

Summary for Policymakers

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This Summary for Policymakers should be cited as

APCC (2023): Summary for Policymakers. [Aigner, E., C. Görg, V. Madner, A. Muhar, A. Novy, A. Posch, K. W. Steininger, L. Bohunovsky, J. Essletzbichler, K. Fischer, H. Frey, W. Haas, M. Haderer, J. Hofbauer, B. Hollaus, A. Jany, L. Keller, A. Krisch, K. Kubeczko, M. Miess, M. Ornetzeder, M. Penker, M. Pichler, U. Schneider, B. Smetschka, R. Steurer, N. Svanda, H. Theine, M. Weber und H. Wieser]. In: APCC Special Report: Strukturen für ein klimafreundliches Leben (APCC SR Klimafreundliches Leben) [Görg, C., V. Madner, A. Muhar, A. Novy, A. Posch, K. W. Steininger, and E. Aigner (Hrsg.)]. Springer Spektrum: Berlin/Heidelberg.

Why a focus on structures matters

Thus far, living in a climate-friendly way in Austria is difficult. In most areas of life, from work and housing to nutrition, mobility and leisure activities, existing structures promote climate-harmful behaviour and make climate-friendly living difficult (high agreement, strong literature base). {Chaps. 3–9} The present report confirms the relevance of statements of the United Nations Intergovernmental Panel on Climate Change (IPCC) for Austria, according to

which fundamental transformations in the sense of comprehensive structural changes are necessary to achieve the goals of the Paris Climate Agreement (high agreement, strong literature base).

The report is based on the following understanding of climate-friendly living: Climate-friendly living durably ensures a climate that enables a good life within planetary boundaries. {Chap. 1} When climate-friendly living becomes the norm, it leads to a rapid reduction of direct and indirect greenhouse gas emissions and does not burden the climate in the long term. Climate-friendly living strives to achieve a high quality of life for all people while respecting planetary boundaries. It is about a good and safe life not only for some people, but for all, in Austria and globally. In this sense, justice, and meeting all needs are both part of climate-friendly living. Similarly, the relations to other social and environmental goals (e.g. UN Sustainable Development Goals) are essential. Based on scientific literature, this report evaluates different approaches to transforming structures so that climate-friendly living in Austria is a permanent possibility and quickly becomes the status quo.

Structures are the framework conditions and relations in which daily life takes place. Examples of framework conditions are spatial planning and the tax system; examples of relations are production and income relations. {Chaps. 1, 2} The literature assessed shows in its entirety that structures facilitate, impede or prevent climate-friendly behaviour. Structures influence (1) how climate-harmful it is that individuals behave, (2) in which way individuals are affected by climate protection measures, and (3) to what extent actors have the possibility to shape these structures. A distinction can be made between immaterial structures (e.g. legal norms, planning regulations) and material structures (e.g. water pipelines and energy infrastructure). These structures are interdependent: the mobility system, for example, includes immaterial structures such as road traffic regulations and material structures such as the road and rail network.

The assessment of the state of research unequivocally states that to make climate-friendly living a permanent

possibility and quickly commonplace, a fundamental and far-reaching transformation is needed, including dismantling of climate-harmful structures and building of climate-friendly ones. In the literature, there are numerous proposals for effective measures to achieve this, such as: a steady, substantial and long-term increasing price on climate-harmful emissions (high agreement, strong literature base) {Chaps. 16, 2, 3, 5, 6, 7, 9, 11, 13, 14, 15, 17, 18}, a binding climate protection law with effective sanction mechanisms (high agreement, strong literature base) {Chaps. 11, 12, 14}, the provision of attractive, efficient and climate-friendly public mobility infrastructures (high agreement, strong literature base) {Chaps. 2, 4, 6, 7, 8, 14, 16, 17, 18, 19, 22}, climate-friendly and coordinated spatial, urban and settlement planning (high agreement, strong literature base) {Chaps. 4, 6, 17, 19, 22}, or mandatory EU system of environmental due diligence for supply chains (high agreement, medium literature base) {Chap. 15}.

Although most of the literature reviewed emphasises that structural changes are essential to enable climate-friendly living, varying disciplines and theories define the term structures differently, each focusing on assorted structures that exacerbate the climate crisis (high agreement, strong literature base). {Chap. 2} Four different perspectives were identified in the report. {Chaps. 2, 24–28} One group focuses on profound societal changes and examines structures such as social inequality, or growth constraints and dependencies, and human domination of nature (medium agreement, strong literature base). {Chap. 2} If the focus is on systems of provision, the theories examine how different goods and services are provided, for example for food, housing or mobility, and with which modes of living, practices and habits these are associated (medium agreement, medium literature base). {Chap. 2} If the market is the centre of analysis, then market failures, prices and choice architectures are essential framework conditions for decision-making (e.g., on investments) (high agreement, strong literature base). {Chap. 2} If the focus is on innovations, then also new governance models are needed for social and technical innovations (medium agreement, medium literature base). {Chap. 2}

Shaping structures through joint action

Shaping structures for climate-friendly living means targeted and coordinated action that is oriented towards the common good, is aware of the conflictual nature of social conditions, negotiates between differing interests and implements changes with democratic legitimacy. {Chap. 1} Legislation is often needed for such action, e.g. tax law reforms to introduce a CO₂ price, a ban on oil and gas heating {Chap. 4} or the introduction of a climate ticket for pub-

lic transport {Chaps. 3, 4, 6, 17}. The concrete shaping of climate-friendly structures is then essentially done by the administration, which implements climate policy measures (high agreement, medium literature base). {Chap. 1} As an example, the above mentioned climate ticket was a targeted climate policy initiative of the federal government, which was implemented (following acceptance of the resolution in parliament) in a coordinated manner by a multitude of actors, from federal ministries and regional transport associations to public and private transport companies and local authorities. {Chap. 1}

Climate-friendly living requires paying more attention to the shaping of structures and less preoccupation with how individuals can or should change their behaviour within existing structures (high agreement, strong literature base). {Chaps. 1, 2, 3, 4, 5, 10, 23} For climate-friendly living to become self-evident, it is not enough to inform individuals about the climate intensity of consumption decisions {Chap. 3}, to hope for innovative companies to survive within climate-harmful market structures {Chaps. 13, 14, 15, 16}, or to appeal to the individual to behave in a climate-friendly way {Chaps. 1, 2}. Instead, it is necessary to dismantle climate-harmful structures and build climate-friendly ones (high agreement, medium literature base). {Chaps. 1, 2, 14, 16, 22}

The report emphasizes throughout that among the actors who could shape structures in a climate-friendly way, there is not yet sufficient commitment in Austria to work within the existing scope to do so, nor to create new structures for climate-friendly living. National and European legislation and the executive are influential shapers of structures (high agreement, medium literature base). {Chap. 1} Chambers, trade unions and interest groups of companies, and agriculture are also influential political actors in general and especially in climate policy (high agreement, medium literature base). {Chap. 12} However, many actors react rather cautiously to European and international climate policy guidelines (medium agreement, medium literature base). {Chaps. 3, 7, 8, 12, 14, 15} Policymakers are slow to implement agreed-upon measures to reduce greenhouse gas emissions (high agreement, medium literature base). {Chaps. 12, 15} Shaping structures for climate-friendly living in Austria has been a subordinate concern of social partners; the representation of business interests especially is perceived as a persisting force (high agreement, low literature base). {Chaps. 7, 12, 14} This is also shown by the fact that progress in environmental policy after EU accession was mostly due to EU requirements or such constellations in which short-term economic advantages could be expected at the same time (high agreement, medium literature base). {Chap. 12}

Governance mechanisms significantly influence whether and how coordinated and targeted action

can be taken (high agreement, strong literature base). {Chaps. 1, 12} As the report shows, many governmental and non-governmental actors can shape climate-friendly structures, provided they focus on climate-friendly living and act in a coordinated way. Specific actors examined in the report were government, political parties, administration, companies, interest groups, social partners, social movements, science and the media. New developments for climate governance in Austria have been the strengthening of civil society movements for climate-action in 2019 and the establishment of a *Federal Ministry for Climate Protection* with extensive responsibilities. {Chap. 12}

Through criticism and protest, civil society has temporarily brought climate policy to the centre of public debates worldwide as of 2019 (high agreement, strong literature base). {Chaps. 8, 12} Essential to this was the coordinated action of social movements such as Fridays for Future, which resulted in climate change being discussed as a societal problem (high agreement, strong literature base). {Chaps. 8, 12} This development has introduced new possibilities for shaping climate policy in Austria (high agreement, low literature base). {Chap. 12} However, environmental movements can realize their potential only when supported by influential political actors located inside and outside the respective government (medium agreement, medium literature base). {Chaps. 2, 12}

In general, criticism and protest by environmental movements are essential for raising awareness and setting the political agenda on the climate crisis (strong agreement, strong literature base). {Chaps. 1, 2, 12} They bring controversial challenges into the public debate such as the coupling of growth dynamics with emission developments in the context of the historical responsibility of the Global North. {Chaps. 1, 15} Furthermore, environmental movements also experiment with innovative and sufficiency-oriented practices and show implementation possibilities and roadmaps to climate-friendly living (high agreement, strong literature base). {Chaps. 2, 8, 12, 23}

Climate policy in the context of other objectives

The challenges faced regarding climate policy are greater than ever and continue to grow, while current emission-reducing measures are not sufficient to achieve the goals of the Paris Agreement – neither in Austria (climate neutrality by 2040) nor in the EU or globally (high agreement, strong literature base). {Chaps. 1, 3, 11, 12, 14, 19, 22} In the past, improved coordination and implementation of climate policy was attempted. However, no target-conforming greenhouse gas emission reductions can be observed in Austria (high agreement, strong literature base). {Chaps. 1, 3, 12} Climate policy at the federal level was expressed in three cli-

mate strategies (2002, 2007 and 2018), a Climate Protection Act and corresponding amendments (2011, 2012, 2017) as well as two programmes of measures for the years 2013/2014 and 2015 to 2018. The Austrian National Energy and Climate Plan (NEKP) 2018 was presented in 2018, which was neither sufficiently target-oriented nor sufficiently coordinated when it was adopted (high agreement, medium literature base). {Chap. 12} It focused on technology development and light-house projects, but did little to transform deeper economic, spatial, and temporal structures (high agreement, medium literature base). {Chap. 23}

The recording of greenhouse gas emissions as emissions within a territory, as agreed under international law, underestimates how emission-intensive and climate-harmful life in Austria actually is (see Fig. SPM.1 for a comparison) (high agreement, strong literature base). {Chap. 1} The climate-harmful emissions caused globally by daily life in Austria are higher by about half if all emissions generated abroad to meet demand in Austria (consumption-based emissions) are taken into account (high agreement, medium literature base). {Chap. 1} This high deviation can also be observed in other rich countries with strong foreign trade relations, i.e. high import and export shares for goods and services (high agreement, strong literature base). {Chap. 1} Only if all consumption-based emissions are taken into account in climate policy measures will such global interrelationships be captured. This is a prerequisite for Austria to contribute to global climate justice instead of outsourcing emissions (high agreement, medium literature base). {Chaps. 1, 3, 5, 15}

Strategies to reduce greenhouse gas emissions have so far focused primarily on increased energy and greenhouse gas efficiency in order to decouple resource use or emissions from economic growth (high agreement, strong literature base). {Chaps. 1, 3, 23} The scientific evidence for the effectiveness of this strategy is weak. {Chap. 14} There are examples where energy or GHG consumption has increased more slowly compared to economic growth (relative decoupling), but hardly anywhere energy or GHG consumption has actually decreased as national income has increased (absolute decoupling) (medium agreement, medium literature base). {Chap. 1, 14} A similar trend can be seen in terms of resource use (medium agreement, low literature base). {Chap. 15} This can be attributed to the fact that efficiency gains in the use of material and energy use or greenhouse gas emissions are often overcompensated by increased consumption (rebound effect) (medium agreement, strong literature base). {Chaps. 2, 3, 5, 7, 8, 9, 14, 15, 16, 22}

Studies prove that greenhouse gas emissions are coupled with material use associated to current modes of production and consumption both globally and in Austria (medium agreement, medium literature base). {Chaps. 5, 15} The literature discusses the need for an absolute reduction

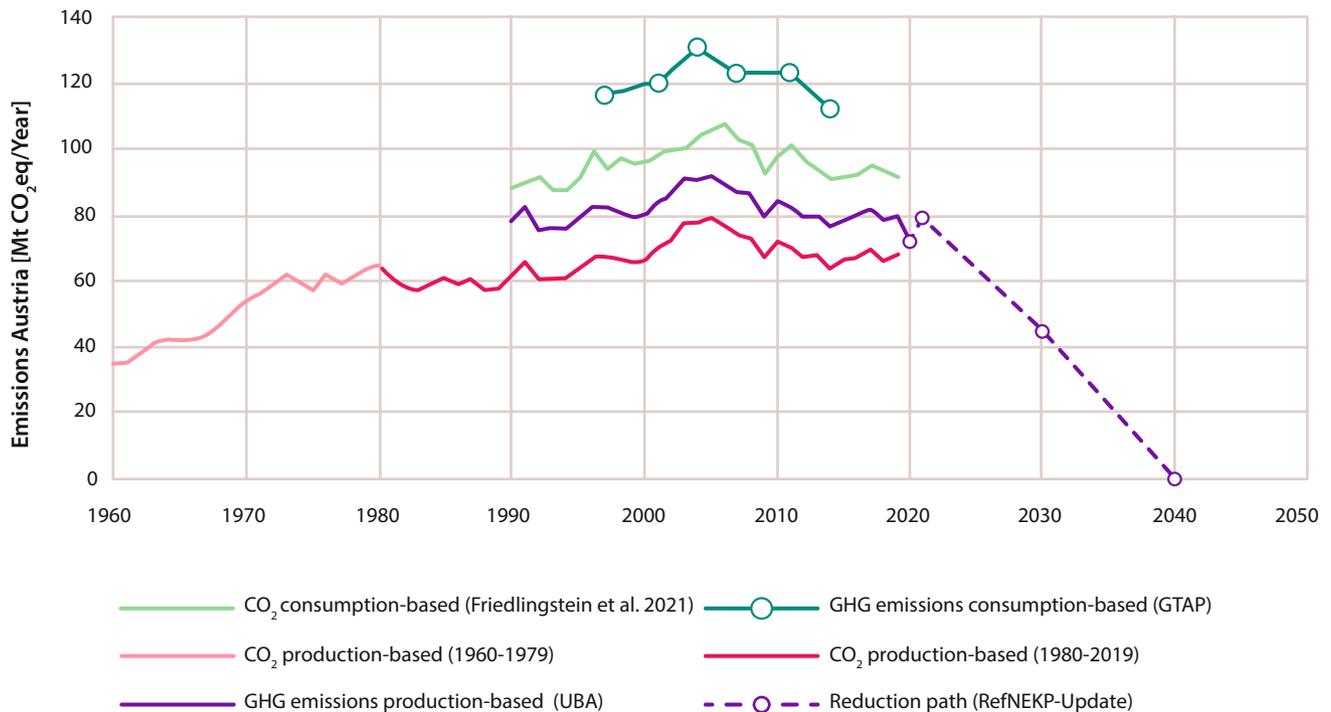


Fig. SPM.1 Dynamics of Austria’s climate-harmful emissions in territorial (production-based) and consumption-based methods (“footprint”). {Chap. 1}

in global consumption to achieve global and national climate targets (medium agreement, medium literature base). {Chap. 15} Accordingly, the scientific community is also examining scenarios and strategies that focus on sufficiency and address the possible advantages and disadvantages of measures to shrink specific sectors of the economy or the economy as a whole (high agreement, medium literature base). {Chaps. 2, 3, 7, 8, 9, 14, 16}

Unabated high emissions result from inconsistent political framework conditions, especially in the area of economic policy (high agreement, medium literature base). {Chap. 14} Current climate policy measures aimed at changing supply structures in most cases only partially support the dissemination of climate-friendly products and services (medium agreement, medium literature base). {Chap. 14} Existing financial and regulatory framework conditions create few incentives to reduce greenhouse gas emissions and sometimes even favour climate-harmful activities (high agreement, strong literature base). {Chaps. 7, 14, 15, 16} Examples include subsidies of climate-harmful structures in the energy, mobility or production sectors {Chaps. 6, 7, 11, 14} such as housing subsidies, which do not contribute to climate-friendly construction or to increasing the rate of renovation {Chap. 4} or subsidies for commuters that foster urban sprawl. {Chap. 5}

The distribution of wages, salaries, other kinds of income and assets, as well as access to infrastructure, significantly determine to what extent individuals behave in

a climate-friendly manner (high agreement, strong literature base). {Chaps. 1, 3, 9, 17} High-income and wealthy households live more climate-harmful modes of living than low-income households, regardless of their level of education. However, the emissions of even the lowest income groups are currently too high to reach the Paris climate targets (high agreement, medium literature base). {Chap. 17}. Furthermore, inequality can lead to increased consumption due to status competition and thus to increased emissions (medium agreement, medium literature base). {Chap. 17}

Income and wealth influence not only the possibility to live in a climate-friendly way, but also the possibility to shape climate-friendly structures (medium agreement, low literature base). {Chap. 1} The room for manoeuvre of low-income and low-asset groups compared to the well-off or wealthy is often limited (medium agreement, medium literature base). {Chaps. 1, 17}

Structural changes for climate-friendly living

Climate protection as a cross-cutting issue requires multi-level governance

Climate protection is a cross-cutting issue reflected in, among other things, a variety of legal provisions on climate policy (high agreement, strong literature base). {Chap. 11} Climate protection law includes, on the one

hand, provisions that directly serve the protection of the climate, such as provisions on the reduction of climate-harmful greenhouse gases, and, on the other hand, provisions that have indirect effects on climate protection, such as provisions on soil or water protection. {Chap. 11} In addition, provisions in other legal matters are of structural importance for climate-friendly living (such as public procurement law or WTO law) (high agreement, medium literature base). {Chaps. 11, 15} Climate protection law is shaped and enforced on several levels; in this context, there is a need for delimitation of competences, coordination and harmonisation from the international, European and national to the local level (high agreement, strong literature base). {Chaps. 10, 11, 12}

European Union regulations influence the legal framework that Austria can set for climate-friendly living (high agreement, strong literature base). {Chaps. 11, 12} With the European Emission Trading System (EU ETS) for the emission- and energy-intensive industry and parts of the energy sector, the use of market-based instruments is prescribed for Austria by EU law. {Chap. 11} National scope for action with direct climate relevance exists predominantly in the area outside the European emissions trading system (“non-ETS”), especially in transport, buildings, agriculture and waste management, trade and industrial installations not included in the ETS, as well as renewable energy sources (high agreement, strong literature base). {Chap. 11}

In the field of infrastructure systems, regulatory frameworks have a major influence on shaping organisational structures (high agreement, strong literature base). {Chap. 22} These have so far been characterised by a liberalisation of markets with the aim of improving overall economic efficiency in the European Union and socialising monopoly rents (high agreement, strong literature base). {Chap. 22} In the absence of appropriate planning and governance, both the current use and maintenance and further expansion of grid-based infrastructures often lead to more greenhouse gas emissions (high agreement, strong literature base). {Chap. 22}

The National Climate Change Act (KSG) is intended to coordinate climate policy in the area that is not subject to European emissions trading (high agreement, strong literature base). {Chap. 11} The commitment period of the KSG in its current version expired in 2020, its steering and enforcement power is assessed as low; a new version of the KSG has been under negotiation since 2020 (high agreement, medium literature base). {Chaps. 5, 11, 12}

There is no explicit fundamental right to environmental or climate protection in Austria. {Chap. 11} In individual European countries, courts have upheld lawsuits concerning stronger climate targets, citing the guarantees of the European Convention on Human Rights (ECHR) or state objectives (high agreement, strong literature base). {Chap. 11}

The interaction of a multitude of actors determines climate change law (high agreement, strong literature base). {Chap. 11} Intra-administrative departmental antagonisms also shape the design of national and European climate policy (medium agreement, medium literature base). {Chap. 11} Coordinated and targeted action is hampered by the organisation of political responsibilities in separate “pillars” with their respective inherent logics as well as the lack of longer-term and strategically adaptive policy learning (medium agreement, medium literature base). {Chap. 13}

In environmental authorisation procedures, the Aarhus Convention has significantly strengthened the rights of environmental organisations (high agreement, strong literature base). {Chap. 11} This strengthening is in principle beneficial for climate protection, although the assessment is differentiated especially in connection with projects for the expansion of renewable energy (high agreement, medium literature base). {Chap. 11} From the perspective of project operators, increased public participation and the participation of environmental organisations in particular is often qualified as an obstacle in locational competition (high agreement, strong literature base). {Chap. 11}

Austria’s federal system shows a high degree of divergence in terms of target and decision-making structures, scope for action and time horizons (high agreement, strong literature base). {12, 19} The federal distribution of competences, especially in spatial planning, construction and transport, complicates decision-making and thus targeted decarbonisation (medium agreement, medium literature base). {Chap. 12}

When policy instruments are combined, transformations can be initiated and accompanied much more successfully (medium agreement, medium literature base). {Chaps. 4, 13, 14, 15} The combination of innovative supply-side and demand-side instruments includes research and innovation promotion, regulation and procurement. Examples include green and innovation procurement {Chap. 13}, bans on cars in cities {Chap. 6}, or bans on the installation of gas and oil heating systems in new buildings or conversions {Chap. 14}. If policy instruments are tested (e.g. with the help of real laboratories, regulatory experiments, regulatory sandboxes etc.) so that statements about their effectiveness can be made, they should be accompanied by monitoring, learning and evaluation processes over longer time-periods (high agreement, strong literature base). {Chaps. 13, 21, 22} This also applies to the creation of climate-friendly social security systems (high agreement, medium literature base). {Chap. 18}

If climate-friendly structures are to be created in the federal system, this will require targeted and coordinated governance models, the use of existing sectoral planning competences and a serious consideration of a redesign of the distribution of competences, especially in the areas of

climate protection and spatial planning (high agreement, strong literature base). {Chap. 11} The introduction of an own requirement competence for climate protection on federal level as well as the use of national scope for action within the framework of European climate protection legislation is considered necessary in many instances, if uniform climate protection standards are to be created. The reorganisation of the matter of “spatial planning” in terms of competence law and the use of federal sectoral planning competences is seen as necessary for binding and coordinated transport and network infrastructure planning (high agreement, medium literature base). {Chaps. 11, 22} If climate-friendly structures are to be anchored institutionally in the long term, regular and well-organised forms of cooperation are appropriate (high agreement, strong literature base). {Chaps. 12, 18} On the basis of new legal foundations (e.g. Renewable Energy Expansion Act 2021), new organisational and actor models can be developed and tested in experiments (medium agreement, weak literature base). {Chaps. 11, 15, 22}

Democratic public sphere as the foundation of climate policy

A lively public debate, committed educational and scientific institutions, social movements, civil society initiatives as well as education and public outreach are the foundations of a democratic public sphere. {Chaps. 1, 2, 3} However, large parts of the education and science system currently reinforce existing conditions and do not focus to a sufficient extent on sustainability as well as climate-friendly modes of living (high agreement, strong literature base). {Chap. 21} The media reports increasingly – but still on a low level – about climate protection and thus contributes little to the democratic debate on climate-friendly living (high agreement, strong literature base). {Chap. 20} In both fields (education & science and media coverage), the focus is on individual behavioural changes, predominately highlighting issues of lifestyle and shopping behaviour, while *structures of climate-friendly living* receive far less attention (high agreement, medium literature base). {Chaps. 20, 21}

Media attention on the climate crisis remains at a low level, even if it has increased in recent decades (high agreement, medium literature base). {Chap. 20} Some actors in the Austrian media sector have had little to no discernible focus on the climate crisis (low agreement, weak literature base). {Chap. 20} The intensity of climate crisis reporting and the specific design of such reports depends on established media practices (such as occasion-based reporting and focus on news value), as well as on competition with other topics (high agreement, strong literature base). {Chap. 20} When climate crisis reporting occurs, it is mostly described as human-made and in line with the sci-

entific consensus (high agreement, strong literature base). {Chap. 20} However in some media houses, especially those with ideological proximity to right-wing conservative political positions and also in parts of social media, climate crisis-sceptical or even -denying positions are still present (high agreement, medium literature base). {Chap. 20} In social media, a range of detailed scientific questions, (lay) questions as well as newly emerging topics are discussed and are thus relevant for agenda setting and mobilisation, e.g. of NGOs and activists; this applies to both climate-friendly and climate-crisis-sceptical positions (high agreement, low literature base). {Chap. 20}

The current environment of media companies makes it difficult for them to take a proactive role in shaping climate-friendly structures. Difficulties arise mainly via increasing competitive pressure and predominantly private sector ownership, as well as dependence on political actors, advertising markets, and a lack of incentives for quality journalism. (high agreement, weak literature base). {Chap. 20} Media coverage is mostly dominated by market and innovation arguments and related proposals to avert the climate crisis (high agreement, medium literature base). {Chap. 20} The analysis of driving forces and climate-harmful structures (e.g. the modern understanding of nature domination as well as social and economic growth constraints) receives little attention in media coverage (high agreement, weak literature base). {Chap. 20}

If media are to increase awareness of the need to shape structures, this can be achieved through strengthened and financially independent scientific, environmental and climate journalism as well as alternative forms of journalism (e.g. transformative journalism) (medium agreement, weak literature base). {Chap. 20} Further options include media regulation (especially the design of media subsidies), the withdrawal from fossil-fuel promoting advertising markets (i.e., the advertising of climate-harmful products or services such as cars with combustion engines or low-cost flights), the development of new financing models, and the restructuring of ownership in the media sector (medium agreement, weak literature base). {Chap. 20}

The promotion of competences for climate-friendly living also includes the considerable need for qualification and retraining for the climate-friendly transformation of the economy (high agreement, low literature base). {Chap. 7} Competences for climate-friendly living are promoted when climate change education and education for sustainable development become the basis of curricula and educational plans in the formal education system as well as in the education of teachers (including continuous training). Strengthening such competencies can also be addressed by informal and non-formal education (in municipalities, museums, libraries, etc.) (high agreement, strong literature base). {Chap. 20}

In the education system, the focus on the reproduction of existing knowledge weakens independent learning oriented towards values of sustainability and thus the co-production of new knowledge (high agreement, strong literature base). {Chap. 21} In education and science, transdisciplinary cooperation between science and social actors and interdisciplinary cooperation within science are disadvantaged by prevailing disciplinary structures (high agreement, strong literature base). {Chap. 21}

If education and science are to be made fruitful for climate-friendly living, the adoption of social responsibility by education and knowledge institutions is required. Further, a paradigm shift towards holistic, integrated and transformative scientific and pedagogical practice is needed (high agreement, strong literature base). {Chap. 20} This concerns institutions such as schools, colleges and universities. {Chap. 21} Essential are the orientation towards the Sustainable Development Goals of the United Nations as well as the goals of Education for Sustainable Development of UNESCO, an inter- and transdisciplinary examination of socially relevant problems and comprehensive structural reforms, which also concern educational curricula (high agreement, strong literature base). {Chap. 21}

Academia promotes climate-friendly and sustainable living with discussions on goals, contents and structures (e.g. incentive systems, tender criteria), the critique of existing power and competition relations, and new cooperative institutions for inter- and transdisciplinarity (high agreement, strong literature base). {Chap. 21} Examples include the establishment of corresponding professorships, institutes, research centres, career positions, study programmes, textbooks, journals, research networks and societies (high agreement, strong literature base). {Chap. 21}

Spatial conditions, infrastructures and time-bound activities

Existing spatial conditions, (networked) infrastructure and time and work structures determine the extent to which it is possible to live in a climate-friendly manner. They determine where and when individuals engage in which activities and thus reinforce climate-harmful practices or enable climate-friendly ones (high agreement, strong literature base). {Chaps. 3, 4, 7, 8, 9, 17, 19, 22} Spatial structures include in particular the relations between urban, rural and suburban space. They influence, for example, daily mobility behaviour and how climate-harmful it is that individuals live. {Chaps. 19, 22} On a global level, these structures also include the relations between the Global North and South. {Chap. 15} Time and work structures result from time-bound activities and obligations in the field of paid employment as well as the unpaid, indispensable, vital

and often invisible care work. They shape the scope of action of individuals and restrict the possibility to live in a climate-friendly way (medium agreement, medium literature base). {Chaps. 3, 7, 8}

Existing land use structures take up a vast amount of area, fragment the landscape and cause long distances (medium agreement, medium literature base). {Chaps. 6, 19} In a European comparison, Austrian land consumption for settlement and transport purposes is above-average and increasing (high agreement, medium literature base). {Chaps. 4, 5, 19} The design of the municipal tax, with revenues entirely allocated to the municipality in which a business establishment is located, is seen as a major driver of locational competition between neighbouring municipalities for greenfield sites and is one of the causes of a climate-harmful spatial and transport structure (high agreement, low literature base). {Chap. 19} Furthermore, a lack of land dedicated to renewable energy makes climate-friendly living difficult (high agreement, strong literature base). {Chap. 19} With increased shift to renewable energy, there is additional demand for land and subsequently land competition (high agreement, low literature base). {Chap. 19}

Urban sprawl in suburban areas, which often goes hand in hand with climate-harmful car traffic, makes climate-friendly behaviour more difficult (high agreement, strong literature base). {Chaps. 6, 7, 11, 19} Shopping malls and commercial agglomerations, logistics centres and large-scale car parks at city and town entrances as well as outside the settlement edges go hand in hand with climate-harmful land consumption, which is countered by vacancies and declining attractiveness in city and town centres (high agreement, medium literature base). {Chap. 19} Accordingly, car use – measured in the degree of motorisation and the average daily distances travelled – has continued to increase in rural and suburban regions. Only in some provincial capitals has the trend slowed down or reversed (high agreement, strong literature base). {Chaps. 6, 17} Besides mobility for daily needs, commuting and journeys for unpaid care work are climate relevant (high agreement, medium literature base). {Chaps. 6, 7, 8, 9}

Existing time or work structures in combination with spatial structures and climate-harmful (grid-based) infrastructure make climate-friendly leisure activities more difficult (medium agreement, medium literature base). {Chaps. 3, 7, 8, 9} Time pressure, acceleration and other stresses in work and everyday life reduce the quality of life and influence how climate-friendly it is that individuals behave (high agreement, strong literature base). {Chaps. 3, 8, 9} The observable value change towards work-life balance and demands for meaningful work increase the legitimacy of structures that make employment relations climate-friendly (e.g. home office and reduction of working hours) (medium agreement, medium literature base). {Chaps. 7, 8}

Under the current legal framework, the instruments of spatial planning are not sufficient to effectively reverse climate-harmful spatial developments and to shape climate-friendly structures (high agreement, medium literature base). {Chaps. 11, 19} In order to create climate-friendly spatial structures, it is necessary to reform spatially effective fiscal instruments (e.g. fiscal equalisation scheme), to abolish climate-harmful subsidies (e.g. redesign of the commuter allowance) and to implement climate-friendly levies (e.g. skimming of profits from zoning, vacancy taxes) and incentives (e.g. unsealing premium) (high agreement, strong literature base). {Chap. 19}

Energy supply, spatial structures and available forms of mobility determine the emission intensity of daily leisure and vacation activities, including related travel (high agreement, strong literature base). {Chaps. 3, 6, 9, 19} Leisure transport causes increasing greenhouse gas emissions (high agreement, strong literature base). {Chap. 5} A comprehensive transformation of the energy and mobility sector is therefore central to reducing climate-harmful behaviour and making climate-friendly activities the status-quo (high agreement, strong literature base). {Chaps. 6, 9, 14, 22} Greenhouse gas emissions caused by internet and communication technologies as well as by the digitalisation of leisure activities are increasing but are not easily assessable in terms of climate friendliness, as the provision of non-digital options also causes emissions (high agreement, medium literature base). {Chap. 9}

In the residential sector, space heating in buildings is by far the largest greenhouse gas emitter (high agreement, medium literature base). {Chap. 4} Therefore, phasing out oil and gas and switching heating systems to renewable energy sources (e.g. heat and electricity from renewable sources via heat pump heating) and to climate-friendly district heating (e.g. geothermal, biomass, biogas) is central to climate-friendly housing (high agreement, strong literature base). {Chap. 4}

Climate-friendly living can quickly become a default and a permanent possibility and common place if all routes are short and can be covered on foot, by bicycle or public transport (high agreement, strong literature base). {Chaps. 3, 6, 7, 8, 9, 17, 18, 19, 22} This reduces the volume of car traffic and the space required for transport infrastructure in favour of recreational and meeting spaces (high agreement, strong literature base). {Chap. 19} As a result, less land is taken up for development, less land is sealed, and land scarcity is reduced, which in turn enables the switch to renewable energy sources as well as the reduction of greenhouse gas emissions (high agreement, strong literature base). {Chaps. 8, 9, 19} Similarly, investments in high-quality and affordable public infrastructure and services are important to promote climate-friendly living in work, leisure and care work and to strengthen socially acceptable transformation

(high agreement, medium literature base). {Chaps. 7, 8, 9, 17, 18}

Less time pressure, reduced multiple stresses and more opportunities for recreation in leisure time can facilitate climate-friendly behaviour (high agreement, medium literature base). {Chaps. 3, 7, 8, 9} Reduced working hours and a more equal division of paid and unpaid work and leisure time between the sexes reduce stress, make climate-friendly practices more attractive and allow the volume of paid work to be distributed more fairly (high agreement, medium literature base). {Chaps. 7, 8} To achieve this, social protection and sufficient household income are essential prerequisites (high agreement, medium literature base). {Chaps. 3, 7} In addition, suitable infrastructures that are affordable, alleviate time pressure, reduce distances and offer support (e.g. decentralised care services) are needed; liveable neighbourhoods with functioning local supply and services of general interest as well as affordable and high-quality public transport are two examples of win-win changes (high agreement, medium literature base). {Chaps. 3, 8, 9, 18}

If climate-friendly behaviour is to be facilitated by short distances, suitable framework conditions and infrastructures are needed, especially in the currently resource-intensive transport, housing and energy sectors (medium agreement, medium literature base). {Chaps. 3, 8, 9, 17, 19, 22} Essential for this are (1) a land-saving building density with a corresponding higher degree of greening, (2) a stronger functional mix that includes working, living, health, education, care and recreation facilities, (3) better accessibility by public transport as the backbone of settlement development, and (4) a polycentric settlement structure in which work opportunities as well as educational, care and recreational facilities are located in environmentally friendly accessible locations (medium agreement, medium literature base). {Chap. 19} This can alleviate conflicting goals between the development of renewable energy sources and nature, landscape, townscape and soil protection (medium agreement, strong literature base). {Chap. 19}

If spatial planning is to shape climate-friendly spatial structures, numerous prerequisites need to be fulfilled (high agreement, medium literature base). {Chap. 19} (1) Existing spatial planning instruments for land use and locational planning are to be used consistently in a targeted manner; (2) different actors (in politics, administration, business and civil society) are to be broadly integrated via informal instruments and planning processes; (3) the coordination tasks of spatial planning are to be emphasized; (4) sectoral planning (esp. transport, water, sewage, and energy system planning, as well as tourism) and subsidies (esp. for housing and business) should take into account spatial and thus indirect climate-relevant effects; (5) in combination with integrated energy spatial planning, the switch to renewable energy sources and the spatially compatible expansion of re-

newable energy supply should be ensured (high agreement, strong literature base). {Chap. 19}

To strengthen the core competencies of spatial planning, which set the framework for the siting, developing and designing of settlement, landscape and green spaces as well as business locations, more assertiveness, courage and governance for targeted and coordinated action is needed (medium agreement, medium literature base). {Chap. 19} This requires new guidelines and a new governance culture that ensures legal certainty, grants flexibility and at the same time enables consistent decisions (medium agreement, medium literature base). {Chap. 19} Climate-friendly living becomes easier when the focus is less on private, often exclusive and resource intensive, interests, which give priority to individual consumption (medium agreement, low literature base). {Chap. 4}

In order to change network infrastructures towards climate friendliness, spatial planning instruments and mission-oriented research and development, along with long-term strategies, solid investment plans, reliable legal frameworks, and international and national coordination are necessary (high agreement, weak literature base). The complexity associated with the design of grid-bound infrastructure systems requires a high degree of coordination and cross-sectoral cooperation between public, private and civil society actors in order to align planning and measures with climate-friendly living and to use sectoral and spatial intersections (high agreement, strong literature base). {Chap. 22}

Public actors can shape structures in a climate-friendly way by setting public service obligations for operators of grid-based infrastructures in the fields of energy and mobility (high agreement, medium literature base). {Chap. 22} The federal government, states (Länder) and municipalities are majority owners of important infrastructure-relevant companies such as ÖBB, ASFINAG, APG as well as many distribution network operators in the states (Länder). {Chap. 22} As owner representatives on supervisory boards and as legislators, they have a wide range of opportunities to shape structures, for example through investment decisions and strategic guidelines (high agreement, medium literature base). {Chap. 22} Making use of these opportunities can promote climate-friendly behaviour of transport participants and energy users, as this strongly depends on infrastructures as well as regulatory and fiscal policy frameworks (high agreement, strong literature base). {Chaps. 4, 6}

A comprehensive transformation of the energy and mobility sector requires targeted planning, decision-making and implementation as well as the monitoring of demonstrably efficiency-tested measures at all administrative levels (EU, federal government, states (Länder) and municipalities) (high agreement, strong literature base). {Chaps. 6, 17} Technical efficiency-enhancing measures,

such as switching to e-mobility or alternative fuels, are not sufficient to achieve climate targets in the transport sector (high agreement, strong literature base). {Chap. 6} In addition to the shift to renewable energy sources, a number of other technical as well as social, organisational and institutional innovations are needed to ensure the shift to more climate-friendly products and services (high agreement, strong literature base). {Chaps. 7, 9, 13, 14, 22}

Structures for resource-conserving, climate-friendly and affordable housing require targeted and increased housing promotion in the non-profit housing sector, the promotion of communal forms of housing, the priority of conversion over new construction and the use of climate-friendly construction methods, materials and heat supply systems (high agreement, medium literature base). {Chap. 4} Prioritization of building refurbishment may lead to increased rental costs in the private sector, limiting affordability for low-income households (high agreement, strong literature base). {Chaps. 4, 17, 18} Climate-friendly housing also requires criteria for housing provision that address social and environmental aspects, are valid across regions, and complement a reduction of urban sprawl and sealing (high agreement, medium literature base). {Chap. 4}

Climate-friendly supply of goods, services and wage-labour

Climate-friendly living relies on the provision of goods and services whose production is associated with low greenhouse gas emissions (high agreement, medium literature base). {Chaps. 1, 2, 3, 9, 14} Climate-friendly living therefore depends on how and which goods and services are produced and provided (high agreement, strong literature base). {Chaps. 3, 7, 8, 9} Similarly, climate-friendly living requires the possibility of climate-friendly work, whether in the context of paid or unpaid time (high agreement, low literature base). {Chaps. 1, 3, 7, 8}

In Austria, there is a considerable need for qualification and retraining for the climate-friendly transformation of the economy (high agreement, low literature base). {Chap. 7} Affected areas include activities in the context of the energy transition (e.g. the retrofitting of heating systems in households) as well as consulting services for energy efficiency, new IT system technologies and training for professions in the circular economy (high agreement, strong literature base). {Chap. 7}

Austria has a large and dynamic environmentally-oriented production and service sector by international standards (e.g. in the areas of provision of energy resources and waste management) (high agreement, medium literature base). {Chap. 14} Particularly in energy-intensive industries such as cement, steel, construction and housing,

as well as the energy industry itself, past and present greenhouse gas emission statistics continue to show extensive need for action to reduce emissions (high agreement, strong literature base). {Chap. 1}

In the implementation of the EU Green Deal initiatives like the circular economy action plan and the bioeconomy strategy, Austria is only in the initial stages (high agreement, medium literature base). {Chap. 15} On the European level, there are various initiatives within the framework of the European Green Deal with direct and indirect effects on the structure and organisation of global commodity chains (i.e. a chain of nodes from raw material exploitation to final consumption and waste disposal), in which the production of goods largely takes place. However, the transformation of global commodity chains according to ecological criteria is not an explicit goal (high agreement, low literature base). {Chaps. 5, 14, 15}

Austria imports goods and services (whether for further processing in domestic production or for final consumption) whose production leads to greenhouse gas emissions and environmental damage outside Austria's borders. These consumption-based emissions can also be interpreted as Austria's share in the climate crisis (high agreement, strong literature base). {Chap. 15}

If global economies are to be shaped more climate-friendly, a fundamental redesign of the legal framework for European and international trade and investment policy is essential (high agreement, medium literature base). {Chaps. 11, 15} Measures include aligning global trade policy with the overarching goals of social and economic stability and environmental sustainability, guaranteeing the right to use state regulation to protect health, social and environmental issues (“right to regulate”), establishing sanctionable corporate obligations to comply with labour standards and human rights, ensuring space for local and regional economies, and strengthening social-ecological public procurement (high agreement, medium literature base). {Chaps. 11, 15} The current trading system as well as the current design of the Common Agricultural Policy (CAP) of the European Union is in conflict with an integrative climate-friendly food policy that combines different policy areas (high agreement, medium literature base). {Chap. 5}

The establishment of legally binding environmental due diligence obligations for transnational corporations along their entire supply chains through national or EU supply chain legislation is an effective climate policy instrument (high agreement, strong literature base). {Chap. 15}. Designing climate-friendly global supply chains requires measures in and between the respective economic sectors, to be integrated into a comprehensive industrial strategy (high agreement, medium literature base). {Chap. 15} Currently, different actors (large and small enterprises, sub-national, national and supranational government agencies,

interest groups and other civil society organisations) with unequal power and conflicting interests shape the organisation of global commodity chains. Therefore, there is a lack of targeted and coordinated action to reduce emissions in global production networks and re-organise them in a climate-friendly way (high agreement, weak literature base). {Chap. 15} Equally stringent climate policies worldwide – or at least measures to effectively level out any differences at the border – would help to avoid an uneven playing field for companies and prevent carbon leakage, i.e. the migration of climate-damaging production to regions with less stringent climate protection laws (high agreement, strong literature base). {Chap. 15}

If more regionalised and circular economic models contribute to the reduction of resource consumption in Austria, they reduce both production-based and consumption-based emissions (high agreement, strong literature base). {Chaps. 5, 15} Regional economic cycles can be promoted by measures that shift production processes to where the respective goods are consumed (medium agreement, weak literature base). {Chap. 15} The literature contains numerous proposals to relocate production processes closer to the place of consumption (nearshoring), to relocate them back to the place of consumption (reshoring) if they have already been there once, and to evaluate the corresponding interventions according to ecological and social criteria (coordinated rescaling). {Chap. 15} If the aggravation of inequality is to be avoided, equity aspects such as issues of economic power, economic dependency, the distribution of wealth and income between and within different states need to be considered (high agreement, strong literature base). {Chap. 15}

Environmentally friendly and circular economy business models and processes for efficient and sufficiency-based production of high-quality, durable, shareable and repairable products contribute to climate-friendly living (high agreement, strong literature base). {Chaps. 3, 5, 7, 8, 9, 14} A far-reaching transformation of the economy towards a circular economy as well as the expansion of resource sharing can contribute to achieving climate goals (high agreement, medium literature base). {Chap. 14} Approaches such as “using instead of owning” and “repairing instead of throwing away” contribute by avoiding the production of new goods and the associated climate-harmful emissions (high agreement, medium literature base). {Chaps. 3, 8, 9, 14} Instead of consuming material and accumulating waste in linear production processes, services can enable the sharing of resources, goods and services (high agreement, medium literature base). {Chap. 14}

For the agri-food sector, there are numerous feasible proposals to reduce greenhouse gas emissions, with the greatest reduction potentials pertaining to the production, distribution and consumption of animal products

(high agreement, strong literature base). {Chap. 5} These proposals have so far found little resonance in climate policy measures (high agreement, strong literature base). {Chap. 5} Climate-harmful structures remain, as shown by the focus on animal products, the price pressure on producers, the strong dependence on imports for animal feed and the strong export orientation of agriculture (high agreement, strong literature base). {Chap. 5} Climate-friendly behaviour is promoted in some areas (e.g. through climate-friendly product offerings), but this is countered by climate-harmful routines, practices and habits (e.g. regular meat consumption, food waste) (high agreement, strong literature base). {Chap. 5} Influential actors such as the processing industry and retail have been subject to little scientific study regarding climate-friendly living. {Chap. 5}

In the food system, adaptive, inclusive and cross-sectoral approaches are promising, relying on decentralised self-organisation, entrepreneurship and social learning, among others, and can be promoted by fiscal incentives (medium agreement, medium literature base). {Chap. 5} Production and consumption of organically produced food can contribute to greenhouse gas emission reductions and have numerous additional benefits (“co-benefits”), such as protection of biodiversity and animal welfare as well as increased farmer income (low agreement, strong literature base). {Chap. 5} To ensure the reduction of greenhouse gas emissions, potential climate change-related disadvantages, such as higher land requirements that reduce the absorption of greenhouse gases, should be taken into account (low agreement, medium literature base). {Chap. 5}

At present, large areas of paid work do not fulfil the prerequisites for a climate-friendly life (high agreement, strong literature base). {Chap. 7} In general, technological developments as well as digitalisation are ambivalent in terms of more climate-friendly employment. They can render jobs more climate-friendly (e.g. less commuting due to teleworking) but also more climate-harmful (e.g. energy- and resource-intensive manufacturing of digital devices) (high agreement, strong literature base). {Chap. 7} The current unequal distribution of paid work and unpaid care work (e.g. for children, the elderly, others in need of care) reduces gender, care and climate justice (high agreement, strong literature base). {Chaps. 3, 7, 8}

Transformation processes in the area of paid work towards climate-friendly living can be facilitated by active participation of the workforce, accompanied by company and political measures (medium agreement, medium literature base). {Chap. 7} Employers, including large, public health and social service providers, can create climate-friendly jobs through firm-based social policies (high agreement, weak literature base). {Chaps. 7, 18} Safeguarding material security as well as the fair distribution of transformation costs are fundamental (high agreement, weak

literature base). {Chap. 7} In discussions about the compatibility of economic growth and climate protection, the type and scope of employment have a central role, since income, social security, recognition and participation are linked to employment and thus influence the scope of climate policy (high agreement, medium literature base). {Chaps. 1, 7, 8, 14, 18}

Climate change constitutes a significant and increasing burden to the infrastructures of the health and social system, e.g. through more frequent hospital stays and increased need for cooling measures (high agreement, strong literature base). {Chap. 18} The share of the health system in the Austrian CO₂ footprint is about 7 percent; there is no evidence for the social sector (medium agreement, weak literature base). {Chap. 18} The deployment of climate-friendly or climate-damaging goods and services determines the degree to which paid and unpaid care work are emissions-intensive (high agreement, strong literature base). {Chaps. 8, 18}

If health and social policies are to make a contribution to climate protection, increased health promotion and prevention, green procurement policies and the climate-friendly design of workplaces are all possible policy pathways, along with others. (high agreement, medium literature base). {Chaps. 3, 7, 8, 9, 18} To enable climate-friendly provision of personal social services, health services and in-kind services, there is a need for investment in building infrastructure (e.g. refurbishment of hospitals and care facilities), financial resources for the education and training of employees (e.g. digital literacy) and greater consideration of ecological criteria in procurement (high agreement, weak literature base). {Chap. 18} Also, both policy fields (health and social policy) should be taken into account in the planning, implementation and evaluation of all climate-related measures and climate-related criteria should be integrated into impact and efficiency analyses of health and social policy programmes (high agreement, weak literature base). {Chap. 18}

To ensure staying within planetary boundaries in the long-term, alternative modes of supply (e.g. energy communities, food cooperatives) and caps for GHG emissions could be necessary (medium agreement, weak literature base). {Chap. 14} For climate-friendly consumption and investment decisions, information on climate and sustainability impacts along the entire production and use cycle can be supportive. For this purpose, monitoring mechanisms and a better traceability of the climate and sustainability impacts are expandable (high agreement, strong literature base). {Chaps. 3, 9} Individual lifestyle changes are not sufficient to reduce the negative climate impacts of consumption (medium agreement, medium literature base). {Chap. 15}

Climate-friendly living requires an end to climate-damaging behaviours, production processes and trade

practices. Shaping these changes and the accompanying structural change is a particular challenge (medium agreement, medium literature base). {Chaps. 2, 7, 14, 15} By way of example, the report refers to the necessary reduction of emissions from private transport and the associated effects on the car (supply) industry, to bans on certain emission-intensive products (e.g. installation of oil boilers) or to the connection between meat consumption, which also secures sales markets, and climate-harmful emissions. {Chaps. 5, 6, 7, 15} Likewise, this may effect services whose provision is directly or indirectly linked to climate-damaging emissions (high agreement, weak literature base). {Chaps. 3, 8, 9, 15} From a global perspective that also addresses climate justice considerations, the importance of sufficiency-oriented practices that mitigate greenhouse gas emissions along the entire production chain by reducing global material and energy consumption is emphasised. {Chap. 15}

Prices, financing and investments for climate-friendly living

Prices of goods and services play an essential role in investment and consumption decisions and can facilitate the financing of climate-friendly structures (high agreement, strong literature base). {Chaps. 2, 3, 6, 7, 14, 15, 16, 22} They create incentives for economic actors and influence their costs and revenues and thus also returns, profits and losses. {Chap. 16}

Deep and effective reform of taxes and subsidies for climate-friendly living creates incentives and is a key entry point for emissions reduction (high agreement, strong literature base) {Chaps. 16, 2, 3, 5, 6, 7, 9, 11, 14, 15, 17, 18} This can favour climate-friendly structures and push against climate-harmful ones. This incentive is a central starting point for emission reduction as climate-harmful goods and services become more expensive and climate-friendly ones are provided at a proportionately lower cost (often discussed under the term ‘true costs’). {Chap. 16}

In order to avoid the risk of poverty through climate-friendly price structures, investments can be made in social-ecological infrastructures, social security systems can be expanded or monetary compensations can be made in a socially differentiated manner (medium agreement, medium literature base). {Chaps. 14, 17, 18} Social-ecological infrastructures enable an affordable, sustainable and climate-friendly satisfaction of needs. {Chap. 2} If the provision of public goods and services (e.g. social housing, public transport, decentralised care services) is expanded in a climate-friendly way, positive distributional effects can be achieved and high social acceptance can be reached (medium agreement, medium literature base). {Chaps. 2, 4, 17, 18}

Fiscal policy can create effective incentives at different levels to finance climate-friendly investments (medium agreement, strong literature base). {Chap. 16} The Austrian National Bank (OeNB), as part of the European central banking system, and the Austrian Financial Market Authority (FMA), as the authority regulating the financial markets, also design structures (high agreement, strong literature base). {Chap. 16} On the one hand, they can reduce climate-related physical risks and risks arising from the transition towards a climate-friendly economy (so-called transition risks) by regulation (high agreement, medium literature base). {Chap. 16} On the other hand, they can increase the emissions effectiveness of green and sustainable finance (high agreement, medium literature base). {Chap. 16} This can be done, for example, through appropriate self-investment (green investment strategies of the Austrian National Bank itself) and through monitoring the stability of the financial system as a whole (through macroprudential measures such as increasing banks’ capital ratios) (high agreement, strong literature base). {Chap. 16}

Pricing climate-harmful gases through CO₂ taxes or emissions trading schemes reduces emissions (high agreement, strong literature base). {Chaps. 5, 6, 11, 14, 15, 16, 19} Eco-social tax and industrial policies are effective if CO₂ taxes and credit steering towards green investments are introduced (high agreement, strong literature base). {Chaps. 14, 16}

If green investment of pension assets is to be strengthened, the potential of divest-invest strategies among institutional investors (especially occupational pension funds and employee pension funds) need to be exploited (high agreement, weak literature base). {Chap. 18} Divestment involves the withdrawal of investment assets from climate-harmful industries or companies, where financial resources released as part of divest-invest are shifted to other, climate-friendly forms of investment. {Chap. 18} Institutional investors in the social security system (in particular capital market-based severance systems) are at risk if their climate-harmful assets (such as assets in the oil and gas industry) lose value in the course of a successful transformation towards climate-friendly structures (“stranded assets” of the carbon bubble) (high agreement, strong literature base). {Chap. 18} Exiting such climate-harmful assets accelerates a transformation that can achieve climate goals. {Chap. 18}

Only if “greenwashing” is avoided can green and sustainable forms of financing and investment enable the creation of climate-friendly structures (high agreement, medium literature base). {Chap. 16} In general, greenwashing is understood as a procedure in which goods and services that are harmful to the climate or that originate from processes that are harmful to the climate are presented as climate-friendly {Chap. 16}. Current much-discussed ini-

tatives such as the European Green Deal, the Taxonomy for Facilitating Sustainable Investment, the Green Recovery Initiative in the wake of the Covid 19 pandemic, and government venture capital for innovative green investments can also be affected by greenwashing and are only effective if this is avoided (medium agreement, strong literature base). {Chap. 16}

If the structures of the monetary and financial system are to be conducive to climate-friendly living, this requires not only appropriate regulation of (financial) markets and the creation of climate-friendly price structures, but also prohibitions and changed social norms (medium agreement, strong literature base). To place long-term public investment in climate-friendly provisioning, currently advanced financialisation, i.e. the dominance of finance over the real economy, need to be reversed (low agreement, strong literature base). {Chap. 16}

Shaping structures in a coordinated and targeted manner

In order for climate-friendly living to become the most attractive option in a manner that endures as a lasting new possibility, comprehensive structural changes are urgently needed in all areas of life, as the literature assessed in the report shows (high agreement, strong literature base).

The literature shows that Austria's climate targets for 2030 and 2040 are only achievable if structures for climate-friendly living are designed and established in a determined, coordinated, targeted and continuous way (high agreement, strong literature base). It is not enough if ambitious individuals try to change their own behaviour (high agreement, strong literature base), {Chaps. 1, 2, 3, 4, 5, 14, 23} if only single measures are taken (high agreement, medium literature base), {Chaps. 2, 12, 23} if climate protection is used as the only criterion (high agreement, medium literature base), {Chap. 2} if climate protection is discussed but not resolutely pursued (high agreement, medium literature base) {Chap. 12}, if individual ambitious actors try to pursue climate protection alone (high agreement, medium literature base) {Chap. 14}, or if climate policy is only successfully implemented in a single government period (high agreement, medium literature base). {Chap. 12}

In pluralistic societies there are different, contradictory ideas as to how to deal with the climate crisis (high agreement, medium literature base). This requires a constructive approach to conflicts, the willingness to compromise and the enforcement of democratically legitimised decisions against conflicting interests, while at the same time maintaining a high level of transparency in the corresponding processes (medium agreement, low literature base). {Chap. 12} An approach that allows for different perspectives can be

supportive in developing strategies (medium agreement, low literature base). {Chaps. 1, 2, 23}

In liberal democracies, the coordinated and purposeful design of structures requires effective distributions of authority as well as forums in which interests can be articulated, compromises negotiated and changes decided upon (high agreement, low literature base). {Chap. 6} This is essential in order to deal with resistance, conflicts of goals and interests while at the same time not losing sight of the goal of creating climate-friendly structures (high agreement, medium literature base). {Chaps. 3, 4, 5, 7, 8, 11, 12}

The changes necessary for a climate-friendly life can be described along different transformation paths (high agreement, high literature basis). {Chap. 23} Each path can lead to the achievement of climate goals, provided that the respective framework conditions are profoundly reshaped by state institutions. {Chap. 23} Depending on the path, the focus is on (1) climate-friendly pricing, (2) coordinated technology development, (3) creation of infrastructures and (4) sufficiency-oriented initiatives (medium agreement, medium literature base). {Chap. 23} In order to achieve climate-friendly structures, synergies between the pathways need to be utilized and weaknesses of individual pathways must be compensated. {Chap. 23}

Climate protection measures affect population groups differently, which can reduce the acceptance of measures among those negatively affected, as well as among the population as a whole and may not alleviate – and may even exacerbate – current problems in other areas (medium agreement, medium literature base). {Chaps. 3, 5, 8, 9, 17, 18} There are numerous examples in the literature that outline how climate goals can be integrated with other goals, also to promote acceptance and their potential for impact (high agreement, strong literature base). {Chap. 2, 23}

Achieving climate policy goals requires the full range of climate policy measures, i.e. a coordinated and targeted combination of all available (in particular mandatory) measures (high agreement, strong literature base). {Chaps. 3, 5, 6, 8, 9, 19, 18, 22, 23} Previous climate policies were not sufficiently coordinated and targeted and mostly pursued single measures with lower effectiveness without transforming structures. {Chaps. 12, 23} The complex dynamics associated with innovations and their application and uncertainties regarding their effects require new governance concepts, which better integrate innovation and sector policies and include broader groups of stakeholders in policy processes (high agreement, medium literature base). {Chaps. 12, 13}

In order to achieve climate policy goals, it is important to coordinate measures between fields of action (high agreement, strong literature base). {Chaps. 3, 4, 5, 6, 7, 8, 9} For example, it is not enough to simply improve spatial infrastructure, as the switch from private to public transport

is shaped by habits and values. What is also required is a changed spatial organisation of the localities that have to be reached on a daily basis, a changed understanding of what is understood as good forms of transport, a new time economy in everyday life and active modes of mobility (high agreement, strong literature base). {Chaps. 3, 6, 7, 8, 9}

In contrast, the combination of different measures has the potential for great impact, provided that it aims at the transformation of structures (high agreement, strong literature base). {Chaps. 2, 3, 12, 23} Potentially effective measures can be found in the areas of climate and spatial planning legislation, but also tax, subsidy, social and industrial policy, as well as in supervision of the activities of outsourced public sector companies (e.g. in the area of urban infrastructure or in the transport sector) or the activities of independent regulatory authorities (e.g. in the energy sector). {Chap. 23}

Media, as well as actors in science and education who provide expertise, information and knowledge, raise social awareness, test alternatives and support public debates, can facilitate and promote the design of climate-friendly structures (high agreement, strong literature base). {Chaps. 7, 8, 13, 20} An essential element to making adequate structures of climate-friendly living tangible is in increased media reporting on alternatives to climate-harmful forms of economic activity and transformative solutions (high agreement, medium literature base). {Chap. 20}

Civil society and social movements can initiate change on the one hand through criticism and protest, but also via engagement and social innovation. They can thus be key drivers in shaping structures for climate-friendly living (high agreement, strong literature base). {Chaps. 8, 12, 23} If attention is paid to innovative contributions of civil society movements, new opportunities for coordinated societal respect for planetary boundaries can coincide with efforts to achieve climate-friendly living (strong literature base, high agreement). {Chaps. 2, 6, 8, 14, 16, 21, 23} Examples include contributions in the context of degrowth or post-growth movements, Buen Vivir and imperial and solidarity mode of living (high agreement, strong literature base). {Chaps. 2, 16, 23}

Without critical scientific analysis, civil society mobilisation of an active climate movement, companies committed to climate-friendly living, and interest groups oriented towards climate-friendly living, the necessary transformations are likely infeasible (medium agreement, strong literature base). {Chap. 23} Civil society protest movements that want to contribute permanently to the design of climate-friendly structures needs partners willing to shape them, especially in government, legislation and administration (medium agreement, medium literature base). {Chaps. 1, 2, 12, 23}

An important role in shaping climate-friendly structures is played by companies that implement climate-friendly business models and value creation processes (high agreement, medium literature base). {Chap. 14} Companies create offers of products and services with which consumers can satisfy their needs in a climate-friendly way, if these are supplied (high agreement, strong literature base). {Chaps. 5, 7, 13, 14, 15, 20, 22} These can be oriented towards principles of the circular economy, fair trade or organic farming, create offers of climate-friendly goods and services and thus enable and facilitate climate-friendly living for individuals (high agreement, strong literature base). {Chaps. 3, 5, 8, 6, 7, 9, 14, 15, 17, 18, 20, 22, 23}

Transforming the economy for climate-friendly living strongly affects many aspects of paid work (high agreement, medium literature base). {Chaps. 7, 22} To also achieve climate-friendly structures, material security and the distribution of transformation costs can be negotiated as part of accompanying operational and political measures. {Chap. 7} A re-evaluation of paid and unpaid socially necessary work and its common good-oriented organisation can contribute to both reducing social inequality and promoting a good life while respecting planetary boundaries (medium agreement, medium literature base). {Chaps. 7, 8, 9}

The shaping of structures by firms is facilitated by certainty of expectations and the ability to plan (medium agreement, medium literature base). {Chaps. 14, 16} The state and the administration of the federal and state governments, as legislators, demanders and providers, can shape structures for climate-friendly living and create certainty of expectations and plannability (high agreement, medium literature base). {Chaps. 2, 14, 22} A climate protection law with strategic targets and effective sanction mechanisms is a condition for an effective design of necessary climate-friendly structures (high agreement, medium literature base). {Chaps. 11, 12}

Public institutions can contribute to a change towards climate-friendly lifestyles within the scope of their responsibilities, especially their competences in the area of services of general interest (high agreement, medium literature base). {Chap. 22} In order to be able to use a national and sub-national (in particular municipal) scope for shaping services of general interest, there is a need for more space of manoeuvre in the European economic constitution (high agreement, medium literature base). {Chap. 11}

Climate protection measures without compensation for low-income earners increase poverty risks and exacerbate poverty situations as well as social exclusion (high agreement, strong literature base). {Chap. 17} Rising energy and housing costs play a special role here, especially when low-income households live in buildings that have not been adequately renovated in terms of energy ef-

iciency (high agreement, medium literature base). {Chap. 4} Any refurbishment may reduce energy and heating costs while increasing rental costs due to market appreciation (high agreement, medium literature base). {Chaps. 4, 17, 18}

Climate action can reduce inequalities and be combined with welfare state measures that protect against disadvantages and losses or ensure social security (high agreement, strong literature base). {Chaps. 3, 5, 7, 8, 9, 18} These include expanded material security as well as the socially, gender, environmentally and climate equitable distribution of transformation costs (high agreement, medium literature base). {Chaps. 3, 4, 7, 8, 14, 17, 18}

If climate action contributes to a good, safe and affordable life for all, it is more likely to be accepted, thus easier to implement and more effective (high agreement, medium literature base). {Chaps. 2, 5, 7, 9, 15, 17} Examples from the literature include security of supply through low dependence on fossil fuels and through widely accessible public infrastructure (high agreement, strong literature base). {Chaps. 2, 4, 6, 7, 8, 14, 16, 17, 18, 19} Particularly promising are structural changes that change habits to reduce greenhouse gas emissions and at the same time increase quality of life and re-

duce existing social inequalities (e.g. food or energy poverty) while not creating new ones (high agreement, medium literature base). {Chaps. 2, 3, 4, 5, 7, 8, 9, 17, 18}

The transformation of structures for a climate-friendly life requires the participation of all social forces. In a targeted and coordinated way, framework conditions and relations can be made more climate-friendly together: by entrepreneurs, in associations, social, environmental and climate movements, at the workplace, in chambers and interest groups as part of the social partnership. Without critical scientific analysis, without civil society mobilisation of an active climate movement, without companies committed to climate-friendly living, and without interest groups oriented towards the common good and climate-friendly living, the necessary transformations are likely impossible.

Special competences, resources and decision-making responsibility for shaping climate-friendly living lie with public decision-makers, in legislation and government.

Climate-friendly living in Austria can become a feasible, attractive and default future only if the design-options presented here are implemented.