notably, income inequality is linked to overconsumption and increasing carbon emissions. This chapter explores the social impacts of inequality, the inequality of carbon footprints, and the ways in which reducing inequality is essential for mitigating climate change and achieving a sustainable future.

While economic development has led to improvements in health, education, and overall quality of life, these benefits have not been equally shared. Income inequality contributes to a range of negative social and environmental effects. Societies with high levels of inequality experience poorer health outcomes, increased crime rates, and environmental degradation. The consequences of these disparities affect not just the most disadvantaged but society as a whole, including wealthier individuals.

INEQUALITY AND WELL-BEING

Research has shown that more unequal societies tend to have lower overall well-being. Some of the most profound effects of inequality are psychosocial, as income disparities reinforce differences in status and social class. Inequality creates stark contrasts in lifestyles, marked by the kind of car one drives, the clothes they wear, and the neighbourhood they live in. These visible differences fuel feelings of superiority in some and inferiority in others, undermining self-esteem and social cohesion.

Higher levels of income inequality are associated with worse health statistics, lower life expectancy, and higher child mortality rates. They also correlate with increased levels of anxiety, depression, and other mental disorders. Moreover, unequal societies tend to have lower voter turnout, less civic engagement, and diminished political participation. These factors collectively weaken democratic institutions and public trust.

CONSUMERISM AND THE SOCIAL PRESSURE TO CONSUME

Inequality fuels consumerism by reinforcing the link between wealth and self-worth. In societies with high income disparities, individuals feel pressure to purchase status symbols such as luxury homes, expensive cars, designer clothing, and extravagant vacations. Advertising expenditures tend to be higher in more unequal societies, further driving conspicuous consumption. The lifestyles of the wealthiest individuals set aspirational standards that others attempt to emulate, regardless of financial constraints.

This type of consumption is particularly harmful to the environment, as it contributes to excessive resource use and high carbon footprints. The pursuit of material wealth and social status results in unsustainable consumption patterns that are incompatible with a just and ecologically stable future.

INEQUALITIES IN CARBON FOOTPRINTS

Inequality is at the core of many environmental crises, including climate change. Disparities in wealth translate directly into disparities in carbon emissions. Wealthier individuals and countries tend to have far larger carbon footprints, while the poorest segments of the population contribute minimally to climate change.

According to research by Oxfam, the richest 10 percent of the global population is responsible for approximately 50 percent of global carbon emissions, while the poorest 50 percent contribute only 8 percent. In 2019, the richest 1 percent was responsible for as much emissions as the poorest 66 percent combined. Since the 1990s, the top 1 percent of earners has burned through twice as much of the global carbon budget as the poorest half of humanity.

Annual emissions from the wealthiest individuals alone are substantial enough to negate the carbon savings from nearly a million onshore wind turbines. These emissions have real-world consequences, including an estimated 1.3 million deaths caused by extreme heat linked to climate change. The stark inequality in carbon emissions highlights the necessity of addressing excessive consumption among the wealthy as part of any meaningful climate mitigation strategy.

THE IMPACT OF HIGH-CONSUMPTION LIFESTYLES

High-income individuals have greater financial capacity to engage in carbon-intensive activities, including frequent air travel, the ownership of multiple homes, and the purchase of resource-intensive goods. These behaviours are not just a reflection of individual choices but are embedded in systems that promote continuous economic growth and consumption.

In contrast, low-income communities—who contribute the least to climate change—are often the most vulnerable to its effects. They lack the resources to protect themselves from climate-related disasters such as floods, wildfires, and extreme heatwaves. This discrepancy further exacerbates social and economic inequalities, creating a vicious cycle in which marginalised

populations bear the brunt of climate change while having the least ability to mitigate or adapt to its consequences.

THE INTERLINKED CLIMATE AND INEQUALITY CRISES

The climate crisis and inequality crisis are deeply interconnected. Growing disparities between the wealthiest individuals and the rest of society lead to unsustainable consumption patterns that accelerate global carbon emissions. Simultaneously, the poorest communities, particularly in the Global South, suffer the most from climate-related disasters, food and water scarcity, and displacement.

Marginalised groups—including women, people of colour, refugees, and Indigenous communities—are disproportionately affected by climate change. Many of these populations live in regions that are already experiencing severe environmental degradation and lack the financial and institutional support to recover from climate shocks. Climate-induced displacement is expected to rise in the coming decades, further straining social and economic systems.

As inequalities widen, social tensions also intensify. Societies experiencing deep economic divides tend to have lower levels of trust, making it more challenging to implement climate policies that require collective action. Resistance to climate action often stems from fears that the economic burden of sustainability measures will fall disproportionately on lower-income groups, while the wealthiest individuals continue to enjoy high-emission lifestyles with little accountability.

THE NEED FOR SYSTEMIC SOLUTIONS

Addressing both climate change and inequality requires systemic solutions that target excessive consumption and promote social equity. Policies aimed at reducing inequality are essential for creating fair and effective climate policies. Key policy measures include (1) progressive taxation on wealth, income, energy use, and luxury consumption to ensure a more equitable distribution of resources; (2) regulation of excessive consumption and establishing policies that discourage wasteful consumption, such as luxury taxes on private jets, high-emission vehicles, and second homes; (3) pay ratio limits, including introducing caps on income disparities within corporations to ensure fairer compensation structures; (4) social safety nets, including strengthening social security programs to support lower-income populations and ensure access to essential services; as well as (5) incentives for sustainable living: providing financial and policy incentives for businesses and individuals to adopt sustainable practices, such as subsidizing public transport and renewable energy.

CONCLUSION

Reducing inequality is not just a matter of social justice—it is a fundamental precondition for addressing the climate crisis. The current trajectory of growing income disparities and unsustainable consumption patterns threatens both environmental and societal stability. A small fraction of the global population is responsible for a disproportionately large share of carbon emissions, while the most vulnerable communities suffer the worst consequences of climate change.

To create a sustainable future, policymakers must act decisively to curb extreme wealth accumulation and ensure a fairer distribution of resources. Tackling inequality requires policies that promote economic fairness, regulate excessive consumption, and provide support for the most vulnerable. Without addressing inequality, efforts to combat climate change will be significantly undermined.

By prioritizing equity in climate policies, societies can not only reduce carbon emissions but also foster greater social cohesion, economic resilience, and overall well-being. The path to a just and sustainable world depends on recognizing that environmental and social justice are inherently interconnected.

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CHAPTER 17 _ OVERCOMING THE SYSTEMATIC INFLUENCE OF VESTED INTERESTS

Lea Becker and Doris Fuchs

In this chapter, we explore the nature of business power and its instrumental, structural, and discursive dimensions. We analyze how these dimensions create significant barriers to sustainability, preventing the adoption of policies that could facilitate 1.5° lifestyles. Finally, we discuss strategies for countering vested interests, restoring democratic processes, and advancing pathways toward a sustainable and equitable future.

Achieving a sustainable future and promoting 1.5°C lifestyles require structural transformation. However, one of the greatest obstacles to this transformation is the influence of vested interests—particularly those of large business corporations, transnational entities, and elite economic actors. These vested interests benefit from the status quo and actively resist systemic changes that could disrupt their economic and political dominance.

To understand the challenge of vested interests, we must first delve into the core of business power—the ability of economic actors to successfully achieve their goals. Business power extends beyond markets and influences political, regulatory, and social structures. We can categorise this power into three dimensions:

(1) instrumental power refers to the direct influence of businesses over political decision-making. This influence is exerted through lobbying, financial contributions to political campaigns, and privileged access to policymakers. Large corporations use their financial, organisational, and human resources to advocate for policies that serve their interests—often at the expense of social and environmental well-being. A key mechanism of instrumental power is the revolving door phenomenon, where government officials and policymakers transition into

lucrative positions within industries they previously regulated. This creates conflicts of interest and erodes the integrity of democratic decision-making. For instance, in the European Union (EU), corporate lobbying in Brussels vastly outnumbers civil society organisations. Industry actors not only outspend environmental and social advocacy groups but also enjoy significantly greater access to decision-makers. This reality is mirrored across national, regional, and local governments worldwide.

(2) Structural power allows businesses to shape economic and political systems indirectly, ensuring that their interests are deeply embedded in governance frameworks. This power manifests in two key ways: agenda-setting power and rule-setting power. When it comes to agenda-setting power, large corporations use their transnational reach and capital mobility to set the policy agenda—or prevent certain issues from even being discussed. Governments often avoid regulating industries too strictly out of fear that businesses will relocate to more lenient jurisdictions, leading to job losses and economic instability. This creates a race to the bottom, where countries hesitate to implement ambitious climate policies. When it comes to rule-setting power, corporations do not merely follow regulations—they create their own. By developing private standards, industry groups determine market access and competitive advantages. While some of these standards may appear environmentally progressive, they often serve to pre-empt stricter governmental regulations, ensuring that industry-friendly rules prevail.

(3) Discursive power operates on the level of ideas, norms, and values, influencing how political issues are framed. Business actors shape public discourse through media influence, think tanks, and public relations campaigns. Corporations position themselves as innovative problem-solvers, while governments are often framed as bureaucratic, inefficient, or corrupt. The fossil fuel industry has invested heavily in framing climate change as uncertain, delaying meaningful policy action for decades. Business-friendly narratives promote economic growth at all costs, making alternative models such as degrowth and sufficiency appear unrealistic or radical. By controlling narratives, businesses shape public perceptions, limiting political will for transformative change.

The combined impact of instrumental, structural, and discursive power results in a powerful force protecting the status quo. Many corporations and elite economic actors thrive under the current unsustainable economic model—one based on fossil fuel dependence, excessive consumption, and unchecked resource exploitation.

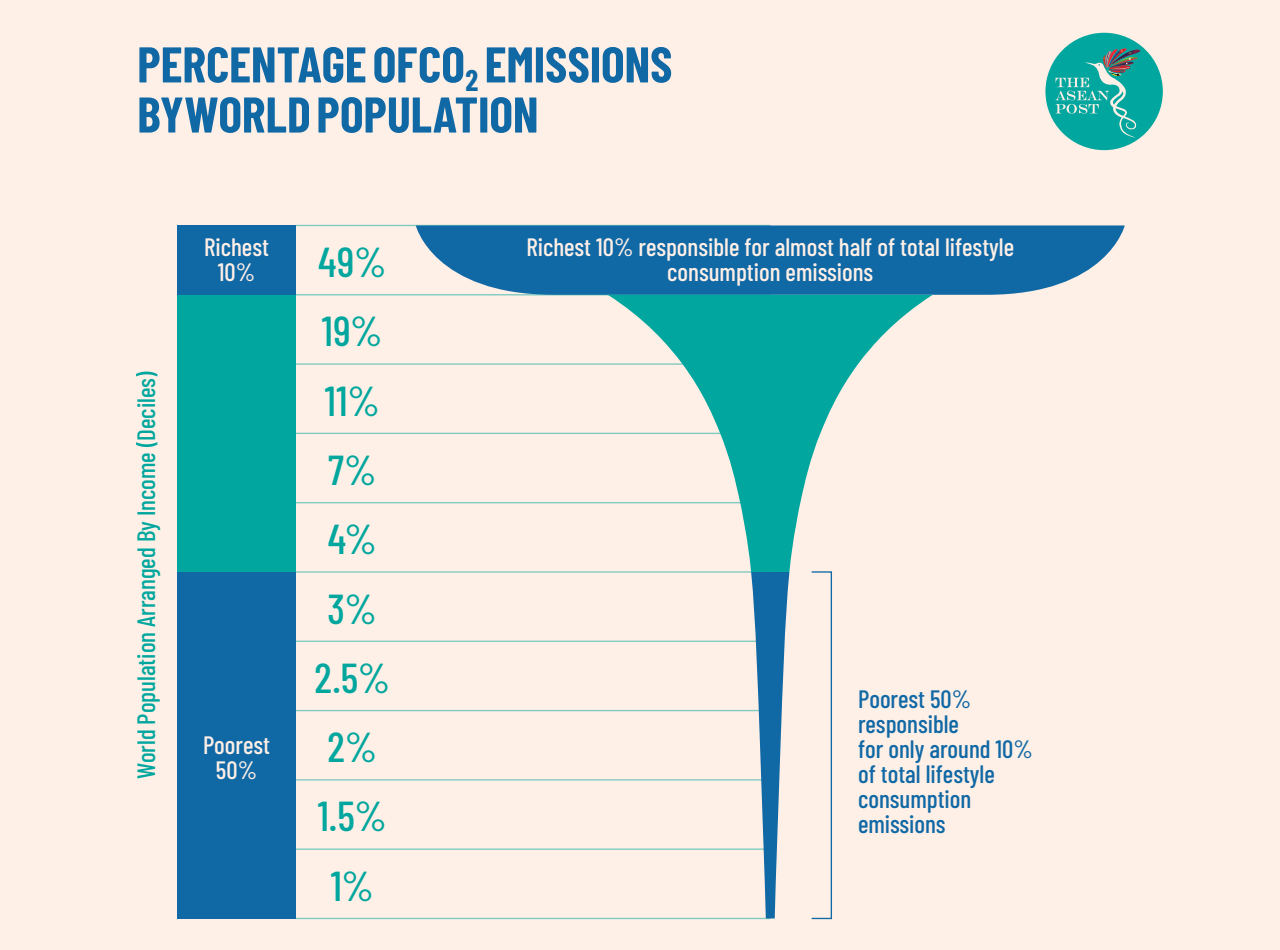
VESTED INTERESTS AND CLIMATE INACTION

Many of the most politically influential actors today are those that benefit financially from the fossil fuel economy. Their power prevents the enactment of policies that could transition societies toward low-carbon, equitable systems.

Vested interests have blocked or delayed climate legislation through legal challenges and aggressive lobbying, promoted technological solutions (such as carbon capture) to distract from necessary lifestyle changes and resisted regulations on emissions, taxation, and wealth redistribution, preserving their economic dominance.

The top 10 percent of global income earners are responsible for nearly half of global emissions. Within this group, the wealthiest 1 percent alone emits more than the poorest 66 percent combined. This concentration of emissions is not just about individual consumption —

it is about the economic structures and financial investments that sustain fossil fuel industries and high-emission production models. As long as corporate and financial elites continue to profit from environmental destruction, policies aiming for deep transformation will face severe resistance.



Source: Oxfam, 2015

SOLUTIONS: COUNTERING VESTED INTERESTS

Given the overwhelming influence of vested interests, what can be done to challenge their power and restore democratic control over climate governance? Two core strategies are essential – exposing business power and building collective power.

One of the most effective ways to challenge vested interests is to make their influence visible. This includes investigative journalism exposing corporate lobbying efforts and political donations, public campaigns highlighting how business interests often undermine environmental and social policies, and strengthening transparency and accountability laws to limit corporate influence in politics. Despite the enormous power of business lobbies, their impact often remains invisible to the general public. Making this influence explicit is a first step toward dismantling it.

To counter business power, citizen engagement in political processes must be significantly strengthened. Key actions include supporting civil society organisations, as advocacy groups working on transparency, climate action, and corporate accountability need broad-based public support. Participatory democratic mechanisms such as citizen assemblies—where diverse groups of citizens shape climate policy—are also crucial for counterbalancing corporate influence. It is also necessary to push for systemic economic reforms, as advocating for progressive taxation, corporate regulation, and sustainable investment policies can help shift economic power away from elite interests.

Revitalizing democracy and restoring democratic decision-making are essential for overcoming vested interests. This means ensuring that citizens, not corporations, shape policy decisions and reducing financial influences in politics, such as corporate lobbying and campaign financing. Strengthening global governance mechanisms can help prevent businesses from using transnational loopholes to evade regulations.

Only by democratizing decision-making processes can societies create fair and effective policies that align with sustainability goals.

CONCLUSION

The transition to 1.5° lifestyles faces immense barriers from powerful economic actors invested in the current unsustainable system. Through instrumental, structural, and discursive power, businesses exert disproportionate influence over politics, regulatory frameworks, and public discourse. This power is used to delay climate action, block regulations, and maintain high-carbon economic models.

However, these vested interests are not invincible. By exposing business influence, strengthening citizen power, and restoring democratic decision-making, societies can overcome these obstacles and build a future based on equity, sustainability, and democratic governance.

Challenging vested interests is not just an environmental necessity—it is a prerequisite for creating a just and liveable world.

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CHAPTER 18 _ INTERNALISING ENVIRONMENTAL COSTS AND BENEFITS

Jessika Luth Richter

One of the fundamental challenges in transitioning to a 1.5° lifestyle is that environmental costs and benefits are not fully accounted for in current economic systems. The market often fails to reflect the true costs and benefits of economic activities, leading to inefficiencies and negative social and environmental consequences.

This chapter explores externalities, the unintended side effects of economic activities, and how they impact climate change. We discuss strategies for internalising externalities through mechanisms like carbon pricing, emissions trading schemes, and ecosystem service payments. Finally, we explore the challenges and controversies associated with internalising these costs and how different economic policies can be designed to ensure a just transition.

In markets, the prices of goods and services typically reflect production costs—such as labour, materials, and transportation—but they often fail to include broader environmental and social costs. These unaccounted-for costs and benefits are called externalities.

Externalities occur when the actions of producers or consumers affect others outside the direct market transaction. They can be either positive or negative. Negative externalities impose additional costs on society. These include pollution, deforestation, and greenhouse gas emissions, where the damages are borne by individuals, ecosystems, or future generations rather than those responsible for the pollution.

Positive externalities provide benefits beyond those directly involved in the transaction. For example, education benefits not only the individual but also society by increasing innovation and productivity. Similarly, planting trees improves air quality and biodiversity, benefiting communities beyond those who plant them.

Markets alone cannot efficiently distribute resources when externalities exist because prices fail to reflect their true societal cost or benefit. This often requires policy interventions to ensure that markets align private behaviour with broader social and environmental interests. Climate change represents one of the most significant examples of negative externalities.

Greenhouse gas (GHG) emissions are a classic case of a negative externality because they impose broad social costs that extend beyond the producer or consumer. These costs include amongst others extreme weather events requiring public investment in resilient infrastructure, health crises due to worsening air pollution, and biodiversity loss and agricultural disruptions affecting food security.

Despite these widespread impacts, businesses and individuals emitting carbon often do not pay the full cost of their emissions. Instead, these costs are absorbed by governments, communities, and future generations.

While climate change generates severe negative externalities, certain sustainable behaviours create positive externalities. For example, investing in renewable energy benefits society by reducing pollution and improving public health, while forest conservation sequesters carbon, protects biodiversity, and stabilizes ecosystems. Furthermore, public transportation systems reduce congestion, lower emissions, and improve urban air quality. These benefits extend beyond the immediate users or investors, highlighting the need for incentives to encourage sustainable actions.

INTERNALISING EXTERNALITIES: THE ROLE OF POLICY

Addressing externalities requires internalisation—ensuring that environmental and social costs are reflected in market prices. Economic instruments such as taxes, subsidies, and market-based mechanisms help shift the burden of externalities onto those responsible.

The so-called "Pigouvian Approach" is named after economist Arthur Pigou who introduced the concept of internalising externalities by adjusting prices through taxes or subsidies. Negative externalities should be taxed to discourage harmful behaviours. For example, carbon taxes make fossil fuel use more expensive, reducing emissions. Positive externalities should be subsidized to encourage beneficial activities. For instance, renewable energy subsidies help make clean energy technologies more accessible. This principle aligns with the polluter pays principle (PPP)—those responsible for environmental harm should bear the cost of mitigation.

Carbon pricing mechanisms are one of the most common tools used to internalize the external costs of carbon emissions. Two main approaches are: (1) carbon taxes where governments set a fixed price per ton of carbon emitted, making pollution financially costly, and (2) emissions trading schemes (ETS). Also known as cap-and-trade systems, ETS aim to limit total emissions and allow companies to trade permits, encouraging cost-effective emission reductions. Under these schemes, a factory producing goods but also emitting carbon must pay for its pollution, thereby encouraging cleaner production methods.

Ecosystem services refer to the benefits nature provides, such as clean water, carbon sequestration, and biodiversity. These services often go unrecognized in market transactions. Policies that assign economic value to ecosystem services include payments for ecosystem services (PES) and biodiversity credits. Through PES, farmers or communities receive financial incentives for conservation efforts. Companies compensate for environmental impacts by

funding habitat restoration projects through biodiversity credits. For instance, a community protecting a forest contributes to climate mitigation, biodiversity, and water regulation. Policies that reward conservation efforts can promote sustainable practices.

CHALLENGES AND CONTROVERSIES

While internalizing externalities is essential for sustainability, it raises ethical, economic, and political challenges. Assigning a market price to environmental goods—such as forests, clean air, or biodiversity—is complex because valuing environmental goods is challenging. Values can vary by culture and geography (e.g., different communities may prioritize land use differently), while market valuations may undervalue long-term environmental benefits. Monetizing nature also risks commodification, potentially undermining intrinsic ecological and cultural values.

Internalizing externalities can also lead to higher costs for businesses and consumers. Carbon pricing raises energy prices, which can disproportionately affect low-income households, while fossil fuel-dependent industries face job losses, requiring just transition policies to support workers. Developing economies may also struggle with compliance, requiring international financial support. Effective policies must thus balance environmental goals with economic equity by redistributing revenues through social programs, rebates, or clean energy investments.

One method for estimating climate-related externalities is calculating the Social Cost of Carbon (SCC)—the estimated economic damage from one additional ton of CO_2 emissions. SCC helps policymakers set appropriate carbon prices by considering various factors, including agricultural losses, infrastructure damage from extreme weather, public health impacts, and ecosystem degradation.

A major debate in SCC calculations is the discount rate, which determines how future damages are valued today. A low discount rate (e.g., 1.4 percent), used in the Stern Review (2006), places high value on future generations, advocating immediate climate action. A higher discount rate (e.g., 3 percent), used in Nordhaus' DICE model, suggests a gradual transition, prioritizing economic efficiency and present generations. The choice of discount rate profoundly affects SCC estimates: higher discount rates reduce the estimated cost of emissions, potentially delaying action.

SCC calculations also differ globally due to regional vulnerabilities. Low-income countries suffer greater climate damages, increasing their SCC, while high-income countries may underestimate global equity concerns if using region-specific SCC values. This highlights the ethical dimension of climate economics: Should high-emission nations compensate those facing disproportionate climate risks?

CONCLUSION

The transition to 1.5° lifestyles requires fully accounting for environmental and social costs in economic decision-making. Externalities, particularly carbon emissions, create systemic market failures that must be corrected through carbon pricing, subsidies, and regulatory frameworks. However, policy design must be fair and inclusive, ensuring that the costs and benefits of sustainability transitions are equitably distributed. By internalising externalities, valuing ecosystem services, and applying the polluter pays principle, societies can create an economically efficient and socially just pathway toward climate stability. The question remains:

How can policies be designed to ensure both effectiveness and equity in addressing climate externalities?

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CHAPTER 19 _ BUSINESSES IN A 1.5° SOCIETY

Jānis Brizga

This chapter explores necessary changes to business models to align them with the 1.5°C goal. As climate change poses significant risks to the global economy and society, industries must adapt and innovate to mitigate its effects. Businesses must go beyond traditional profit-driven models and integrate sustainability principles into their operations. This transformation is driven by several interconnected factors that highlight the limitations and unsustainability of current business practices.

Traditional business models prioritise profit maximisation over environmental sustainability, exacerbating the climate crisis. The consequences of these models include climate change, biodiversity loss, and resource depletion, all of which are accelerated by unsustainable production and consumption patterns. Greenhouse gas emissions from industrial activities destabilise global ecosystems, leading to extreme weather, rising sea levels, and ecosystem collapse. Transitioning to sustainable business models is imperative to reduce emissions and limit global warming to 1.5°C.

Climate change is not only an environmental issue but also a major public health crisis. Air and water pollution, linked to unsustainable business practices, contribute to a rise in respiratory illnesses, cardiovascular diseases, and other health issues. By transitioning to low-carbon business models that reduce pollution and waste, industries can contribute to better public health outcomes, improving the overall quality of life for communities worldwide.

As global populations and consumption rates continue to rise, finite resources such as water, energy, and raw materials are becoming increasingly scarce. Traditional business models exacerbate this problem by relying on resource-intensive production methods, which accelerate depletion and increase environmental degradation. Transitioning to circular economy models—

which conserve resources, minimise waste, and promote long-term resilience—is essential for businesses to remain sustainable.

Not just government regulations but also consumer preferences are shifting toward sustainable and ethical products and services. Studies show that an increasing number of consumers prioritize environmental and social responsibility when making purchasing decisions. Businesses that align with these values and offer sustainable alternatives can tap into a growing market, gaining a competitive edge over those that continue unsustainable practices. This shift in demand not only promotes sustainability but also incentivizes companies to innovate and transition toward low-carbon business models

PRINCIPLES FOR ACHIEVING A 1.5° BUSINESS MODEL

To achieve a 1.5° business model, companies must fundamentally transform their operations. This transformation is guided by three key principles: substitution, efficiency, and sufficiency.

Substitution involves replacing unsustainable practices and products with sustainable alternatives, such as transitioning from fossil fuels to renewable energy, using biodegradable materials instead of plastics, or implementing low-carbon technologies to minimise emissions. By consistently integrating sustainable substitutions, businesses can drastically reduce their carbon footprint and align with global climate targets.

Efficiency focuses on reducing waste, lowering emissions, and maximizing productivity through measures such as upgrading to energy-efficient machinery and infrastructure, implementing lean manufacturing and waste-reduction strategies, or improving logistics and supply chain management to reduce emissions from transportation. Enhanced efficiency not only reduces environmental impact but also improves business competitiveness by cutting costs and increasing operational effectiveness.

Sufficiency ensures that businesses meet human needs without exceeding planetary boundaries. This principle promotes long-lasting, repairable products instead of short-lived, disposable goods, subscription- and sharing-based business models to reduce excessive consumption, as well as shifting away from mass production and overconsumption toward more sustainable and equitable markets. By adopting sufficiency-oriented approaches, businesses can support a sustainable economy that balances profitability with environmental and social responsibility.

POLICY OPTIONS TO SUPPORT BUSINESS TRANSITION

Research and expert insights highlight several policy options that foster low-carbon business practices and encourage companies to align with the 1.5°C target. These policies create incentives, regulations, and market conditions that promote sustainable business transformations.

Governments play a crucial role in restricting high-emission business practices through state-regulated restrictions, including bans on unsustainable products and processes (e.g., single-use plastics, coal-fired power plants), strict emissions limits for industries, and stronger enforcement of environmental laws. Challenges include corporate resistance, technological barriers, and public dissatisfaction, which can be addressed through information campaigns, sanctions, and international agreements.

Some businesses take proactive measures to reduce emissions voluntarily. While these initiatives demonstrate leadership, challenges such as lack of funding, consumer demand, and education can

hinder progress and uptake of voluntary corporate restrictions on high-emission practices. Solutions include eco-labelling to increase consumer awareness, corporate social responsibility (CSR) initiatives, as well as regulations that reward voluntary emissions reductions through tax benefits.

Governments can also incentivise sustainability by offering direct subsidies for renewable energy adoption, tax breaks for businesses investing in sustainability, and public-private partnerships for green innovation. However, public subsidies must be well-regulated to ensure cost-effectiveness and prevent misuse. To encourage businesses to prioritise sustainability alongside profit, such policies can mandate sustainability reporting for corporations, require non-financial performance indicators (e.g., carbon footprints, supply chain sustainability), and incentivise sustainable investment funds. Challenges to such policies include corporate reluctance and investor resistance, but increased public pressure and financial incentives can drive change.

Increasing taxes on resource extraction and pollution can also help encourage resource efficiency and waste reduction, make high-emission products less competitive, and help fund sustainable infrastructure projects. While such taxes face political opposition, transparent tax policies and revenue recycling programs can improve public acceptance.

Finally, governments can leverage public spending to support low-carbon businesses by prioritizing sustainable products and services in government contracts, investing in green infrastructure (e.g., renewable energy, public transport), and encouraging businesses to adopt circular economy models. Challenges such as limited public funding and political resistance can be overcome by educating decision-makers and strengthening climate-focused policies.

CONCLUSION

The transition to 1.5° business models is not only necessary for climate stability but also beneficial for businesses in the long run. Companies that embrace sustainability will be better positioned for future market conditions, consumer demands, and regulatory environments.

Achieving this transition will require a shift away from linear, high-emission business models toward sustainable and circular practices, as well as the adoption of the principles of substitution, efficiency, and sufficiency to align business strategies with climate goals. It will also require supportive policy frameworks that encourage businesses to invest in low-carbon solutions. As industries continue to evolve, businesses that proactively adapt will lead the way in building resilient economies and a sustainable future.

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CHAPTER 20 _ WELFARE POLICIES FOR A 1.5° SOCIETY

Kārlis Lakševics

This chapter explores the preconditions for sustainable welfare, the principles of eco-social well-being, and the welfare policies that can help societies transition to low-carbon lifestyles. The focus is on policies that reduce inequalities, enhance resource efficiency, and promote sustainable lifestyles, making welfare systems enablers rather than barriers to the 1.5° transition.

The transition to a 1.5° lifestyle requires fundamental changes to both welfare systems and economic structures. Traditionally, social policies and climate policies have been seen as separate, sometimes even conflicting. Welfare systems have often been designed to support economic growth, assuming that rising GDP would automatically improve social well-being. However, growing environmental concerns reveal that current economic and welfare models contribute to high resource consumption and greenhouse gas emissions, worsening both climate change and social inequalities.

Modern welfare systems are often misaligned with climate objectives because they rely on continued economic growth to fund social services. This dependency creates contradictions between environmental and social policies. Climate policies that reduce emissions, scale down high-emitting industries, or increase the cost of non-renewable energy may disproportionately burden vulnerable groups (e.g., low-income households, low-skilled workers, rural populations). At the same time, current economic and welfare models allow for overconsumption among wealthier segments of society, driving emissions beyond sustainable limits. A sustainable welfare model must address both excessive consumption and social deprivation while ensuring that the transition to a low-carbon economy is fair and just. This requires a new vision of welfare—

one that expands opportunities for some while capping excesses for others, integrating social and environmental goals rather than treating them as separate.

PRINCIPLES FOR ACHIEVING ECO-SOCIAL WELL-BEING

To integrate climate and welfare policies, we must decouple well-being from economic growth and ensure that human needs are met in a resource-efficient manner. Three key principles guide this transformation: (1) alternative narratives of a good life, (2) secure, fair and balanced work and income, and (3) resource-efficient public services.

When it comes to alternative narratives of a good life, the dominant economic model currently links well-being to high levels of consumption and material wealth, which are environmentally unsustainable. Sustainable welfare requires redefining well-being, shifting toward non-material forms of fulfilment, such as stronger social connections instead of consumerism, time affluence rather than financial wealth, and low-impact lifestyles that emphasise well-being over consumption. This shift is critical because high-income societies with high development levels also have some of the highest carbon footprints. Reimagining a good life beyond material consumption is necessary for a sustainable welfare state.

A sustainable welfare system must also ensure that citizens have secure, fair, and balanced work and income. Work must be secure and fairly paid to reduce economic precarity while more equitable income distribution prevents wealth concentration that drives excessive luxury emissions. Work-life balance is improved to allow people to take on more time-costly sustainable activities, while reducing working hours also leads to lower consumption. A low-carbon welfare model must rethink labour and income policies to ensure well-being without overconsumption.

Finally, resource-efficient public services are important as expanding high-quality, universal public services can reduce individual consumption needs, enabling people to live well with lower incomes. This means increasing investment in essential services, such as public transportation instead of private car ownership, affordable housing to prevent excessive resource use, and sustainable food systems that ensure access to healthy, low-carbon diets. By ensuring universal access to these services, societies can reduce overall resource demand while maintaining social well-being.

WELFARE POLICIES FOR LOW-CARBON SOCIETIES

Welfare policies that balance inequalities in income and services while ensuring sustainable consumption levels are key to achieving eco-social well-being. This can be done through public service expansion, labour policy reform, and income redistribution.

A key strategy for improving resource efficiency is expanding universal basic services (UBS). These services deliver essential needs more efficiently than private alternatives, reduce inequality by ensuring access to high-quality public goods, and enable lower incomes while maintaining well-being, reducing the drive for economic growth. Most UBS models currently focus on education and healthcare, but sustainable welfare systems advocate for state investment in additional low-carbon services.

Transportation is a major source of emissions, particularly from private car use. Many governments already subsidise public transport, but some have gone further. Luxembourg has introduced nationwide free public transport, while Tallinn (Estonia) offers free public transport

at the city level. Several European municipalities have also eliminated fares on specific routes. To be most effective, free or subsidised public transport must be paired with policies restricting car use, ensuring a shift away from high-emission mobility.

Housing represents a significant portion of energy consumption and emissions. Many governments offer renovation subsidies, but these often fail to target the most energy-inefficient buildings. A sustainable welfare policy should prioritise renovation for low-income and at-risk households, ensure high environmental standards for insulation and heating systems, and prevent housing market speculation that makes sustainable housing unaffordable. Expanding renovation support not only reduces emissions but also improves social equity, ensuring affordable, comfortable housing for all. Adequate funding mechanisms (e.g., taxation of high-carbon industries), high environmental standards to ensure actual emissions reductions, as well as efficient resource allocation to prevent unintended inequalities or inefficiencies are necessary to make this policy successful.

Beyond public services, income and labour policies must also align with sustainable welfare. These policies should reduce excessive work and consumption while ensuring fair wages and economic security. Key strategies include work-time reduction, job guarantees, as well as income ceilings and wealth taxes.

Reducing working hours can help improve quality of life (e.g., reduced stress, burnout, and improved mental health) and lower emissions by reducing commuting, overproduction, and high-carbon consumption. It can also help decrease healthcare and welfare costs, as people have more time for family, leisure, and personal well-being. Nevertheless, work time reduction must be paired with consumption-reducing policies, ensuring that additional free time does not lead to increased consumption.

A job guarantee can help support sustainable industries, ensuring employment in low-carbon sectors, as well as helping mitigate job losses from phasing out high-emission industries (e.g., fossil fuel jobs transitioning to renewable energy). As long as it is voluntary and supported by skills training, it can help workers transition smoothly into emerging green jobs.

Income ceilings and wealth taxes can help restrict extreme income and wealth accumulation, which are crucial for curbing luxury emissions and reducing economic inequality. Possible policies include higher taxation on high incomes and wealth, luxury consumption taxes on high-carbon goods (e.g., private jets, superyachts), and CEO-to-worker pay ratio regulations to prevent extreme wage disparities. Though politically challenging, these policies address both climate and inequality crises, ensuring that the wealthiest do not disproportionately consume global resources.

There are challenges to implementing sustainable labour and income policies, since implementing these policies requires shifting public perceptions of a fair wage and standard of living, developing efficient skills training to ensure just transitions into green jobs, and coordinating international solutions to prevent economic competition from undermining national policies. Despite these hurdles, aligning income and labour policies with climate goals is necessary for creating a just and sustainable welfare state.

CONCLUSION

Achieving a 1.5° lifestyle requires a fundamental rethinking of welfare and economic policies. This transformation must decouple well-being from material consumption, expand universal public services to reduce individual economic burdens, reform labour policies to promote sustainable work-life balance, and redistribute wealth and cap extreme consumption to align social and environmental justice. By integrating welfare and climate policies, societies can create low-carbon, equitable futures where well-being is not dependent on endless economic growth. The challenge remains: How can governments implement these policies while maintaining political and public support?

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CHAPTER 21 _ INTEGRATING INFORMATION AND SKILLS ABOUT SUSTAINABLE LIFESTYLES IN EDUCATION

Luisa Losada and Adina Dumitru

This chapter explores three essential aspects of education and sustainable lifestyles: firstly, the crucial role of holistic education in fostering 1.5° lifestyles is discussed; secondly, it is illustrated with some examples of how education actively drives these lifestyles by promoting sustainable consumer behaviours and lifestyle choices from the earliest ages; and finally, it is demonstrated how systemic strategies, from early life experiences to formal education, can be introduced in schools to shape 1.5°C lifestyles, and the impact of these educational strategies on reducing inequalities

At the current crossroads of environmental, social, and economic challenges, education can act as a powerful driver of change towards 1.5° lifestyles. Education involves not only sharing knowledge about the environment but also cultivating attitudes and behaviours that promote the preservation and regeneration of our ecosystem. We need a more holistic educational approach that embraces emotional connection, empathy, and the development of practical skills to foster concrete actions towards sustainability. Mere access to information and knowledge is not enough to catalyse behavioural change. Education systems need not only to impart academic knowledge, but also to foster direct and meaningful experiences of contact with nature. By being exposed to natural environments, we get an opportunity to connect emotionally with the beauty and fragility of our planet and create a sense of responsibility and care for it. Exploring the environment from childhood contributes to reinforcing the sense of self-confidence and social connection, developing cognitive frameworks that allow a better understanding of the natural environment, and the development of skills related to the adoption of measures to improve and protect the environment.

There are many benefits of prolonged experiences of living in contact with nature. Examples of such experiences include rural life; education outside the school infrastructure; outdoor activities, such as beach or forest cleaning, plant and animal observation, and discovery games. For people who are highly committed to sustainability, school experiences, which also include interaction with peers, especially in adolescence, have been found to be particularly relevant.

For 1.5° lifestyles to become a mainstream choice for individuals, education plays a key role in shaping attitudes, values and behaviours. Specifically, frontrunners – that is, people who have adopted more sustainable ways of living – emphasise the importance of a sense of ecological awareness and responsibility towards our planet as a driver for change. They tell us about the significant educational experiences that have shaped awareness and insight (such as summer camps in the forest; spending part of their childhood in the countryside; or being brought up in a sufficiency-based environment, without cars, with food from cultivated products, and where energy use has been mindfully minimised or reduced). Also, research shows that educating others, either formally for example through educational programmes or informally via conferences and workshops, has potential to foster 1.5° lifestyles. Another example of the power of education is through ambassadors of sustainable lifestyles. Ambassadors are people who are highly committed to the search for balance between human living and the ecological system and demonstrate their commitment via their lifestyles. This not only provides a sense of meaning to the ambassadors themselves, but also acts as a role model for others around them.

HOW EARLY-LIFE EXPERIENCES CAN FOSTER ENVIRONMENTAL AWARENESS AND ACTION

What people experience in their childhood or adolescence can awaken individual interest in the environment around us, or prompt action to mitigate the negative human effects on the ecosystem.

On the one hand, spending time in nature together with family, in school activities or in voluntary work, can create early experiences of awe at the beauty and power of nature. Other studies have supported this claim, finding that early educational experiences in natural environments foster a sense of joy and curiosity, attachment to place, a sense of belonging to the environment, action orientation, and civic engagement, demonstrating the intrinsic power of nature to enhance the human experience in the world. On the other hand, experiences of being overwhelmed, anxiety, or depression can occur for individuals who, early on in life, realise and understand the level of large-scale human destruction. Similar feelings can arise for people who, in their immediate surroundings, observe the inaction of people and the lack of consideration for their unsustainable actions.

All of this invites consideration of the importance of education to encourage contact with nature, to achieve a systematic understanding of the destructive impact of certain human activities, and to serve as a model and support that contributes to the development of pro-environmental actions.

THE ROLE OF FORMAL EDUCATION SYSTEMS

Formal education systems are responsible for promoting experiences of contact with nature. Schools represent an essential means for the development of pro-environmental behaviours and a comprehensive vision of the surrounding environment. As disconnection from nature is

increasingly common, it is crucial that education systems recognise and prioritise the importance of natural experiences in the school curriculum to ensure the formation of citizens committed to the protection and preservation of our planet. Schools must introduce sustainability as cross-cutting content to the curriculum at all levels of education. Schools must also set a practical example, by showing the students what sustainable practices and 1.5° lifestyles may look like.

Improvements in formal education are considered knowledge resources, such as the introduction of school and training activities aimed at raising environmental awareness, alongside the dissemination of scientific and popular information to citizens of all ages. However, psychological studies indicate that behaviours do not change with information alone but through actual practice. Therefore, contexts that encourage behavioural change must be created. A child can be taught about a plant, an animal, or the water cycle, but learning becomes much deeper when the child can touch, smell, interact, and learn through play with elements of their surroundings. This means providing students with real contact experiences in their immediate environment, ranging from basic approaches like incorporating alternative methods to support formal education, such as outdoor activities that complement classroom learning, to more comprehensive proposals involving fully outdoor learning. Such approaches reconnect students with their surroundings through free play and exploration, facilitating a connection with nature and with themselves, as exemplified by Forest Schools.

On the other hand, educational and informational barriers can also hinder the development of more sustainable behaviour. For instance, not having received adequate or sufficient training in school on environmental issues or not having gained practical experience in nature in school can hinder meaningful learning on the subject. Generally, there is a lack of social and political interest in educating the public about sustainable lifestyles and in contributing to enabling them to make conscious and informed decisions. Many perceive information from public information channels as biased, which creates mistrust. Hence, fostering a critical and reflective citizenship regarding information is also a key point to address in the school environment.

Last, one of the fundamental values of education is to guarantee and promote equal opportunities. Education for sustainable lifestyles, where everyone can meet basic needs and environmental impact is reduced, would also contribute to a more just and equitable world.

CONCLUSION

Education for 1.5° lifestyles goes beyond academic instruction; it is a systemic approach to instilling values, behaviours, and practices that support ecological balance and social equity. Holistic education, nature-based experiences, and systemic strategies within formal education collectively shape sustainable behaviours and reduce inequalities. By addressing emotional, informational, and systemic barriers, education can drive meaningful change, inspiring future generations to adopt 1.5° lifestyles and work toward a sustainable, equitable world.

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CHAPTER 22 _ CONCLUSION

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Achieving the 1.5°C target set by the Paris Agreement is one of the most urgent challenges of our time. It requires major transformations—from how individuals make daily choices to how societies structure economies, policies, and infrastructures. While progress is being made, the necessary changes are happening too slowly, and the window for achieving this critical target is shrinking. However, even if we do not reach the goal within the ideal timeframe, the transition to more sustainable ways of living remains essential. The need for change does not disappear; rather, it becomes even more critical.

At its core, the shift to 1.5° lifestyles is about rethinking how we live, ensuring that our daily choices align with ecological limits while still meeting human needs. But individual actions alone are not enough. Real transformation requires supportive structures that remove barriers, foster positive behaviors, and create enabling environments for change. If designed well, these supporting structures can make the transition to 1.5° lifestyles an opportunity rather than a burden. Sustainable living can mean healthier lifestyles, more resilient communities, and fairer societies—but this vision will only be realised if we work collectively to shape it.

We need to go beyond individual efforts and connect with others—whether through community projects, workplace initiatives, or political engagement. As individuals, we play a crucial role in learning about and embracing the changes necessary for a 1.5°C world. Recognizing the need for change is the first step, but acting on that knowledge is what leads to real transformation.

While personal choices—such as adopting low-carbon diets, using sustainable mobility options, and reducing waste—are important, the greatest impact comes from collective action. Being part of groups and networks working toward sustainability strengthens our ability to create meaningful change.

Throughout this compendium, we have explored examples of positive communities and groups that are already taking action toward sustainable lifestyles. These groups provide support, resources, and inspiration for those on the journey toward 1.5°C living. Perhaps you are already involved in sustainability initiatives. If so, sharing your experiences with others can help build a growing network of people who are committed to sustainable living. If you are not yet involved, consider seeking out local or global initiatives where you can contribute. The momentum for change is growing worldwide, and every new participant strengthens the movement.

Some ways to engage in collective action include participating in local sustainability projects and joining or forming citizen groups that work toward environmental policies, and engaging with policymakers to push for ambitious climate legislation and structural changes. These actions go beyond reducing individual footprints; they expand our influence by shaping the systems around us. Achieving 1.5°C lifestyles requires large-scale structural changes. Infrastructure, policies, and economic systems must be redesigned to make sustainable choices easier, more accessible, and more attractive.

EU 1.5° LIFESTYLES

ABOUT US

The EU 1.5 LIFESTYLES consortium includes ten research partners (universities, research institutes, enterprises and NGOs) from **Germany**, **Finland**, **Hungary**, **Latvia**, **The Netherlands**, **Spain** and **Sweden**.

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