SUSTAINABLE | LIVING

Climate, Gender and Consumption

A research overview of gender perspectives on sustainable lifestyles

Content

ABOUT THE MATERIAL 5

SUMMARY 6
Climate, gender and consumption 6
Leisure, culture and activism 7
Key takeaways 8

INTRODUCTION 9
Aim and task 9
Structure of the report 10

BACKGROUND 11
Climate change, sustainable development and gender equality in the Nordic countries 11
Sustainable lifestyles as a policy framework 13
Gender as an analytical perspective on the climate and lifestyles 15

METHODOLOGY 18
About the search process 18
Limitations 18
Thematic classification of the material 19

RESEARCH OVERVIEW 21

FOOD 22
Generally on food consumption 22
Meat, vegetarianism and alternative sources of protein 23
Locally produced, organic and fair trade 26
Summary and reflections: Food 28

HOUSING AND ENERGY 30
Generally on housing and energy 30
Comfort and technology in the home 32
Climate transition initiatives for sustainable households 33
Summary and reflections: Housing and energy 34

CLOTHING AND CONSUMER GOODS 36
Generally on clothing and consumer goods 36
Personality traits and identity 37
Social impact and responsibility 38
Reduced consumption and circular economy 39
Summary and reflections: Clothing and consumer goods 40

TRANSPORT 42
Transport mode and traffic planning 42

Fuel and technological solutions 45
Summary and reflections: Transport 46

WORK AND TIME USE 47
Time use 47
Reduced working hours 48
Downshifting initiatives 49
Summary and reflections: Work and time use 49

CULTURE AND TOURISM 51
Tourism, eco-tourism and environmental efforts 51
Cultural festivals 53
Summary and reflections: Culture and tourism 53

ACTIVISM AND INFLUENCE 55
Engagement and activism, especially among young people 55
Education and communication efforts 57
Summary and reflections: Activism and influence 58

DISCUSSION 60

REFERENCES 62
Material for the research overview 62
Other sources 68

APPENDIX 75
Literature searches 0
About this publication 78

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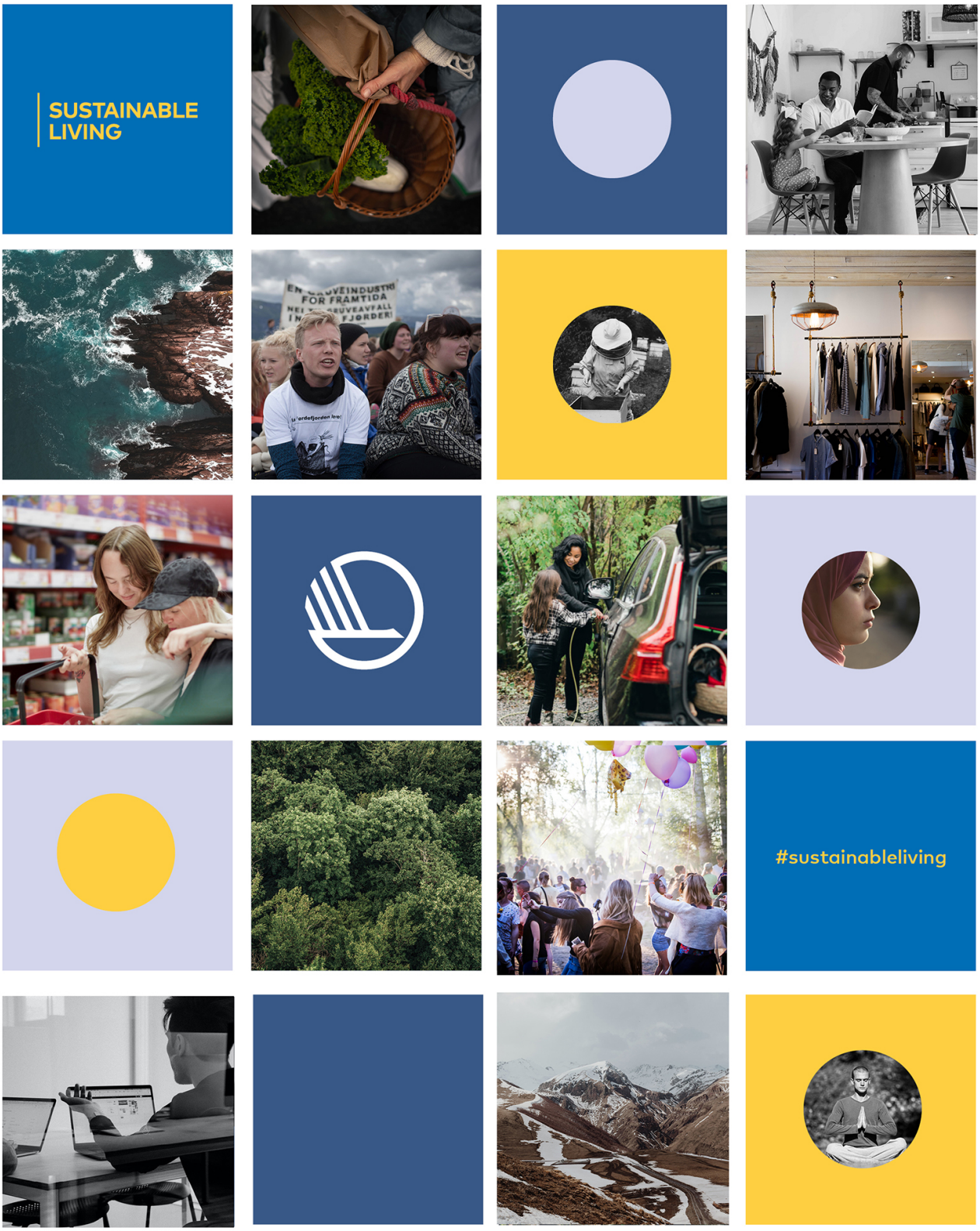
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ABOUT THE MATERIAL

The Nordic Council of Ministers has initiated a multi-annual programme focusing on sustainable lifestyles in the Nordic countries that covers many different sectors. One of its sub-projects, *Sustainability, lifestyles, and consumption from a gender perspective*, aims to develop a knowledge base to reveal and challenge gender stereotypes in relation to consumption and lifestyles, and to contribute to a better understanding of how gender differences arise, and are strengthened and reproduced.

The cooperation body *Nordic Information on Gender* (NIKK) at the Swedish Secretariat for Gender Research, University of Gothenburg, was assigned the task of developing this knowledge base. Jimmy Sand, Investigator at the Swedish Secretariat for Gender Research, was engaged to perform this task.

To assure the quality of this research overview, researchers from five Nordic countries were invited to participate in a reference group that has been consulted throughout the work process.

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SUMMARY

Responsible production and consumption, Goal 12 of the 2030 Agenda, has been identified as one of the areas where the Nordic countries face the biggest challenges in their sustainable development work. Overall, the international research on the environmental impact of individuals' consumption patterns shows that socio-demographic factors such as sex, income and ethnicity have great explanatory value, and that inequalities *per se*, especially in high-income countries, leads to increased emissions from consumption.

In the project "Sustainability, lifestyles, and consumption from a gender perspective" within the Nordic Council of Ministers' *Sustainable lifestyles in the Nordic region* programme, Nordic Information on Gender (NIKK) has produced a research overview which aimed to reveal and challenge gender stereotypes in relation to consumption and lifestyles; and to contribute to a better understanding of how differences arise and are strengthened and reproduced.

A systematic literature search conducted with the help of KvinnSam, a Swedish national library for gender research located at the University Library of the University of Gothenburg, formed the basis for the report. Searches were made in international journal article databases and gender studies journals in the Nordic region covering the years 2007 to 2021. Based on the included articles, the report identified seven themes: 1) Food; 2) Housing and energy; 3) Clothing and consumer goods; 4) Transport; 5) Work and time use; 6) Culture and tourism; and 7) Activism and influence.

Climate, gender and consumption

In comparison with men as a group, women as a group are more engaged in climate change issues and social issues. A comparison also shows that consumption and other behaviour patterns, particularly related to food and transport, mean that the impact of men as a group on the climate is greater than that of women as a group.

In the Nordic countries, food, and in particular meat consumption, accounts for a large portion of the household's resource consumption and greenhouse gas emissions, and consequences for humans, animals and ecosystems arise in the food production chain. Norms of femininity and masculinity in the global North appear to influence both individuals' attitudes to climate change and the extent to which they engage in various behaviours that have either positive or negative consequences for the climate. The material in this report shows that the more that individuals display feminine tendencies, whether they are women, men or non-binary, the more oriented they are towards living sustainability. Interest in sustainability seems to be linked to feminine ideals of care, and care responsibilities seem to promote environmental awareness, and influence purchasing decisions and how they deal with their possessions in both men and women.

After food and construction materials, the production chain for clothing and consumer goods – from raw materials and manufacturing to transport – accounts for the greatest environmental footprint from global trade, with negative

environmental and social impacts. The establishment of mass consumption and norms of femininity and masculinity affect the consumption patterns of individuals. The gender-based division of labour in households influences their energy consumption and purchases for the household, and how they allocate responsibility for efforts to make their lives more sustainable. Transport patterns, where men as a group more often own and use cars for transport than women as a group, also reflect the gender-segregated labour market and the uneven distribution of unpaid domestic and care responsibilities.

Leisure, culture and activism

The term *lifestyle* also includes non-economic activities. Reduced working hours and downshifting initiatives do not seem to have an unequivocally positive impact on sustainability, either in social or environmental terms. Without explicit climate or environmental motives, downshifting does not automatically lead to a reduction in consumption.

The ideal of caring appears to have consequences for tourism, as well as cultural events such as festivals, but the material sourced for this report lacks studies covering many aspects of cultural tourism, and to some extent also the area of education about sustainability. This suggests that the development of further knowledge that includes a gender perspective on sustainable lifestyles in these areas in particular is needed.

Young people in particular are concerned about climate change, especially girls and young women, and many are involved in climate activism, while climate change deniers are disproportionately found among older men who are often employed in, or have a background in, traditionally male industries.

Key takeaways

- Gender, understood as social norms, is often more important than sex as a statistical variable. Individuals oriented towards caregiving – an ideal often associated with femininity, regardless of sex – are more engaged with sustainability and show more sustainable behaviour patterns.

- The uneven distribution of unpaid domestic and care work, for which women as a group take a greater share of the responsibility than men as a group, and the normative coding of technology as a male domain, have consequences for the different impacts of individuals on the climate; and consequently for what efforts should be made to reduce this impact.

- Women as a group are ascribed a greater responsibility for the environment as consumers than men as a group due to social norms concerning fashion consumption, but also because women more often than men are responsible for cooking the meals in households and for washing and buying clothes for the family members.

- Traffic planners, vehicle manufacturers, food producers, energy companies, the fashion industry, etc., all have great power to influence the climate impact in their spheres, and thus bear a great responsibility for the green transition. When responsibility is placed on consumers instead, it risks being individualised. Due to norms of femininity and masculinity, the unequal distribution of unpaid domestic and care work and the feminisation of consumption, where men's behaviour patterns in this space are rendered invisible, may entail a particular burden of responsibility on women as a group.

- If reducing working hours with associated changes in consumption is to be used as a strategy to achieve more sustainable lifestyles, it should be based on efforts to influence the preferences of men as a group, and to support the ideal of caring among men.

Further studies that include intersectional gender analyses are needed to investigate the implementation and impact of education for sustainable development, as well as in the area of culture and tourism.

INTRODUCTION

Aim and task

The Nordic Council of Ministers has adopted a vision that the Nordic region will be the most sustainable and integrated region in the world by 2030. It is a vision that includes *a green Nordic region*, *a competitive Nordic region* and *a socially sustainable Nordic region*, as the strategic priorities are formulated in the Action Plan for the period 2021–2024 (Nordic Council of Ministers, 2020). The vision is based on the 2030 Agenda and the 17 global goals for sustainable development adopted by the UN Member States in 2015 with the intention of working across sectoral boundaries and working to integrate the environmental, economic and social dimensions of sustainability (UN, 2015).

The Nordic Council of Ministers' Action Plan for 2021 to 2024 has appointed a cross-sectoral initiative relating to sustainable lifestyles, focusing on knowledge bases, policy development, and communication on behavioural and cultural change. The aim of this initiative is to help *facilitate and accelerate the normalisation of sustainable lifestyles in the Nordic region*, and it covers fisheries, aquaculture, food and forestry; culture; the environment and climate; research and education; gender equality and LGBTI[1] questions; as well as the Nordic Expert Group for Sustainable Development and the Nordic Committee for Children and Young People (NORDBUK).

1. Sustainable and healthy food systems
2. Sustainable cultural experiences in the Nordic Region
3. The Nordic Swan (Svanen) eco-label's contribution to the fulfilment of the Nordic Council of Ministers' vision and climate plan
4. Education for Sustainable Development
5. Sustainability, lifestyles and consumption from a gender perspective, and
6. Good Life Goals – A communication initiative by and for young people.

1. LGBTI is an abbreviation for Lesbian, Gay, Bisexual, Transgender and Intersex. This abbreviation is used in the Nordic region, and many international, contexts.

The Nordic Council of Ministers co-operation body *Nordic Information on Gender* (NIKK), located at the Swedish Secretariat for Gender Research at the University of Gothenburg, was commissioned to carry out the sub-project *Sustainability, lifestyles and consumption from a gender perspective*. This was done by means of a study carried out by Jimmy Sand, an analyst at the Swedish Secretariat for Gender Research. A systematic literature search on which to base the study was carried out with the assistance of Sanna Hellgren, librarian at KvinnSam at the University Library, University of Gothenburg.

The study aims to:

- with recent knowledge, reveal and challenge gender stereotypes in relation to consumption and lifestyles, and contribute to a better understanding of how gender differences arise, and are strengthened and reproduced;
- include critical and intersectional perspectives in order to reveal and problematize how class and age for example affect consumption habits as well as norms around consumption;
- study and analyse the concepts of sustainability and lifestyle from a broad intersectional gender perspective in relation to themes highlighted within the cross-sectoral programme on sustainable lifestyles – these can include sustainability communication, education for sustainability, green cultural experiences, and sustainable food experiences.

Structure of the report

A summary of the main findings of the research review is presented first. This is followed by a presentation of the task and its aim. After this introductory section comes an outline of the background to the task in discussions about sustainable development, gender equality, sustainable lifestyles and gender as an analytical perspective. The method and approach are then presented, which also describes the division of the studies included in the research overview into themes. The main part of the report refers to research that includes a gender perspective on sustainable lifestyles, divided into seven thematic chapters, with each chapter ending with a summary of the results and some reflections. The research overview concludes with a general discussion. Finally, there is a bibliography of the referenced studies and other works referenced in the report. A description of the strategy behind the literature searches is included as an appendix.

BACKGROUND

Climate change, sustainable development and gender equality in the Nordic countries

The Nordic Council of Ministers' vision for the Nordic region to become the most sustainable and integrated region in the world by 2030 can be placed in the historical context of Sweden hosting the first UN Conference on the Environment in 1972, and Norway's former Prime Minister Gro Harlem Brundtland heading the World Commission on Environment and Development which, in its final report published in 1987, established the term *sustainable development* (WCED, 1987). With the Helsingfors Declaration on Nordic Carbon Neutrality, five Nordic countries (Finland, Iceland, Sweden, Norway and Denmark) set climate targets that were more ambitious than those in the EU's Green Deal (European Commission, 2019; Nordic Council of Ministers, 2019b). The theme of climate and gender was already highlighted by the Nordic Council of Ministers prior to the UN's Fifteenth Session of the Conference of the Parties (COP 15), which was held in Copenhagen in 2009. After this theme having been highlighted by the UN's *Commission on the Status of Women* (CSW) the previous year, a Nordic Summit was organised, where recommendations were developed on how to integrate gender and gender perspectives into the climate negotiations (Oldrup and Hvidt Breengaard, 2009).

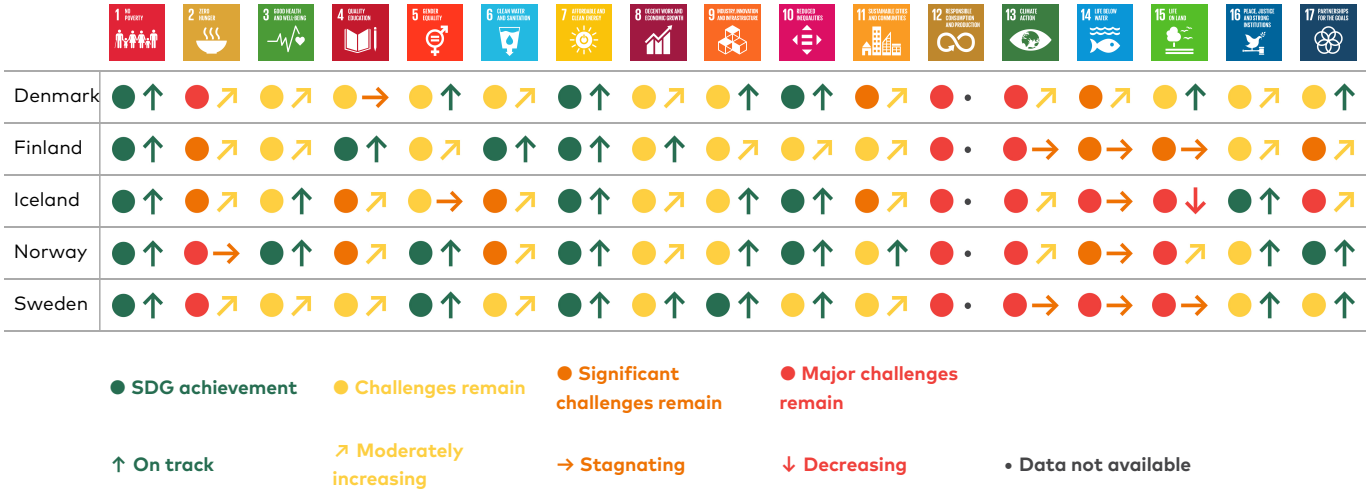

Figure 1. SDG index on the status and trends for the Nordic countries in 2021. Source: Sachs et al. (2021).

The Nordic countries rank high in the UN's Sustainable Development Goals (SDG) index, with Finland at the top (Sachs et al., 2021). They rank very highly on the social dimension of sustainable development (for example Goal 1 *No poverty*, Goal 3 *Good health and well-being*, Goal 5 *Gender equality*, and Goal 8 *Decent work and economic growth*), while challenges remain in the environmental goals (Goal 12 *Responsible production and consumption*, Goal 13 *Climate action*, Goal 14 *Life below water*, and Goal 15 *Life on land*) (see Figure 1 above). The resolution by the UN General Assembly in 2015 adopting the 2030 Agenda, which includes the 17 SDGs, specifies that work with sustainable development must be carried out in a way that integrates the economic, social and environmental dimensions (UN, 2015). The Agenda is to be understood as indivisible, with all the SDGs integrated with each other, meaning that unilateral work with one or some of the SDGs risks having a detrimental effect on other SDGs (Weitz et al., 2019). In the Nordic countries, there is a long-standing tradition of combining competitiveness with social welfare, which is reflected among other things in high labour market participation for both women and men being promoted and supported by how parental leave and the provision of childcare are organised (Nordic Council of Ministers, 2019a). This experience from integrating approaches can be useful in the development of society in a direction that is also environmentally sustainable in relation to planetary boundaries (cf. Raworth, 2012; Steffen et al., 2015). The green transition must be carried out in such a way that is compatible with social sustainability, so as not to create a breeding ground for climate-sceptic protest movements, nor to undermine support for climate policy among the population in general. Initiatives affect regions, industries and population groups differently – some businesses will undergo major changes, with consequences for jobs, while households also need to change their consumption patterns or pay more for certain goods (Høst et al., 2020).

In the vision of the Nordic region becoming the world's most sustainable and integrated region by 2030, there lies an ambition to pursue this process of change across established boundaries between different industries, and to take a holistic approach to sustainability in its environmental, economic and social dimensions (Nordic Council of Ministers, 2020; cf. Halonen et al., 2017). Gender equality has been identified as one of several horizontal perspectives.[2] This is in line with the 2030 Agenda where, in addition to being an SDG itself, gender equality is also a horizontal principle for the whole Agenda. Most SDGs have gender-related targets as well as gender-specific indicators that aim to integrate gender into the environmental as well as the social and economic dimensions of sustainable development. However, gender-specific indicators are missing from Goal 12 (*Responsible production and consumption*), Goal 14 (*Life below water*) and Goal 15 (*Life on land*) (cf. UN Women, 2018). The Nordic countries are consistently top ranked in European and international indices on various aspects of gender equality (OECD, 2018; UNDP, 2020), but there are major challenges that still need to be worked on. While women's labour market participation is higher in the Nordic countries than in other parts of the world, pay gaps between women and men remain, women still take a greater share of the responsibility than men do for unpaid domestic and care work, and there is considerable gender segregation in the labour market as a consequence of gender-based education choices (cf. Jansson and Sand, 2021; Simonsson, 2022).

2. The other horizontal perspectives are sustainable development and the rights of the child and young people.

Studies of the Nordic countries' climate policies show that they are having negative consequences for gender equality, and thus also for an effective implementation of the green transition, since initiatives under these policies are largely gender-blind in their design. Decision-makers in the area are often economists and engineers – professions dominated by men – whose education and training are about focusing on costs to the society and technological solutions rather than social contexts (Lander Svendsen et al., 2022). For example, an analysis of Finland's new climate and energy strategy shows that, in terms of jobs that are added or lost, the measures are assessed as having an overall positive impact on male-dominated sectors such as the energy, industrial and agricultural sectors, while their main negative impacts are on the female-dominated services sector. Furthermore, the proposed measures have a focus that has been assessed as affecting men's consumption habits and containing technological solutions that interest men (J.M. Paavola et al., 2021). What emerges from these studies and analyses is that, in order to be successful, green transition initiatives need to aim to *both* break down gender segregation in the labour market *as well as* challenge gender stereotypes in relation to consumption and lifestyles.

Gender aspects of climate change and the role of women in programmes and policies to reduce environmental and disaster risk reduction were themes for the 66th Commission on the Status of Women (CSW) on 14–25 March 2022. In addition, the Nordic Council of Ministers prepared a joint commitment (Nordic Council of Ministers, 2022), based on, among other things, a Roundtable in January of the same year with representatives from the business community and civil society (Løvslett Danbolt, 2022). The commitment underlines the need to develop and communicate knowledge for inclusive green jobs and education opportunities among other things, with a focus on horizontal and vertical gender segregation in particular in STEM[3]; as well as the transition to responsible consumption, including analyses of consumption patterns for women and men. The present report is a contribution to this knowledge development, which, with a gender perspective on lifestyles and consumption, highlights both opportunities and obstacles to meeting the Paris 2015 commitment to keeping global warming well below 2°C in 2100 compared to pre-industrial levels.

Sustainable lifestyles as a policy framework

Responsible production and consumption, Goal 12 in the 2030 Agenda, has been identified as one of the areas where the Nordic countries have the most significant challenges ahead in their work for sustainable development, and this area has a major impact on the achievement of many of the other SDGs (Alslund-Langhén and Larsen, 2017). Sweden is the only Nordic country to provide official statistics on consumption-based emissions in addition to territorial emissions (i.e., emissions that occur within its borders, for example from industry, energy production, agriculture and domestic transport), and the Swedish Cross-Party Committee on Environmental Objectives (*Miljömålsberedningen*) has proposed that the Swedish Government supplement its climate policy framework with targets related to the environmental impact from consumption and climate benefits from exports (SOU

3. STEM is an acronym for Science, Technology, Engineering and Mathematics. See also Jansson and Sand (2021).

2022:15; cf. Larsson et al., 2021). In 2021, Denmark made a national assessment of the environmental impact from consumption, while studies were carried out in Finland, Iceland and Norway without the results of these studies having been utilised in these countries' official statistics.

According to a research report focusing on housing, transport, food and consumer goods commissioned by the Nordic Council of Ministers, transport accounts for about 30–40 per cent of total household emissions in these five Nordic countries; while food, mainly meat and dairy products, and energy use in housing, mainly for heating, each account for about 20–30 per cent (Fråne et al., 2021). A previous research report commissioned by the Nordic Council of Ministers concludes that despite strong environmental engagement, resource use and the environmental impact associated with consumption in the Nordic countries are among the biggest in the world per capita, and are continuing to rise. There is a limit to what individual behavioural changes can achieve in order to reverse this trend, and changes in societal structures and social norms are also needed – which means, among other things, that policy-makers have an important role to play in the green transition, guided by research-based knowledge (Mont et al., 2013). The individual's personal responsibility to do something about structural conditions can be said to vary with the degree of power to effect change as well as their privileges which depend on prevailing circumstances (Young, 2006).

Gender equality is one of the three overarching principles of the 2030 Agenda[4], and the countries that have signed the Paris Agreement have committed themselves to integrating gender into their efforts to combat climate change and to manage its consequences. However, this is being done with varying results (IUCN, 2021). Despite studies pointing to significant differences in consumption patterns between women as a group and men as a group (see for example Jarelin and Jacobsson, 2018), there are no gender-specific indicators for Goal 12 of the 2030 Agenda on *Responsible production and consumption* and related processes within the UN, such as the ten-year framework programme for responsible consumption and production patterns which started in 2012, are also largely gender-blind (Bauer et al., 2018). The importance of understanding the statistics covering consumption-based emissions broken down by population group has been confirmed by a Working Group Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). Overall, the international research on the environmental impact of individuals' consumption patterns shows, among other things, that socio-demographic factors such as sex, income and ethnicity have great explanatory value, and that inequalities *per se*, especially in high-income countries, leads to increased emissions from consumption (Skea et al., 2022).

Through the above-mentioned framework programme, *sustainable lifestyles* has become established as a policy concept at the intersection of the economic, social and environmental dimensions of individuals' consumption patterns (Gilby et al., 2019; Mao et al., 2019). In this context, sustainable lifestyles have been defined as:

4. The other overarching principles are human rights and that no one should be left behind. See also Widegren and Sand (2021) for analyses of the 2030 Agenda that include a gender perspective.

> […] patterns of action and consumption, used by people to affiliate and differentiate themselves from others, which: meet basic needs, provide a better quality of life, minimise the use of natural resources and emissions of waste and pollutants over the lifecycle, and do not jeopardise the needs of future generations. (Mont, 2007; see Scott, 2009; Svingstedt and Fuentes, 2013).

The present report aims to further develop knowledge about sustainable lifestyles with reference to the 2030 Agenda's Target 12.8 on ensuring 'that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature'. Climate change is not the only aspect of sustainable development, but it is an aspect that is clearly measurable given the scientific knowledge that we have acquired about greenhouse gases and the impacts of human activity. Similarly, the concept of lifestyles is about so much more than the consumption patterns of individuals, albeit that they are among the more measurable aspects. But it also includes non-economic aspects of our lives such as caring for children or elderly parents, socialising with our friends, or engaging in games, volunteering and activism. All this affects our well-being and also has a direct or indirect impact on the climate (Akenji et al., 2021). By relating lifestyles to societal structures and norms based on gender and other categories such as class, race, ethnicity and age, decision-makers can gain a better understanding of the opportunities and obstacles that exist for sustainable development.

Gender as an analytical perspective on the climate and lifestyles

A number of studies have illustrated differences between women as a group and men as a group concerning the negative effects of climate change on their living conditions, health and safety, and there are also differences within these groups depending on categories such as race, ethnicity, class, sexuality, age, functional diversity and political geography (urban or rural, the global South or the global North, etc.) (Rao et al., 2019). There are also differences in terms of power and influence over the actors and sectors – such as the industrial, energy production and transport sectors – that generate the largest greenhouse gas emissions, as well as the arenas and institutions within which climate policy decisions are made (Ergas and York, 2012). Women are also generally more inclined to change their behaviour out of consideration for the environment than men are (Dzialo, 2017). In addition, concern about climate change in the global North is more common in women as a group than men as a group (Lewis et al., 2019), and this concern is particularly high among young people (Hickman et al., 2021).

To avoid entrenching gender stereotypes, knowledge bases for decision-making need to be based on analyses of gender that go beyond purely descriptive accounts of differences between women as a group and men as a group (Widegren and Sand, 2021; cf. Arora-Jonsson, 2014). As an analytical term, gender reveals how shared ideas, conceptions, actions and practices contribute to shaping individuals and groups, and this is not something that is fixed, but is instead constantly being done, challenged and recreated (West and Zimmerman, 1987; Butler, 1990). Since the 1800s, the concepts of femininity and masculinity have been used to describe human character traits that can potentially be embodied by both men and women, but

social norms mean that femininity is ascribed to women and masculinity to men (Nordberg, 2004). These norms can be particularly problematic for LGBTI persons, such as non-binary and other transgender persons whose gender identity does not correspond to the expectations of their social environment, which may have consequences in terms of their health, well-being and living conditions (Siverskog and Måwe, 2021).

In addition, occupations, interests and areas of knowledge are also gender-labelled as feminine or masculine, and this is expressed in both the workplace and the private sphere (see for example Kanter, 1977). For example, femininity is associated with social reproductive work, or care work – meaning all the work needed to raise new humans, to reproduce everyday life in households that provide food, security and a space for the human body to recuperate after work (Beier, 2018). It also permeates working life (Badgett and Folbre, 1999). In a similar way, technology and machinery are associated with masculinity (Berner, 1996; Jansson and Sand, 2021). Individuals make themselves into women and men respectively by applying norms of femininity and masculinity according to the binary gender model that is the norm in many societies. But gender norms can also be renegotiated and gender changed – as when skills requirements in the workplace or the distribution of the sexes in an occupation change (Abrahamsson, 2002; Acker, 2006).

The concept of lifestyle can be used to understand how individuals do gender at a pragmatic level (negotiations surrounding concrete tasks in the division of labour in a household as well as in the labour market); and at a semantic level (identity, values and attitudes that give meaning to actions). In modern societies, it is not just activities in the workplace and households that are important, since other spheres of social life – such as leisure activities – are also important for defining identity and group membership in terms of gender, class, ethnicity, etc. (Vogl and Baur, 2018). Femininity and masculinity are relevant to sustainable lifestyles, since commitment to recycling and a low-emissions diet are understood as care work that women take responsibility for to a large extent (Murphy and Parry, 2021); while green technologies such as solar panels and electric cars appeal to the technical interests of men (cf. Hultman and Pulé, 2018); and consumption culture is understood as a feminine sphere in which primarily women are engaged in identity creation through fashion and cosmetics for example (Petersson McIntyre, 2011; Soper, 2009). As demonstrated by research in health, ways of life and living conditions, there is an interplay between agency and structure, that is, the individual choices (agency) that are expressed in lifestyles are dependent on the individual's opportunities based on their class, gender, age, race and ethnicity (structure), while lifestyle practices can both change and entrench these structures (Cockerham, 2005). Gender analyses of lifestyles are advantaged by an intersectional approach, which explores how gender norms interact with class, age and ethnicity to create differences in identity, living conditions and influence (Kaijser and Kronsell, 2014; cf. Magnusdottir and Kronsell, 2021). These kinds of analyses can move sustainability forward by contributing to an understanding of the complex interplay between nature and human societies, as well as challenging established ideas about people's attitudes to the climate, such as 'poor women' as particularly vulnerable, Scandinavians as environmentally aware or 'indigenous people' as environment-friendly (Kaijser, 2011; cf. Bauhardt, 2013). They are also relevant to climate justice, a concept that is included in the Paris Agreement and which is in line with the overarching principle of the 2030 Agenda that no one should be left behind (J. Paavola and Adger, 2002; Kivimaa et al., 2021).

Finally, a few words about the terminology in the following research overview. In the articles referenced, both sex and gender are used as terms. On the one hand, the report refers to differences between women as a group and men as a group, and sex is used as a variable based on the binary model of gender that permeates the quantitative studies in the material. On the other hand, conceptions, norms and stereotypes linked to gender, as well as categories such as age, class and ethnicity, are described and analysed. Most of the articles are in English, and *gender* rather than *sex* is often used, referencing the binary model mentioned above. In the present report, however, the concepts used are consistent with the above reasoning, rather than how they are used in the referenced material. The articles also contain terms such as 'the West', 'industrialised countries' (and 'developing countries'), 'high-income countries' (and 'low-income countries' and 'middle-income countries') and the 'global North' (and 'global South'), depending on the context and scholarly traditions in the subject area. The 'global North' and 'global South' are used throughout this report, the former being used for countries in North America and Europe (primarily Western Europe and the Nordic countries), as well as Australia and New Zealand which, relative to other parts of the world enjoy a high degree of economic prosperity and power on the global stage – even though there are major differences within this group of countries in terms of socio-economic status and on the centre-periphery or urban-rural dimensions, for example (Braff and Nelson, 2022).

METHODOLOGY

About the search process

This report was based on a systematic literature search conducted with the aid of KvinnSam, a Swedish national library for gender research located at the University Library of the University of Gothenburg.[5] The search strategy was discussed in consultation with librarians at KvinnSam, and through regular contact between KvinnSam and the author of the report. Initially, three key terms were identified as central to the literature search:

1. gender and gender equality,
2. climate and sustainability, and
3. consumption and lifestyles.

Based on these key terms, search blocks were constructed that included related words and concepts. With the aim of capturing a broad range of relevant research publications, a combination of both international journal article databases (Ebsco, PsycINFO and Scopus) and gender research journals in the Nordic countries (*TGV*, *Tidsskrift for kjønnsforskning*, *Kvinder, køn & forskning*, *Nora*, *Norma* and *Sukupuolentutkimus*) were chosen. The search strings were adjusted somewhat depending on the nature of the sources, for example by excluding the gender block where gender was implicit. The search was performed in November 2021. In December, two supplementary searches were made in the databases, with the aim of capturing more articles on the themes of culture and climate activism. For a more detailed description of the search strategy, see Appendix 1..

Limitations

In terms of time, the searches were limited to articles published during the period 2007–2021, a range of fifteen years.[6] They resulted in three hit lists comprising a total of 1388 records (main search 1120, culture 200, and climate activism 68), after removing the duplicates, delivered in the Rayyan QCRI tool. A first review was carried out by the author of the report to sift out irrelevant records based on the abstracts and to do a preliminary sorting into themes. As material for the analysis, the research overview was limited to peer-reviewed articles in scholarly journals, which at this stage of the process consisted of 289 records. These were delivered in full text in the Zotero tool, where a second review round followed based on pre-established criteria:

1. The Nordic countries or other countries that are comparable culturally and/or in respect of economic standard (for example, material with empirical evidence solely from the global South was excluded).
2. Consumption patterns and lifestyle issues relevant to sustainable development (for example, material which was confined solely to the health aspects of diet for the individual was excluded).

5. For more information about KvinnSam, visit www.ub.gu.se/kvinn.
6. The term *sustainable lifestyles* can be said to have gain its current application in the UN system in 2007 (Mont, 2007).

3. A sex or gender analysis relevant to the report's fundamental question (for example, material where sex was used as a variable but where no comprehensive analysis was made based on this was excluded).[7]

After this review, 87 peer-reviewed articles in scholarly journals remained.

Thematic classification of the material

The included articles underwent a close reading and were classified into themes based on the main focus of each study, where there were overlaps in a few cases.[8] These were the themes identified:

1. Food (26 articles)
2. Housing and energy (13 articles)
3. Clothing and consumables (14 articles)
4. Transport (14 articles)
5. Work and time use (8 articles)
6. Culture and tourism (7 articles), and
7. Activism and influence (11 articles).
8. Aktivism och påverkan (11 artiklar).

7. Here, sex refers to women and men, and – in the material, to a very marginal extent non-binary persons – as statistical categories. As described in the background chapter, using gender as an analytical category involves examining how power structures, norms and perceptions of the sexes affect society and, in this case, people's lifestyles.
8. The articles that touch on more than one theme are discussed in several places, and this is indicated in the text when it occurs.

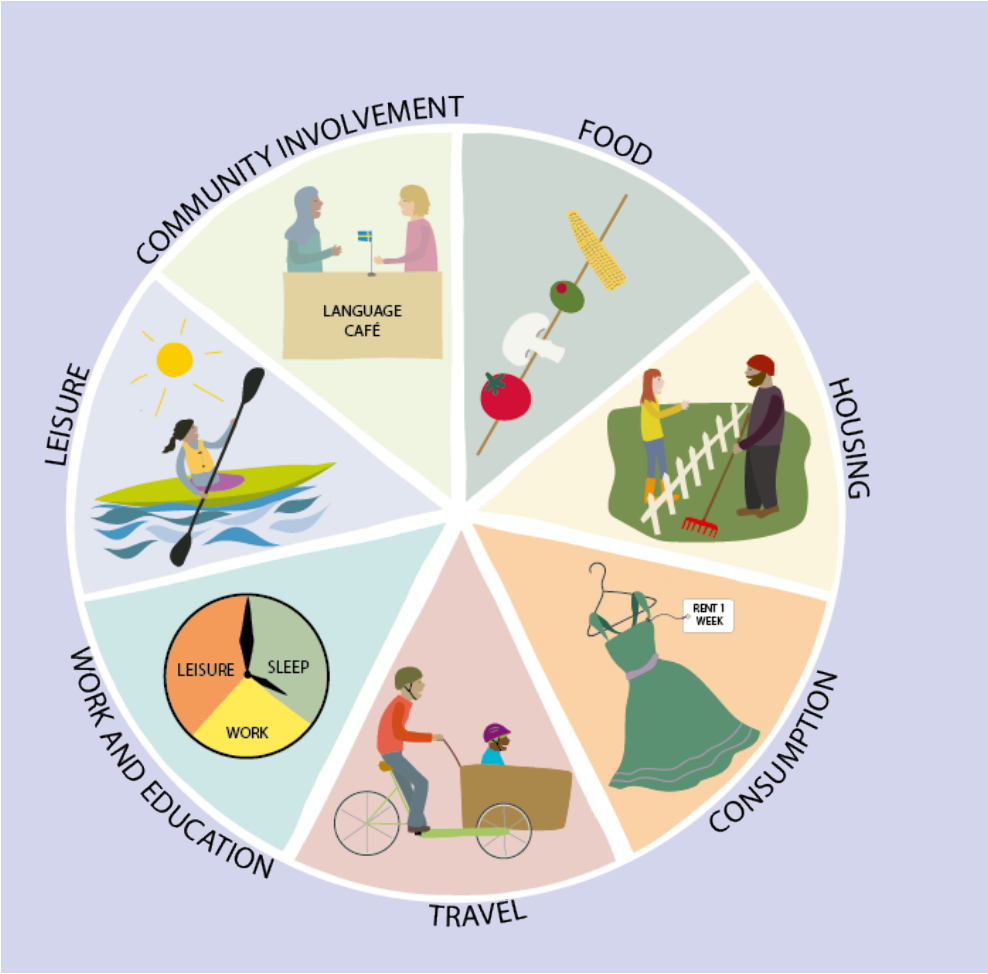

Figure 2. The lifestyle wheel developed by Mistra Urban Futures, illustrates priority areas for change.
Source: Eneqvist and Kalmendal (2017). Illustrator: Louise Quistgaard

For guidance in the work of identifying these themes, the lifestyle wheel developed by Mistra Urban Futures, a centre of excellence funded by Mistra, the Swedish Foundation for Strategic Environmental Research in 2010–2019, was used. The lifestyle wheel, which is not based on an explicit gender analysis, is intended to facilitate the practical work of prioritising areas for interventions which aim to reduce resource consumption and environmental impacts. The seven themes into which the articles in the research overview were sorted can be related to the different areas of the lifestyle wheel, even if they are not identical to them: Food, Housing, Consumption, Travel, Work and Education, Leisure, and Community Involvement (Eneqvist and Kalmendal, 2017; cf. Fråne et al., 2021).

RESEARCH OVERVIEW

The following part, which is the main part of the report, refers to research that includes a gender perspective on sustainable lifestyles. The referenced studies are sorted by their content into seven overarching themes:

1. Food
2. Housing and energy
3. Clothing and consumer goods
4. Transport
5. Work and time use
6. Culture and tourism, and
7. Activism and influence.

Each chapter concludes with a summary of the results and reflections based on the report's aim to reveal and challenge gender stereotypes in relation to consumption and lifestyles, and to study and analyse sustainability and lifestyle concepts from a broad intersectional gender perspective. Given the goal of combating climate change, with a specific focus on the environmental impact of consumption and lifestyles, femininities and masculinities are illustrated as both obstacles and opportunities in relation to this goal. Which genders, embodied through everyday practices, enable sustainable lifestyles regardless of sex, and how can gender as complex and changing phenomena be renegotiated to reduce environmental impact?

FOOD

In the Nordic countries, food accounts for up to one third of the environmental impact of households, where meat contributes the most to greenhouse gas emissions and the consumption of finite resources (Fråne et al., 2021). Meat consumption has risen during the same period as the climate has become a societal issue. Besides the amount of meat consumed, the use of fertilizers and pesticides, and freight from food-exporting countries are factors that affect environmental sustainability.

This chapter discusses studies that highlight differences between women as a group and men as a group and analyse gender in relation to this theme. This is about attitudes and behaviours in relation to meat consumption and vegetarianism, and to organic and locally produced food. The chapter concludes with a summary of salient patterns, along with reflections on how these patterns arise and are reproduced, which genders enable sustainable lifestyles regardless of sex, and how these can be promoted.

Generally on food consumption

Six studies address the general aspects of food consumption. Carlsson Kanyama et al. (2021) studied the quantity of greenhouse gas emissions per individual related to food, holiday travel, and home furnishings in a study of register data on the consumption of 3,491 households in Sweden (of which 2,871 were average multi-person households, 369 were average single male households, and 251 were average single female households). The results indicate that single households, especially those of single males, generate more emissions per person than multi-person households. The difference is primarily explained by the fact that multi-person households include children who do not generate the same quantities of emissions as adults and thereby reduce the average, and by the fact that men in single households spend more money (70%) on car fuel than women in single households do. There is a small difference between women and men in terms of diet, where women generate slightly lower (9%) emissions. In this study food accounts for up to one quarter (21–25%) of household emissions, while travel accounts for one third (30–33%). In descending order, the most emissions-intensive foods, calculated per unit price (SEK), are lamb, milk, beef, cheese and chicken. This can be compared to soy-based meat substitutes, vegan cheese, tomatoes, tofu and salad, which in descending order produce the lowest emissions per unit price (SEK).

In a review of previous studies, Vinz (2009) investigated the importance of the gender perspective on relevant aspects of sustainability such as transport, waste disposal, and the production and consumption of textiles and food. The results indicate that there is a gendered division of labour in households, where women are responsible for the planning, purchasing and cooking of food, as well as for the sorting and disposing of household waste. When waste disposal is made into a consumer responsibility, and thus yet another chore that is part of unpaid household and care work, it constitutes a feminisation of responsibility for the environment,

where in practice additional burdens are placed on women. As a group, women are more oriented towards the health aspects and calorie content of food, eat more fruit and vegetables, and tend to follow dietary recommendations; while men as a group are more oriented towards indulgence and eating what they experience as tasty. Men eat meat more often and in greater quantities than women, which can be related to the societal gender system and that meat is associated with strength, potency and power – values which in turn are associated with masculinity.

In an interview study with 3,818 respondents in the Netherlands aged 7–69 years, who were asked on two different days about what they had eaten in the last 24 hours, Temme et al. (2015) investigated differences in diet with respect to sex and age, related to environmental impact. Their results indicate that the CO2 equivalents of daily food are least for girls (3.2 kg), followed in increasing order by boys (3.6 kg), women (3.7 kg) and men (4.8 kg). There are significant differences within these groups, where the greatest differences in degree of emissions-intensive food are due to meat, cheese and dairy products as well as soft drinks (girls, boys and women) and alcoholic beverages (men). How much meat is consumed is the single most important factor. Ernstoff et al. (2020) investigated the role of gender and level of education for diet in relation to the climate and health in a study based on the national dietary survey in Switzerland with 3,860 respondents. The results indicate that men consume almost twice as much meat and grains as women, and that men with higher education consume more, and more expensive, meat than men with lower levels of education; while women with higher education consume less meat than women with lower levels of education.

Korkala et al. (2014) investigated how knowledge and concern about climate change and socio-demographic factors were reflected in the dietary choices of young adults in a survey-based study of 1,623 respondents in Finland aged 20–27. The results indicate that women choose a more climate-friendly diet more often than men, and that concern about climate change reinforces this effect, even if this factor affects both men and women; while knowledge about climate change showed only a weak relationship to women's dietary choices, but none at all to men's dietary choices. Mäkiniemi and Vainio (2014) investigated various obstacles to young adults choosing a more climate-friendly diet in a survey study with 350 respondents (university students) in Finland. The results indicate that habitual behaviours and questioning how important the food we eat is for the climate are considered to be the most important factors. Women consider high prices and a limited range to be more important than men do. Vegetarians see fewer obstacles to choosing a more climate-friendly diet than people who eat meat do.

Meat, vegetarianism and alternative sources of protein

Two studies addressed notions about vegetarianism and animal husbandry in the form of research overviews. Modlinska et al. (2020) investigated the gender aspects of meat and vegetarianism. The results indicate that men who eat meat have a much more negative view of vegetarians/vegans than women who eat meat do, and that men who eat meat are perceived as more masculine than men who are vegetarians/vegans. In addition, men who are vegetarians/vegans are more likely to be teased, taunted and ridiculed for their dietary habits than women are, not infrequently involving allusions to their masculinity and sexuality. In the global North,

it is twice as common among women than among men to be vegetarians/vegans, which can be explained by norms that associate masculinity with eating meat. The most common reason for avoiding meat is related to health, to healthy eating and to controlling body weight (even when this actually has consequences that are harmful to health). Vegetarian diets can be a socially acceptable way of eating foods with fewer calories for girls and women, where healthy food and smaller portions are associated with femininity. This body consciousness is also more common among men who are vegetarians/vegans than men who eat meat. In addition to health-related motives, there is concern for animal welfare and other ethical motives, which are more common among women than among men. This is also shown by differences between women as a group and men as a group on issues such as whether animals are sentient beings and can experience suffering, and related to animal testing for medical purposes or the use of animals in entertainment.

In a review of previous studies, Cornish et al. (2016) investigated various factors underlying attitudes and the degree of concern for animal welfare among the general public. The results indicate that the public's attitudes are linked to socio-demographic factors, such as age, gender, religion, urban or rural dweller, as well as their perceptions of the intelligence and cognitive ability of certain species, where animals considered to be more intelligent and closer to humans are afforded greater consideration. Women as a group show more concern than men as a group, and the influence of femininity and masculinity norms creates differences within these groups, since people who identify as feminine show more concern than people who identify as masculine. Young people show more concern than older people, who generally exhibit a more utilitarian attitude to animals. Regardless of socio-demographic factors, knowledge has an even stronger impact on concern for animal welfare and there is a great gap in knowledge when it comes to animal welfare in food production.

Eker et al. (2021) investigated the size of socio-demographic factors underlying an interest in sustainable lifestyles, in particular plant-based diets, at the global level in a study of target market segmentation data for Facebook users in 131 countries. The results indicate that education level is the strongest predictor of an interest in vegetarianism, followed by gender, the country's average income level, age and region (where, for example, in Western Europe and South Asia there is great interest, while Eastern Europe and sub-Saharan Africa, for example, show the opposite). Women, as well as young and middle-aged adults (20–49 years), show the greatest interest in vegetarianism. This interest is also greatest in high-income countries, but it is also there that meat consumption is the greatest. In low-income countries, education level is more decisive than in high-income countries, where the effect of education is offset to some extent by the income level of the country.

Mohr and Schlich (2016) investigated socio-demographic variables in relation to attitudes to the climate and the environment with regard to food consumption in a survey study with 1,040 respondents in Germany. The results indicate that variables such as gender, age and education level have a greater explanatory value, especially in relation to meat, than altruistic or abstract values. Women, middle-aged, and highly educated people tend to choose more climate-friendly diets than other groups, and their choices are influenced by factors such as where their food comes from and how it has been processed. Rosenfeld and Tomiyama (2021) investigated differences between women as a group and men as a group in their consumption of meat and views on vegetarianism in a survey study with 1,706 respondents in the

USA. The results indicate that a high degree of self-reported identification with a traditional view of masculinity in men is covariant with greater consumption of beef and chicken and a negative attitude towards vegetarianism; whereas conversely, a low degree of identification with a traditional view of masculinity is consistent with openness to vegetarianism for environmental reasons (the study found no effects related to pork or fish). Among women, no covariation was found between identification with femininities and openness to vegetarianism, but for women with a high degree of identification with a traditional view of femininity, health aspects rather than environmental aspects were what primarily motivated their choices.

Four studies specifically address the theme of masculinity in relation to meat consumption or vegetarianism. Bogueva et al. (2020) investigated attitudes to vegetarian dietary choices in a survey study with 1,053 respondents (men) in Australia that included vegans and men who eat meat to varying extents. The results indicate that those who have chosen vegetarianism prefer not to be socially identifiable as such for fear of being judged for their perceived unmanly behaviour. Schösler et al. (2015) investigated how the differences in meat consumption between women as a group and men as a group can vary intersectionally with other groups in a survey of 1,057 participants from three different ethnic groups in the Netherlands (the majority population group, and Chinese and Turkish groups, respectively), comprising about half women and half men aged 18–35. The results indicate that the link between masculinity and meat is strongest among those shaped the most by traditional gender norms. The combination of a highly traditional form of masculinity and a food environment in the global North, with a wide variety of meat available at low cost, was identified as a significant barrier to transitioning to a more vegetable-based diet.

Kildal and Syse (2017) investigated their attitudes to the proposal of meat-free Mondays, which has been discussed since 2013 in the Norwegian Armed Forces in an interview study with 67 soldiers in Norway, one fifth of whom were women. The results indicate that men in particular strongly advocate the consumption of meat, as what they believe to be an unrivalled source of protein for building muscle, as well as being associated with a sense of security because it is a central element of the traditional family dinner (the day's only cooked meal). Vegetarians are regarded as deviant and odd, and vegetarian meals as boring, deficient and lacking in nourishment. In an observation study of the environment around two restaurants in a hipster area of Copenhagen, Denmark, Lapiņa and Leer (2016) investigated how norms around sex, class and food can interact. The results indicate that an urban food culture centred around meat is largely based on nostalgic notions of a working-class masculinity, while its consumers are mainly from the middle class. Through the use of irony, stereotypes related to sexuality, gender and race may be reproduced, so that customers can feel like 'real men' free from demands to be 'politically correct', while at the same time maintaining their self-image as progressive and trend-conscious. In contrast to the above study, Santaoja and Jallinoja (2021) studied a Facebook group for vegans in Finland, whose interests included crisps and beer, through a combination of analyses of discussions in the group and news articles about it, as well as interviews with the group's members, to explore how *indulgent* veganism is practised in negotiation with ideas about gender, health and political activism. The results indicate that this kind *of alternative hedonism* (Soper, 2008) can challenge gendered conceptions of veganism, often associated with a femininity ideal of eating healthy (salad) and abstemiously (small portions), most notably to

keep their weight down; as well as a dominant masculinity ideal about eating red meat and fast food in significant quantities; and thereby offer pathways to switching to a vegetarian diet.

Three studies investigated attitudes to eating insects, a source of protein that has a number of advantages over pig and cattle farming, for example, in terms of greenhouse gas emissions and emissions of other substances with environmental impact. Verbeke (2015) investigated various factors underlying the degree of willingness to eat insects in a survey study with 368 respondents in Belgium (Flanders) who eat meat. The results indicate that about one in five are open to this, and that it is twice as likely among men as among women. A positive attitude towards reducing meat consumption increases the likelihood, while neophobia (fear of the unknown) significantly reduces it. The most likely early adopters are young men with no strong connection to eating meat, who are open to trying new things and who care about the environmental consequences of their diet. Laureati et al. (2016) investigated various factors underlying the degree of willingness to eat insects in a survey study with 341 respondents in Italy. The results also indicate in this study that neophobia has the strongest effect, whereas the respondents' attitudes to sustainability issues did not seem to make any difference. Men are more willing than women to eat insects, and younger people are more willing than older people. More than half of the respondents were positive to the use of insects as animal fodder. Lammers et al. (2019) investigated the phenomenon of neophobia more closely by comparing willingness to eat burger patties made from processed beetle larvae *(Alphitobius diaperinus*) or to eat the larvae directly in a survey study with 516 respondents in Germany. The results indicate that the degree of processing – how recognisable the insects are – is of great importance for people's willingness to eat them. A significantly higher proportion could consider eating insect burgers than eating whole larvae. More men than women were willing to eat the insects whole, while there was no difference between them when it came to eating insect burger patties. This study also showed that attitudes to sustainability issues did not make any difference.

Locally produced, organic and fair trade

Three studies address consumer attitudes to different types of food labelled as sustainable. Leeuw et al. (2014) investigated differences in the intentions of women as a group and men as a group to buy food products labelled as fair trade in a survey study with 782 respondents, about half women and half men who were university students in Luxembourg. The results indicate that women report a more positive attitude to fair trade products, as well as a higher sense of a moral obligation and stronger intentions to buy them. For men, the relationship between attitudes and behaviours is of particular significance, and they may need to be convinced of the benefits of fair trade products; while for women, external factors that facilitate purchasing, such as lower price and greater choice, are more crucial. Vecchio and Annunziata (2015) investigated the significance of various socio-demographic factors on willingness to pay for climate-friendly and/or fair trade chocolate in an experimental study involving 80 participants in Italy, approximately half women and half men aged 18–35. The results indicate that age, gender and income have a significant effect, meaning that older people, women and people with higher

incomes are more willing to pay for climate-friendly and/or fair trade chocolate. Vitale et al. (2020) investigated the significance of different factors on attitudes and willingness to buy organically-labelled fishery products (anchovies) among hypermarket consumers in a survey of 560 respondents in Italy, about half women and half men aged 18 years and above. The results indicate that sex and family situation, as well as knowledge about eco-labelling and the conditions of the maritime environment are significant. Women are particularly attuned to the importance of eco-labelling, and their preferences are reinforced by communication campaigns and an inner motivation to protect marine habitats.

Two studies address the social aspects of food production. Pilgeram (2012) investigated how norms concerning race, class and gender impacted the design and practice of sustainable local agriculture in a study based on participant observations at a farmers' market – a physical marketplace where more or less small-scale food producers can sell directly to consumers – as well as observations on farms and interviews with consumers in the USA. The results indicate that ideas about the farmers' market emphasise health and environmental factors rather than the conditions necessary for a socially sustainable food system; while the supposed wholesomeness of small-scale and local food production in the marketing is associated with norms concerning the heterosexual, white, middle-class nuclear family. McMahon (2011) investigated how the adaptation of national food production regulation to a global market was affecting the economic viability of small-scale farms in a study based on interviews with 25 small-scale cattle farmers (women) in Canada. The results indicate that if social and environmental sustainability are going to significantly impact the food system, gender analyses are needed that can problematize current preconceptions of food consumers as global citizens – a privileged position where social structures that are based on gender, class and ethnicity are rendered invisible.

Two studies address norms around gender among other things in sustainability strategies and the marketing of food companies. Through an analysis of marketing material from the Swedish coffee brand Zoégas, owned by the multinational food corporation Nestlé, Lauri and Bäckström (2019) investigated how the advertising campaign *Coffee by Women* in order to sell their coffee, used ideas taken from development policy that focuses on the empowerment of women in the global South (cf. Widegren and Sand, 2021), and combined them with an emphasis on consumers in the global North being able to do some good. The results indicate that the brand's campaigns are based on the idea that consumers and coffee farmers having common interests, presented as a global sisterhood, which renders invisible political conflicts linked to climate change and global trade. By commodifying feminist values into products that can be bought in a market, these campaigns steer the individual's desire for change towards consumption by alluding to a kind of duty of ethical enjoyment. Through an analysis of policy documents and marketing materials from the multinational corporation Unilever, Doyle et al. (2020) investigated how the sustainability agenda of a global producer of food and consumer non-durables, as an example of climate policy in the corporate sector, mobilises affective and emotional aspects of everyday life and social relationships. The results indicate that the corporation's encouragement of brand production reproduces traditional norms around gender, class, race and family, where the white middle-class man is presented as the 'good guy' and the family breadwinner, while the woman with her body is presented as the natural progenitor of future generations of responsible consumers.

With an allegedly democratic message of consumer power as part of everyone's responsibility for the future, the climate issue risks being depoliticised and the need for action at the societal level to combat climate change risks being rendered invisible.

Summary and reflections: Food

Food accounts for a significant proportion of households' resource consumption and greenhouse gas emissions, and through various stages of the production chain, impacts arise for humans, animals and ecosystems. One aspect of this is the emissions intensity of different types of food – with high emissions from livestock farming and lower emissions from cultivated food. In the studies referenced, which account for almost one third of the material in the research overview, a pattern of gender, age, class and ethnicity emerges in terms of attitudes to vegetarian and non-vegetarian diets. Animal-based diets have a greater environmental impact than vegetable-based diets, and men as a group consume more meat than women as a group. Attitudes to climate change push individuals' diets towards reduced meat consumption and a more vegetable-based diet, regardless of gender, and women are more concerned about the climate than men. However, motives other than concern for the climate seem to be significant for the difference in meat consumption between women and men – motives which have clear links to norms of femininity and masculinity. Women as a group are more oriented towards the health aspects and calorie content of their diet, eat more fruit and vegetables, and tend to follow dietary recommendations, which means a smaller environmental impact, and this can be an expression of cultural norms in the global North that associate femininity with caring about one's appearance and keeping control of one's body weight. Men as a group are more oriented towards indulgence and eating what they experience as tasty which, in combination with norms that associate meat with masculinity ideals such as strength, power and dominance, leads to men consuming more meat. These norms of masculinity are also apparent in that men who are vegetarians are suspected of not being 'real men', involving disparaging allusions to femininity and homosexuality.

The capacity to care, especially when associated with femininity, has been shown to affect attitudes to animal husbandry and the degree of concern for animal welfare, which in the long run has an impact on attitudes to meat consumption and vegetarian diets. Here too, there is a difference between women as a group and men as a group, as it is more common among women than men to be vegetarian and to be concerned about animal welfare. One of the observed differences within the groups appears to be due to the fact that people who see themselves as feminine, regardless of sex, show a greater degree of care than men who see themselves as masculine. Attitudes to eating insects, a source of protein with a lower environmental impact than meat, are more positive among men as a group than among women as a group. Neophobia (fear of the unknown) is a factor with a negative significance, and is more common among women than among men, while a position of reducing meat consumption for climatic reasons is a factor with a positive, but not entirely unequivocal, significance.

One way to manage the responsibility for the consequences of food production, on

the environment and for people who work in the production apparatus, is the emergence of various types of eco or fair trade labels, Women as a group, compared to men as a group, are more positive towards and are more inclined to pay for products that are labelled as eco-friendly and fair trade. Income is a factor that influences willingness to buy, since eco-friendly and fair trade labelling often entails an additional cost for the consumer. Since women are often responsible for the planning, purchasing and cooking of food in households based around heterosexual couples, when this responsibility is placed on the individual as a consumer rather than the responsibility for and cost of social and environmental sustainability being borne by food industry corporations, it constitutes a form of feminisation of responsibility for sustainable development. This individualisation and feminisation are reproduced by corporations' marketing when, in sustainability campaigns, they allude to norms based on gender and other systems of power and ideas of a global sisterhood. A socially and environmentally sustainable food system is not possible without acknowledging conflicts of interest and managing them.

HOUSING AND ENERGY

Along with the industrial and transport sectors, housing accounts for the majority of the energy use in the community, and with the cold winters in the Nordic countries, energy for heating is the biggest portion of this. Despite energy efficiency efforts, consumption is increasing, partly due to an increase in the quantity of energy-craving electronics. While technological development can be highlighted as a solution for more sustainable housing, it also has both social and environmental dimensions that need to be addressed. The home as a marker of lifestyle, which is expressed in an interest in home furnishings, also consumes resources.

This chapter discusses studies that highlight differences between women as a group and men as a group with regard to housing from a sustainability perspective and analyses gender in relation to this theme. It is about attitudes and behaviours in relation to energy consumption, efforts to make housing more environment-friendly, and questions about care and also technological development. The chapter concludes with a summary of salient patterns, along with reflections on how these patterns arise and are reproduced, which genders enable sustainable lifestyles regardless of sex, and how these can be promoted.

Generally on housing and energy

In a review of previous studies, Mechlenborg and Gram-Hanssen (2020) investigated how sex and gender analyses can contribute to a better understanding of energy consumption in housing. The results indicated that sex and gender analyses can be relevant when they look at households in relation to institutions in the broader community such as the workplace and its gender-based segregation between technology-oriented occupations dominated by men, and care-oriented occupations in which primarily women are active. For example, employees in the energy sector, including domestic installation contractors, are largely men. Energy issues are often understood primarily based on their technical aspects, while social dimensions end up in the background. Sex and gender analyses can also be about shedding light on various everyday practices that contribute to energy consumption, such as cooking or transport between the home and the workplace, and how these are affected by social norms, including gender norms. Finally, both technological development and the green transition can be influenced by gender relationships and also contribute to changes in these with regard to energy saving and an interest in technology, for example. For example, the trend towards increasingly advanced technologies (such as smart homes) could challenge the established masculinity ideal of do-it-yourself (DIY), or it could consolidate inequalities in how expertise is viewed in the household and the community at large; while women's generally greater interest in sustainability could strengthen their role as an actor in this space, or alternatively consolidate inequalities in responsibilities for unpaid domestic and care work.

Palm and Ellegård (2011) investigated gendered patterns in the everyday lives of households in a study that used logbooks of the time use of 463 participants (179 households) in Sweden, with an age range of 10–97 years. The results indicate that different types of energy consumption are linked to the unequal distribution of responsibilities for unpaid domestic and care work, for example, because women do

the cooking, and drop off and pick up the children, especially at younger ages, to and from preschool and school. Efforts to get households to become more efficient in their energy consumption need to take this into account, for example by being adapted to different types of households (singles, families with young children, pensioners, etc.) rather than targeting some kind of average household.

Kopsakangas-Savolainen and Juutinen (2013) investigated the importance of various socio-demographic factors, attitudes to climate issues, and participation in municipal initiatives related to household energy consumption in a survey study with 1,500 households in ten different municipalities in Finland, five of which were participating in an initiative to achieve carbon neutrality and the rest being non-participating comparable municipalities. The results indicate that women are more inclined than men to change their behaviours to save energy, as are those who realise the importance of limiting climate change; while households are less inclined to reduce energy consumption the higher their income. At the same time, unemployment is negatively correlated with concern about climate change, meaning that people who have a job are more concerned about the climate, while there are no other clear differences between different groups in the labour market beyond this factor.

Three studies address different aspects of renewable energy. Kosenius and Ollikainen (2013) investigated the significance that a range of socio-demographic factors and of attitudes to environmental issues have for attitudes to different energy sources in a survey study with 1,304 respondents in Finland. The results indicate that high income, male sex, young age and environment-friendly attitudes increase the likelihood of choosing – and paying more for – renewable energy; and that wind power, with some geographical variation, is the most popular energy source in comparison with hydropower and biogas. Valuing the conservation of biodiversity was a predictor for the respondents' choices between different renewable energy sources. From 46 renewable energy prosumer initiatives[9] in eight European countries[10], Campos and Marín-González (2020) investigated the collective identities, socio-political opponents, collective learning, and collective action aspects of these prosumers with the aim of analysing this element of the energy transition as a social movement in a study based on an analysis of websites, blog posts and other relevant documentation (manifestos, business descriptions, interviews with representatives, etc.). The results indicate that the projects perceive themselves as initiatives for responsible access to energy, but here the emphasis is primarily on the social and economic dimensions of sustainability rather than the environmental dimension. Some of the projects have an eco-feminist approach, with a stated ambition to promote women's empowerment through participation in the green transition, while others emphasise gender equality in relation to energy poverty (inadequate access to energy to meet everyday needs such as heating the home due to economic reasons, for example). Knowledge-making activities and collective learning are central elements in many of the projects, to be able to get help from each other to solve technical problems for example, but also to raise public awareness of the climate and environmental aspects of energy production and consumption. Since the projects were explicitly or implicitly based on questioning traditional energy systems, they pose a challenge to established energy producers, in particular large corporations in the fossil-fuel industry including oil and coal, but the

9. 'Prosumer' (producer/consumer) is a term for individuals who both consume and produce value, for their own consumption or for others' consumption, and who may get implicit or explicit incentives from organisations that participate in the exchange, for example in a sharing economy (Lang et al., 2021).
10. Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, UK

nuclear power industry is also subject to criticism. Standal et al. (2020) investigated the process of becoming a prosumer using solar panels as an example, as well as what energy practices look like in prosumer households in a study based on interviews with women and men, mostly in heterosexual couples, from 28 households in Norway and the UK. The results indicate that there is a gender divide in the work based on interest in technology as being particularly masculine, as well as the unequal distribution of unpaid care and domestic work, and that this influences the attitudes of individuals towards the transition from being a consumer to a prosumer of energy. Women are often interested in the energy transition, because it is climate-friendly and for the money savings, but the relevant technology is understood as a male domain, which creates barriers to women's participation. (By way of contrast, 'old' technology related to cooking and cleaning is understood as a female domain.)

Comfort and technology in the home

Two studies address aspects of the home that have to do with cosiness. Hansen et al. (2019) investigated differences in home comfort preferences in terms of temperature, daylight, noise and fresh air, based on a range of socio-demographic variables in a survey-based study of 1,216 respondents in Denmark. The results indicate that women, as well as older people, value comfort more highly than men, and younger people. Ideas about the home have a strong gender dimension, where women have historically been associated with the private sphere of the home, while men have been associated with the public sphere outside the home. Differences in how comfort in the home is valued may be related to women spending more time at home, given the unequal distribution of responsibilities for unpaid domestic and care work, making them therefore more concerned about cosiness. Other conceivable partial explanations that are highlighted concerning the temperature aspects of comfort level specifically – linked to both age and sex – relate to social norms concerning clothing habits and biological differences in adjustment to ambient temperatures. Jack (2020) investigated attitudes and behaviours related to cleanliness in light of water and energy consumption in a study based on 14 focus groups with a total of 57 participants in Sweden, where more than half had a background in other countries (Columbia, Greece, Japan, China, North America and Germany). The results indicate that cleanliness is perceived as intertwined with a range of different norms around health and wellness, femininity and masculinity, environmental sustainability, etc. Women and people with a precarious class position are seen as particularly preoccupied with cleanliness, and generally speaking, unsustainable cleanliness practices are seen as something others engage in.

In a study referenced in the chapter on food, Carlsson Kanyama et al. (2021) studied the quantity of greenhouse gas emissions per individual related to food, holiday travel, and home furnishings. The results indicate that single households, especially those of single males, generate more emissions per person than multi-person households. Women spend 50 per cent more money on home furnishings than men do, and if the purchases were to be shifted from new to second-hand products, or to repairing existing home furnishings instead of buying new ones, emissions from this category could be reduced by 50–70 per cent.

In a study that combined analyses of marketing materials with observations at

home and interior design trade fairs in Switzerland, Offenberger and Nentwich (2009) investigated how constructions of gender, sustainability and technology interact. The results indicate that these phenomena must be understood together, since gendered norms permeate technical artefacts such that home heating devices are understood as either advanced tools for 'facility management' or as decorative objects for 'home-making'. The association of technology with the masculine or feminine spheres of the gender system that shapes the home, among other things, also has implications for how sustainable development is understood, given the strong emphasis that exists on technical solutions to the problems.

Greene (2018) investigated how everyday life interacts with socio-technical changes in a study based on interviews and observations with 14 participants in Ireland, with ranging in age (46–87 years), gender (half women, half men), class, family structure, place of residence (urban or rural) and self-reported engagement with environmental issues (from low to high). The results indicate that the trend in households' consumption over the lifetime of the participants has been forged in a crucible of complex interplay between technological change, economic transformation and public planning policy. In the lived experience of socio-technical change, there is social differentiation along dimensions of class, gender and generation. Individuals from households with higher incomes exhibit more resource-intensive lifestyles, with earlier access to electrification and the incorporation of new technology into their lives than others; while for households with lower incomes this development has gone slower, as purchasing technical equipment such as home appliances, consumer electronics and cars required longer-term saving. The introduction of technology in the home is marked by gender and family structures in a way that reflects the unequal distribution of unpaid care and domestic work, where men have generally been more sceptical than women about purchasing such items as washing machines, refrigerators and freezers; at the same time, these technological innovations have liberated women from planning and carrying out domestic work such as washing and cooking, which has changed gender relations while also leading to higher energy consumption.

Climate transition initiatives for sustainable households

Isenhour and Ardenfors (2009) investigated the gender dynamics in households that have tried to make lifestyle changes in light of sustainable development in a study based on interviews with representatives of public and private sector organisations and academia working on sustainable consumption projects; and in a survey of 100 respondents (44 men, 56 women) from households in Sweden, with a sample of 12 participants who, together with their other family members, were interviewed and kept a diary of their consumption. The results indicate that the femininity ideal of caring for others can explain women's generally greater engagement, compared with men, in sustainability issues, including those issues related to consumption and lifestyle. Women in the study who live in heterosexual couples talk about their male partners as the biggest barrier to a more sustainable lifestyle. In one example a woman claimed to want to eat more vegetarian food, but because her husband does not want to reduce his consumption of meat; and since it is she who does the cooking in the household and she has no time or desire to cook two dishes for every meal, meat must continue to be a significant part of the household's diet. Men point

out their female partners as role models, as not as interested in buying the latest gadgets and as pushing for the transition to a less resource-intensive lifestyle. There are also men, albeit a smaller percentage, who are more engaged than their partners in sustainability issues and who are driving the transition in their households. In two out of these three cases, these men are the main care providers, responsible for caring for children and doing the cooking, cleaning and other unpaid domestic work associated with the household's reproduction. In the third case, the couple do not have children but make significant efforts to break with traditional gender norms and the gender divide into consumption and domestic work.

In a study based on observations and interviews with representatives of 13 households participating in a municipal project in Sweden to live a more environmentally sustainable life, Svensson (2012) investigated behaviours and ideas about responsibilities in the household. The results indicate that lifestyle changes are characterised by norms around gender, where women are the drivers but also end up being responsible for most of the extra workload. The latter is expressed by the fact that what are seen as the woman's responsibilities, such as cooking and waste disposal, in the gendered division of work in the household, are the regularly recurring everyday chores, while what are seen as men's responsibilities, related to energy and transport, are more in the nature of one-off investments, such as switching to low-energy lamps. The participants were aware of this traditional gendered division of work, and men in particular expressed the view that women's skills in this area exceed their own. Work towards the green transition thus provided men with an opportunity to express their appreciation for the unpaid work done by women, something that is otherwise – in what is assumed to be a gender-equal country like Sweden – often considered taboo. The ownership and use of cars, an area seen as men's responsibility, is a clearer area of conflict and object of guilt. Most households made no changes, and for those who did, it meant that the man continued to drive the car while the woman did most of her errands by bus, or that they cycled to work for longer into the autumn than before. Most families reported a high level of social engagement, through membership of associations or in other ways, but they do not see their environmental engagement as being a question of ideology. Membership of environmental organisations or political organisations was unusual among the participants.

Summary and reflections: Housing and energy

A dwelling is not just a building that, like public buildings and commercial facilities, consumes energy for heating and lighting. More importantly, a dwelling is a physical manifestation of the household it shelters, a place and context where people's needs for things like a sense of security and needs for recuperation can be met. As such, the dwelling is marked by a gendered division of work where women as a group take a greater share of the responsibility for unpaid domestic and care work than men as a group do, and those parts of this responsibility that are primarily seen as men's domains are often linked to technology and machinery. This is reflected in the energy consumption of the dwelling, the purchases made for the household and the distribution of responsibilities in relation to different types of measures for living more sustainably.

As a group, women are more inclined than men to change their behaviours to reduce their environmental impact, for example to save energy or to sort and dispose of household waste responsibly. As a group, men show a tendency to more one-off initiatives, such as replacing all the light bulbs in the home with energy-saving light bulbs or investing in solar panels – often things related to the technology sphere. In general, efforts in the spheres for which women as a group take greater responsibility, such as cooking, cleaning and washing, mean an increase in their workload, while this does not apply in equal measure to male-dominated spheres. Historically, new innovations in traditionally female spheres, such as refrigerators and washing machines, have meant a freeing up of time which has allowed women to participate to a greater extent in the formal labour market than previously. These innovations have certainly led to an increase in energy consumption in dwellings. Gender disaggregated statistics on this energy consumption, based on what women and men do with their time at home, may be misleading unless the unequal distribution of unpaid domestic and care work is taken into account. Cooking is something the whole household needs, regardless of who does it, and installing solar panels means that the entire household reduces its dependence on fossil energy.

As in other spheres, it appears that among women as a group, compared with men as a group, a greater interest in sustainability issues related to the home seems to be linked to feminine ideals of caring. Although women more often than men are responsible for cooking in the households of heterosexual couples, the resistance of a male partner to reducing meat consumption may stand in the way of changing the eating habits of the whole household. Conversely, there are examples of men who are the drivers for transition more than their female partners, and these are often men who take the main responsibility for unpaid domestic and care work. Similarly, women may be interested in the energy transition, but are prevented from being involved because of norms that say technology is a male sphere. Cooperative energy transition projects with an eco-feminist approach work with collective learning and mutual assistance, which breaks down norms about who has the technical expertise. The divide between technology and care that is associated with masculinity and femininity has its equivalent in the formal labour market, which is gender-segregated along the lines of corresponding occupational areas. In order to be successful, efforts to make households more sustainable need to take into account gender norms concerning technology and care, just as initiatives to break patterns of gender segregation in the labour market need to respond to norms around masculinity and femininity.

CLOTHING AND CONSUMER GOODS

In the global North, the average disposable income of the population is increasing, and a large part of this increase is spent on clothes and on goods that are not necessary to meet basic needs. Shopping is now a major item of expenditure – if not the largest – in a household's consumption. After food and construction materials, clothing and consumer goods constitute the production chain – from raw materials and manufacturing to transport – that accounts for the greatest environmental footprint in global trade – all of 5 per cent of the total CO_2 emissions of humans (Boston Consulting Group, 2021). In addition, new purchases, rather than recycling, lead to an increase in the amount of waste.

This chapter discusses studies that highlight differences between women as a group and men as a group with regard to the consumption of clothing in particular, and analyses gender in relation to this theme. It is about how people identify as individuals and relate to their social responsibility, and about behaviours around and attitudes to recycling and reducing consumption. The chapter concludes with a summary of salient patterns, along with reflections on how these patterns arise and are reproduced, which genders enable sustainable lifestyles regardless of sex, and how these can be promoted.

Generally on clothing and consumer goods

In a study referenced in the chapter on food, Vinz (2009) investigated the importance of the gender perspective on relevant aspects of sustainability such as transport, waste disposal, and the production and consumption of textiles and food. The results indicate that there is a gendered division of labour in the household, where women often buy clothes for and with other family members and therefore have a disproportionate responsibility for decisions made for the household in the textiles sphere. In addition, women spend more of their time than men on washing the household's clothes. Since the statistics on the environmental impact of textiles often do not distinguish between work clothes and clothes for private use, and the labelling of clothes as ecological or fair trade so far is largely a marginal phenomenon, is it unreasonable to place the responsibility for the social and environment sustainability aspects of clothing on consumers rather than on the textile industry. The fact that it is made a consumer responsibility is in practice a feminisation of responsibility for the environment.

In a review of previous studies, Bloodhart and Swim (2020) investigated differences between women as a group and men as a group with regard to sustainable consumption, and how gender stereotypes and norms shape how women and men think about these issues, respond to their seriousness, and choose to act. The results indicate that both men and women who engage in sustainable consumption are perceived as more feminine rather than more masculine. In addition, there are stereotypes about women as more consumption-prone than men, while they are also

expected to be more interested in sustainability. These contradictory norms create a space for greater consumption among men, because responsibility and guilt in this sphere are laid at the feet of women. In contrast to all gender equality initiatives aimed at 'bringing women up' to the level of men, for example in the area of representation in decision-making or in sectors of the labour market related to STEM, an equivalent number of initiatives to get men into the care sector of the labour market or to get involved in caring for the environment do not exist. The over-representation of women in care-oriented occupations, responsibility for unpaid care and domestic work and their engagement with environmental issues are primarily the result of socialisation, where girls are encouraged to put the needs of others before their own; while boys are encouraged not to show feelings and not to engage in behaviours perceived as feminine. This social explanatory model leaves scope – to a much greater extent than biological explanations – for not all women being care-oriented or engaged with environmental issues, while many men have a real commitment to both the environment and social questions. The ability to show care can be promoted in men as well as in women, whether it be with regard to human relationships or environmental sustainability.

Personality traits and identity

Luchs and Mooradian (2012) investigated the importance of different personality traits and whether these could explain differences between women as a group and men as a group concerning the sustainability aspects of consumption in a survey study with 9,092 respondents in Germany. The results indicate that individuals whose personalities are marked by agreeableness – i.e., they tend to be sympathetic and cooperative rather than competitive and hostile towards others – are more inclined to place importance on social and environmental concerns and act on them, for example concerning consumption. Women as a group exhibit agreeableness as a personality trait to a much greater extent than men as group, and they also report a greater tendency to adopt sustainable consumption patterns. This personality construct can be seen as an expression of gender, the social norms that associate agreeableness with femininity and competitiveness with masculinity, and that individuals practise in order to make themselves into men and women, respectively. Since agreeableness is even more clearly linked to sustainable consumption than sex, there is scope for lifestyle changes.

Cho et al. (2015) investigated the importance of different motivational variables in relation to style for the degree of sustainable apparel consumption with the aim of explaining differences between women as a group and men as a group in this respect in a survey study with 586 respondents in the USA. The results indicate that the variables of frugal clothing consumption, fashion consciousness, and ecologically conscious consumption, which are exhibited to a much greater extent among women than men, increase the likelihood of style consumption. This in turn increases motivation for purchasing clothes that have been produced with consideration for environmental sustainability and reuse and recycling practices. Fashion consciousness has a stronger explanatory value for men than for women, while ecologically conscious consumption has a stronger explanatory value for women than for men.

Brough et al. (2016) investigated the importance of femininity and masculinity for the differences between women as a group and men as a group in environment-

friendly consumption choices, exemplified by everything from grocery bags and gift cards to cars and branding in a study with seven sub-studies that included experimental and field studies as well as surveys with participants mainly in the USA. The results indicate that the concepts of 'greenness' (orientation towards environmental considerations) and femininity are cognitively linked, that consumers who engage in green behaviours are stereotyped by others as more feminine and furthermore, they see themselves as more feminine. In light of the green feminine stereotype, the desire to retain their masculinity can affect men's likelihood of adopting green behaviours, and challenges to or affirmations of their masculinity can affect men's willingness to engage in green consumer behaviours.

Tung et al. (2017) investigated the differences between women as a group and men as a group with regard to a range of psychological factors underlying consumer attitudes to apparel made from recycled materials or otherwise produced by methods not harmful to the environment in a survey-based study of 373 respondents in the USA. The results indicate that for women, a green self-identity, or whether they perceive themselves as someone who cares about the environment, has the greatest explanatory value for a positive attitude to eco-friendly apparel. For men, their cognitive engagement, that is, how much effort they have invested in assimilating information about the product and its properties, has the greatest explanatory value. This is in line with previous studies that show that fashion can function to a high degree as a means of expressing their identity for women, while men are generally more interested in the functionality of their apparel. The latter may be related to the gendered division of work where men are far more likely to be found in parts of the labour market related to production and technology, while women are more often represented in occupations with a greater element of care and human relationships.

Social impact and responsibility

Costa Pinto et al. (2014) investigated how differences between women as a group and men as a group in their consumption patterns can depend on whether the consumer sees themself as primarily an individual, or primarily a member of a social group, during the decision-making process before purchasing, in a survey study with 215 respondents in Germany. The results indicate that when identity as an individual is most salient, for example when the individual's responsibility for their environmental impact is emphasised, women declare a higher degree of intention to make sustainable consumption decisions than men. However, when social group identification is most salient, that is, when consideration of family members or friends is emphasised, men declare a similar degree of intention as women. This could mean, among other things, that campaigns to promote sustainable consumption will have a different impact on women and men depending on the motivations that the campaigns allude to.

In a study based on an analysis of vlogs, Horton (2018) investigated the 'ethical turn' in fast fashion, drawing attention to the fact that in order to supply fashionable apparel fast and at low cost to the customer – primarily young women, some with relatively low incomes – global supply chains cause environmental damage which is not compatible with respect for human rights. The results indicate that young women are assumed not to be able to translate their values into ethical behaviour,

but at the same time, a great individual responsibility is imposed on them for the global fashion industry. Fast fashion is used as an illustrative example of both the feminisation of consumption and the feminisation of responsibility. Ethical fashion is a sphere in which young women take on a role as actors, despite the guilt pushed onto them, without dismissing questions of economic and geographical privilege.

Lazaric et al. (2020) investigated socio-demographic factors and the significance of social influence on more environment-friendly consumption behaviours in a survey-based study of 3,005 households in France. The results indicate that gender, education and income are important, where women and people with higher education are more inclined to engage in sustainable consumption behaviours, while those on a low income who find it difficult to make ends meet in the household economy do not have the same opportunities to prioritise eco-labelled products. Social influence is also important, and social learning in small local networks is crucial to fostering trust and sharing ideas and methods that can lead to sustainable consumption behaviours.

In a study of data from the World Values Survey data, whose regular surveys cover 61 countries worldwide, Migheli (2021) investigated how parenthood and number of children affect people's decisions on environmentally sustainable consumption. The results indicate that women as a group are less likely to buy organic products when they have children, while the reverse is true for men as a group, although women are generally more inclined to purchase organic products than men. The negative correlation between parenthood and environmentally sustainable consumption for women is strongest in the global South, which indicates that income in the form of budgetary restraints has great significance. In the global North, the number of children a woman has does not have any such effect.

Kopplin and Rösch (2021) investigated differences between women as a group and men as a group in their motives for purchasing sustainable clothing in a survey study with 81 respondents (age 17–34 years) in Germany. The results indicate that environmental concern is a necessary condition which, in combination with value for money, is sufficient motivation for women, whereas for men high visibility was necessary. For men, social prestige was found to be an important value, along with the opportunity to express one's identity as a conscious consumer.

Reduced consumption and circular economy

Martindale and Lee (2019) investigated the likelihood and motivation behind reducing their wardrobes to a minimal range of garments that can be adapted to suit different requirements (minimal transformable wardrobe) in a survey study with 36 respondents (24 women and 12 men) who were undergraduate students in a fashion study programme. The results indicate an interest in this kind of innovation with a view to reducing the consumption of clothing for themselves and others; with differences between women as a group and men as a group, where the former group focused primarily on environmental sustainability, while the latter group focused primarily on the practical and instrumental aspects of the clothing that supported increased productivity in their work.

Meißner (2021) investigated the significance of values and ideas using a feminist analysis of care in relation to objects, communities and the environment in a study

that began with a citizen science research process (cf. Kullenberg and Kasperowski, 2016), with observations, workshops and followed by interviews with 17 participants at repair cafés in Germany. The results indicate that the participants were motivated by care for their possessions, sometimes due to their sentimental value and sometimes due to the economic and instrumental value of tools of work such as computers. With the starting point being the items to be repaired, there was a need for other volunteers in the repair cafés, there for the purpose of mutual assistance and sometimes a sense of community, but despite aiming to provide a friendly atmosphere and a safe space, this was sometimes hampered by unclear expectations among the repairers and visitors to the cafés, where it can be unclear which party has the actual expertise. Concern for the environment was a clear motive of the participants, who were both repairers and visitors to these cafés. It can be seen as a protest against an unsustainable consumer society perceived as based on single use (throwaway society).

Rogers et al. (2021) investigated socio-demographic factors underlying attitudes and behaviours in the repair economy in a survey study with 966 respondents (approximately half women, half men, aged 16 years or more). The results indicate that a significant majority see repair as part of circular economy and as important to environmental sustainability, and the vast majority have left items for repair or have carried out repairs themselves. Women as a group are more likely than men as a group to hire professionals to carry out repairs rather than to do the repairs themselves; and there is a pattern in what types of products people can conceive of repairing themselves that follows a stereotypical divide into handicraft and textiles as a feminine domain and motors and mechanical devices as a masculine domain. The value of care – for the environment as well as their own possessions and the work involved in producing and maintaining them – is highlighted as having the potential to promote circular economy as an attractive and inclusive activity for individuals, regardless of their socio-economic status.

Summary and reflections: Clothing and consumer goods

Manufacturing clothing and consumer goods consumes resources and generates climate-impacting emissions. In addition, there are also social and environmental footprints of other kinds, such as the discharge of environmental toxins and regular reports of human rights violations. On the consumer side, the significance of a gendered division of work in households emerges, where women as a group are largely responsible, compared with men as a group, for purchasing clothing for other family members. The same applies to washing clothes. Through the establishment of mass consumption, fashion, along with cosmetics, has become a means of expressing identity, especially femininity, and women as a group are expected to be bigger consumers than men as a group. People who show an interest in fashion and their own appearance, regardless of gender, tend to be perceived as more feminine, and the same applies to people who engage in environmentally aware consumption. In combination with the expectations imposed on women to be interested in sustainability matters, based on the feminine ideal of care, both guilt and responsibility for the negative impacts of consumption are laid at the feet of women.

Responsibility for care in the household fosters environmental awareness in men as well as in women, which is reflected in the fact that environmental concerns affect purchasing decisions when care for family members or friends is the focus of those decisions. Social influence in the form of norms within a close circle of acquaintances, for example, has similar effects, while income imposes budgetary restraints since organic and fair trade fashion garments are often associated with higher prices than conventionally produced garments. Also, interest in circular economy in the form of second-hand clothing and the repair of clothing and other possessions appears to be fostered by care-oriented values. Concerning the likelihood of repairing one's own possessions, there is a pattern of handicraft and textiles being perceived as a feminine domain, while technology and machines are perceived as a masculine domain. In addition, concern for the environment, the sentimental value of one's possessions, and the value of the work involved in producing and maintaining them appear to be values that can be fostered, regardless of gender.

TRANSPORT

Most communities, especially in the global North, are dependent on transport, but transport consumes energy and generates emissions of greenhouse gases that have an environmental impact. Different types of traffic contribute to this at different rates, where the passenger car accounts for the largest emissions per individual. The car is also used to a large extent for shorter trips, which constitute about half of daily traffic, where other means of transport could be appropriate. Technological development is moving towards electric power replacing fossil fuels, but this will not solve all the problems.

This chapter discusses studies that highlight differences between women as a group and men as a group regarding everyday transport, and analyses gender in relation to this theme. It is about behaviours and attitudes in relation to travel habits and transport modes, electrification and technological development, and traffic and urban planning. The chapter concludes with a summary of salient patterns, along with reflections on how these patterns arise and are reproduced, which genders enable sustainable lifestyles regardless of sex, and how these can be promoted.

Transport mode and traffic planning

In a study referenced in the chapter on food, Carlsson Kanyama et al. (2021) studied the quantity of greenhouse gas emissions per individual related to food, holiday travel, and home furnishings. The results indicate that single households, especially those of single males, generate more emissions per person than multi-person households. The difference is primarily explained by the fact that multi-person households include children who do not generate the same quantities of emissions as adults and thereby reduce the average, and by the fact that men in single households spend more money (70%) on car fuel than women in single households do. In a study referenced in the chapter on food, Vinz (2009) investigated the importance of the gender perspective to relevant aspects of sustainability such as transport, waste disposal, and the production and consumption of textiles and food. The results indicate that transport patterns are linked to the gender-segregated labour market as well as to the unequal distribution of responsibility for unpaid care and domestic work. Often, traffic planning is heavily influenced by a norm based on the full-time employee who is not the main provider of care, which more often applies to men than to women; while dropping off and picking up children to and from preschool, school and leisure activities, as well as purchasing food and other groceries for the household, result in transport patterns characterised by short trips to and from the home. If traffic planners were to take this into account, improved public transport would be given priority over big, high-profile projects. Women are generally less likely to own cars than men, and women who have access to cars use them for shorter trips. The fact that women are a growing group of car owners can instead be seen in relation to needs linked to reproductive work rather than to higher rates of employment in the labour market, and when access to public transport does not fit well with part-time work or school times, and the traffic is not safe for children, the need for cars increases.

In a review of previous studies, Polk (2009) highlighted differences between women

as a group and men as a group, as well as norms in transport patterns and the environmental impacts from these. The results indicate that in Sweden, which is usually regarded as one of the world's most gender-equal countries, there are major differences between men and women at an aggregated level: Men are over-represented among those travelling the furthest, using the most energy-intensive means of transport, and thus also causing on average the most carbon dioxide emissions per individual. Women travel shorter distances by car and generally use public transport more than men do. At the same time, traffic planning, like the transport sector and the labour market, is dominated by men and marked by traditionally male domains such as knowledge in engineering and technological development. One of the effects of this is that decision-making acquires a technological orientation, rather than emphasising behavioural change. In the work to reduce the environmental impact of transport, these insights into the gender aspects of decision-making and behaviours are of crucial importance. Kronsell et al. (2020) analysed the relationship between gender and sustainability within municipal transport planning, in a study involving quantitative analyses from 179 municipalities in Sweden concerning the sustainability aspects of transport and gender representation in decision-making. In addition the transport policy of four of the municipalities were analysed and interviews conducted with the decision-makers of those municipalities. The results indicate that gender representation in decision-making is less important for how climate aspects are integrated into traffic planning than the existence of gendered norms which, to varying degrees, emphasise economic and technical rationality, gender equality and equal treatment, and sustainability as a whole, including the social and environmental as well as economic dimensions.

In a review of previous studies, Sovacool and Axsen (2018) investigated social norms surrounding private automobility, that is, the dominance of privately owned petrol-driven vehicles that are mainly used by occasional passengers; and developed a theoretical framework to describe its symbolic and functional significance – individually as well as on the societal plane. The results indicate that for the individual, the car acts as a cocoon and fortress against the dangers in their surroundings from other vehicles, and not only as a means of transport, but also a space where the family can relax, listen to music and enjoy other leisure activities. The car is also an expression of gender identity, such as when manufacturers use an ideal of masculinity when alluding to the lost dreams of potential owners to become fighter pilots or racing car drivers, while smaller cars are perceived as feminine or 'unmanly'. Women as a group are more interested in more fuel-efficient cars than men, but early adopters of electric cars like Tesla have mainly been men, while women are more interested in the second-hand market for these vehicles. Based on this theoretical framework, it seems likely that both electric and self-driving vehicles have the potential to reproduce prevailing norms to a similar extent as petrol cars, while carpools can challenge these norms more because individuals do not own a car themselves but share it with others.

Three studies address the role of the bicycle in traffic planning and transport patterns. Lam (2018) investigated different aspects of equity with regard to race, class, gender, sexuality and functional diversity, in policy initiatives to promote cycling in a borough of London, UK, in a study based on an analysis of policy documents, interviews with decision-makers, and attendee observations at a conference on cycling. The results indicate that the initiatives are based on a

superficial understanding of cyclists as white middle-class men (middle-aged men in lycra or 'MAMILS') and hipsters, for whom cycling is a lifestyle choice, while other groups, for whom cycling is more of an economic necessity, are rendered invisible and thus not supported. If cycling in the urban environment is to become an opportunity for broader groups than the already privileged, initiatives need to be very much based on a social justice understanding of cycling. Balkmar (2014) explored the situation of cyclists in a car-normative environment from a gender and violence perspective in a study based on analyses of news articles, reports and policy documents, interviews with cyclists and analyses of cyclists' discussions on online cycling forums on risk negotiation, insults, threats and violence. The results indicate that cyclists are vulnerable and exposed, in need of protection from heavier vehicles, while also being considered as especially dangerous road users in need of disciplining. They are constantly forced to negotiate their role as a driver with agency in a traffic system where they are largely rendered invisible. At the same time, they are often subject to hatred, threats and even physical violence from motorists because they are seen as taking up too much space in the traffic, and they are attributed responsibility and liability for risky situations arising involving heavier vehicles. MAMILs are proposed as particularly problematic, characterised as exhibiting a ruthless competitive masculinity which is a threat to pedestrians in particular, but also interferes with the traffic system as a whole, thereby shifting the gendering of the cyclist away from being associated with femininity and subordination. This violence not only restores car driving as the norm, but also risks reducing women's participation in cycling. Kaplan et al. (2018) investigated attitudes to bicycle pools using either electric or conventional bicycles in a survey study with 717 respondents (57.5 per cent women, 42.5 per cent men) from three cities in Poland. The results indicate that there are differences between groups in terms of gender and age, since women as well as older people are more likely to use electric bicycles. In addition, a link was found between the type of bicycle and different types of needs, where functional needs, such as transport from one place to another, increased the likelihood of using both types of bicycles; while self-actualisation needs increased the likelihood of using conventional bicycles and decreased it for electric bicycles.

Dahl (2011) investigated attitudes and ideas among men about climate change and environment-friendly travel in a study of six focus group conversations with 25 men aged 26–65 living in two medium-sized cities and two big cities in Sweden. The results showed three different themes or discursive practices as prominent: Freedom from liability and powerlessness, Criticism of the car without environmental engagement, and Responsible environmental thinking. The first theme is characterised by a reluctance on the part of some men to weigh in environmental aspects at all, which they see as incompatible with their everyday lives, income or travel requirements. They also rejected the view that they have an individual responsibility to combat climate change. The second theme is characterised by some men's rejection of routine car driving, which they saw as uneconomical, impractical and limiting. These men were cycling enthusiasts or members of carpools, and in a traffic system that they perceived to be lacking, they saw themselves as aware individuals breaking with the norm. On the question of the environmental aspects of travel, they were in two minds, however. For example they associated the environmental movement with fundamentalism. For these men, their passion did not lie any kind of environmental engagement, but was associated with the bicycle and other alternatives to private car driving. The latter theme is characterised by a

strong emphasis among the men on thinking things through and being knowledgeable and consistent; and they felt a great individual responsibility to adapt their everyday life based on its environmental impact. These men see themselves as pioneers, and they ascribe to themselves an intellectual capacity and the courage to challenge established views on climate change. But they are also influenced by society's norms, for example by experiencing not flying as a 'social handicap'. Unlike in other studies, environmental engagement is not associated with femininity, although in the conversations, 'typical climate villains' were exemplified by men. Masculinity, as a passion for technology and as an ideal of leadership, was thus recreated but also challenged.

Fuel and technological solutions

Hardman and Tal (2018) investigated the socio-demographic profile, travel patterns and climate attitudes of these two groups in a survey study with 2,020 respondents in the USA who own a battery electric vehicle (77%) or a fuel cell vehicle (23%). The results indicate great similarities between the two groups, in terms of income level and gender – most (76% and 78%, respectively) were men – as well as travel patterns and attitudes, but a larger proportion of those who own fuel cell vehicles live in apartment blocks. The availability of charging is probably of great significance here. Sovacool et al. (2018) investigated what socio-demographic variables – gender, education, occupation, age and size of household – lay behind a preference for electric vehicles in a survey study with 5067 respondents in Denmark, Finland, Iceland, Norway and Sweden. The results indicate that mainly men, the highly educated, and full-time employees – especially in academia and civil society organisations – as well as people aged 30 to 45 are those most likely to buy electric vehicles. Women with high incomes and pensioners are groups with potential. Rice et al. (2020) investigated attitudes towards paying for more expensive airline tickets if aviation were to emit a smaller quantity of greenhouse gases in a two-part survey study with a total of 1,192 respondents (648 women, 544 men) in the USA. The results indicate that there is a willingness to pay more, up to a limit of 15 per cent more for tickets. This limit is particularly clear for long-haul flights. Women are generally more willing to pay extra compared to men, especially in the case of domestic flights and shorter distances.

Two studies address the question of how masculinity is linked to vehicles and fuels. Hultman (2011) investigated the interplay between masculinity, modernity and environmental and energy policy in a study based on analyses of different types of material connected by the link between actor and politician Arnold Schwarzenegger, climate change and the debate on hydrogen gas and fuel cells. The results indicate that Schwarzenegger's example illustrates a change in the masculinity ideal in a development where industrialism's large-scale production based on the exploitation of nature has partly been forced to give way to an increased awareness of environmental problems such as climate change. During his career as a politician from the 1990s and beyond, Schwarzenegger's hypermodern masculinity at the beginning of his career as an actor in the 1980s, with characters who used violence to defend the good guys, was replaced by a hybrid form of masculinity where environmental engagement is combined with an interest in vehicles that symbolise strength and power. As such, it has been possible for stakeholders who reject any

vision of transport systems based on alternatives to private car use – arguing instead for emissions-free technologies – to use Schwarzenegger as a figurehead.

Dockstader and Bell (2020) investigated the gendered ideas about and attitudes towards biofuels in a study of field observations, interviews with customers and an analysis of marketing materials from the small-scale fuel company GreenTech in the USA. The results indicate that the company expresses a kind of ecomodern masculinity, where their products are presented as the ethical choice for good men who care about the environment. This can be seen as a variant of the ecomodernisation which, for strategical reasons, takes the form of conservation while also promoting the company's profit interests. This in fact leads to increased consumption that strengthens existing social inequalities and risks rendering invisible the need for systemic changes to address the climate crisis.

Summary and reflections: Transport

Transport is an inevitable element of modern societies and, following the broad penetration of the combustion engine as an innovation, the consumption of fossil fuels with their associated greenhouse gas emissions has increased almost exponentially. This also applies to passenger transport, where the use of privately owned fossil-powered vehicles for a few users at a time, has become the norm in both urban and rural settings. Men as a group are more often car owners, travel longer distances by car and spend more money on fuel than women as a group do. Transport patterns reflect the gender-segregated labour market and the uneven distribution of unpaid domestic and care responsibilities, since people who are employed full-time and are not the main providers of care have different transport patterns than those who work part-time and are responsible for dropping off and picking up children from school and other activities, and purchasing food for the household. Combined with the fact that traffic planning has traditionally been a domain in which mainly men with a background in engineering and a particularly technological rationality rather than a focus on instigating behavioural change have been active, this has consequences that create gender inequalities and disadvantage women as a group. In addition, there is also a risk that car ownership and use among women will increase when more resource-efficient public transport is characterised by poor availability, which additionally leads to a greater environmental impact from women's everyday transport.

Besides the car, the bicycle is also in many instances a mode of transport used by men to a greater extent than women, and access to this climate-efficient vehicle by broader groups is limited by masculine norms oriented towards a ruthless, competitive mentality. Enthusiasm for the bicycle among certain groups of men does indeed mean that they have less environmental impact than groups who use cars more often, without this necessarily expressing environmental engagement. But the fact that other groups, including women, are being deterred from using a bicycle for short trips in their everyday lives can lead to a greater environmental impact overall.

WORK AND TIME USE

Despite the fact that technological development has led to rationalisation and increased productivity, people in the global North work on average about the same number of hours as they did five decades ago, while economic standards and consumption have increased. This leads to increased environmental impact, while time as a finite resource means that participation in the labour market competes with the amount of leisure time and time spent on unpaid domestic and care work in people's lives. There is a simultaneous trend in initiatives to encourage downshifting, which is based on the assumption that reducing one's working hours will lead to reduced consumption, more hours of leisure time and a more sustainable and better quality of life through a simpler lifestyle.

This chapter discusses studies that highlight differences between women as a group and men as a group regarding time use and analyses gender in relation to this theme. It is also about reduced working hours and initiatives for a simpler lifestyle. The chapter concludes with a summary of salient patterns, along with reflections on how these patterns arise and are reproduced, which genders enable sustainable lifestyles regardless of sex, and how these can be promoted.

Time use

Three studies address questions about time use and concern for the environment. In a study using data from the European Social Survey (ESS) for 2010, which covered 28 European countries including Russia, Arntsen et al. (2018) investigated differences between women as a group and men as a group in terms of the number of hours they worked and environmental preferences in light of socio-demographic variables such as age and level of education. The results indicate that the relationship between working hours and concern for the environment is not as anticipated, since those who claim to care most about the environment also work the most. However, there are differences between women as a group and men as a group, where men who work longer hours also indicate less concern for the environment, while care responsibilities fall disproportionately to women. This can be understood as an expression of the social norm of men being the family breadwinners. If reduced working hours, along with an associated reduction in consumption, is to be used as a strategy for reducing environmental impact, the task lies primarily in influencing the environmental and working hours preferences of men. In a study referenced in the chapter on housing and energy, Palm and Ellegård (2011) investigated gendered patterns in the everyday lives of households. The results indicate that different types of energy consumption are linked to the unequal distribution of responsibilities for unpaid domestic and care work, for example, because women do the cooking, and drop off and pick up the children, especially at younger ages, to and from preschool and school. Druckman et al. (2012) investigated differences between women as a group and men as a group in how they use their leisure time in a study of time use statistics in the UK and environmental impact data per unit of time for different types of activities. The results indicate that leisure

activities are generally associated with lower CO2 emissions than unpaid household and care work and that a higher proportion of the average man's environmental impact is due to leisure activities than the average woman's. Although the differences are not great between the groups, they can be understood as an expression of a division of work based on gender and, all else being equal, it is unlikely that a reduction in working hours would lead to a reduction in environmental impact. It is dependent how the hours not spent working are used, which in turn depends on social norms related to gender, for example.

In a study referenced in the chapter on housing and energy, Isenhour and Ardenfors (2009) investigated the gender dynamics of households in Sweden that have attempted to implement lifestyle changes to become more sustainable. The results indicate that women experience high levels of time pressure due to the unequal distribution of responsibility for care and domestic work. Time and convenience are important factors in their decisions when purchasing goods and services, which entails a conflict with sustainability values because easily accessible products require less investment in time. Many women experience a conflict in the dual pressure to express their femininity and their own desire to pay less attention to fashion or to buy only sustainable products. Purchasing second-hand clothing, for example, takes a considerable amount of time and money, both of which are scarce resources. The pressures to be good mothers, good partners and to create a comfortable home also create difficulties in balancing their concerns about sustainability. Activities such as growing food, taking the train instead of flying, acquiring the most environment-friendly washing machine or the perfect second-hand coffee table all take a lot of time, and this conflicts with the ideal of being an independent and successful career woman. This generates frustration among many women, who describe this as not having enough time and resources to take care of their families in a sustainable way.

Reduced working hours

Two studies specifically address the consequences of reduced working hours. Lane et al. (2020) investigated the relationships between working hours, care and consumption of individuals aged 40 to 59 years who have reduced their working hours and income in a study using data from the national censuses conducted in Australia in 2006, 2011 and 2016. The results indicate a strong gender dimension, where women primarily reduce their working hours to engage in more unpaid caregiving rather than for reasons of concern for the environment, while the link between working hours and household consumption is less clear and varies between households. The significance of responsibility for caregiving in the household has not otherwise been explored in research on downshifting. Lindsay et al. (2020) investigated the everyday experience of downshifting and its links to consumption in the domains of food, leisure activities and transport in an interview study involving ten participants (nine women, one man) in Australia who voluntarily reduced their working hours and income (downshifted). The results indicate that both responsibility for caregiving and the need for financial security and housing security are of great importance for the quality of life in relation to downshifting. A significant majority used the time previously used for paid work to devote themselves to care responsibilities, and although they thought more about their consumption habits, in light of available finances, their consumption overall did not

reduce in clear way. One conclusion is that reduced working hours is not likely to lead to a reduction in environmental impact in the absence of a clear sustainability motive.

Downshifting initiatives

Vita et al. (2020) investigated differences in well-being and the carbon footprint from their consumption in the domains of food, clothing, housing and transport in a survey study with 141 respondents who were members of various grassroots downshifting initiatives in Italy, Romania, Germany and Spain, as well as 1,476 respondents from equivalent non-member socio-demographic groups. The results indicate that the members of these initiatives had a smaller carbon footprint overall (16%), as well as a smaller carbon footprint from food (43%) and clothing (86%), compared to the equivalent non-member groups. Members were able to show examples of energy-saving behaviours such as travel habits and how they heated their homes. While the income level of the members was not an explanatory factor, higher income levels of the equivalent non-member groups co-varied with higher carbon footprints. Finally, members generally reported higher (11–13%) levels of well-being than the equivalent non-member groups.

Eimermann et al. (2021) investigated the probability of changes towards a simpler lifestyle by different socio-demographic groups, with particular focuses on consumption, gender and age in a study based on national public statistics from Sweden. Unlike what has emerged from previous studies, the results in this study indicate that gender is not an explanatory factor for the probability of individuals adopting a simpler lifestyle. The authors speculate about whether this can be explained by the Nordic welfare state, which enables a certain degree of voluntary simplicity without having to resign from one's job or find cheaper accommodation. On the other hand, other factors such as education level and age were found to be significant: Higher education decreases the probability, while age follows a curve where the probability decreases until the age of 40, and then increases again. Single individuals are more likely to adopt a simpler lifestyle than individuals living in couples, while the prevalence of underaged children in the household reduces the likelihood of lifestyle changes. Overall, individuals who see a simplicity lifestyle as positive were found in only marginal numbers, and those who actually make such changes were even fewer. The changes often involve a move from an urban to a rural area, but not to smaller housing or a reduction in the number of cars, so the environmental consequences are not clear-cut.

Summary and reflections: Work and time use

Based on the limited scope of the material referenced, it does not appear that reducing working hours and downshifting initiatives have any clearly positive impact on either social or environmental sustainability. This is in part due to the uneven distribution of unpaid domestic and care work, where a disproportionate amount of the responsibility for such falls on women, and in part it is due to a social norm of men as family breadwinners. Among women as a group, voluntary reductions in working hours are motivated by a desire to have more time for caregiving in

domestic relationships, rather than by environmental concerns, and without an explicit environmental motive, downshifting does not unequivocally lead to a reduction in consumption.

Women as a group experience more stress than men as a group about getting through the time-consuming, unpaid work of finding environment-friendly products, travelling by train instead of by air, and searching for second-hand furniture and clothing instead of buying new products. If reducing working hours with associated changes in consumption is to be used as a strategy to achieve more sustainable lifestyles, it should be based on efforts to influence the preferences of men as a group. Based on the findings in the studies referenced in other themes in this research overview, this could be largely about promoting an ideal of caregiving among men.

CULTURE AND TOURISM

How people choose to spend their free time has consequences for resource consumption and environmental impact. Different activities – reading a book or watching TV, hiking in the woods or flying to Thailand – consume resources and affect the climate differently. In the global North, for example, flying to holiday destinations has increased in scale, while there is also a growing interest in experiencing nature and eco-tourism.

This chapter discusses studies that highlight differences between women as a group and men as a group regarding people's leisure activities, and analyses gender in relation to this theme. It is about the environmental aspects of tourism, as well as cultural events such as festivals. The chapter concludes with a summary of salient patterns, along with reflections on how these patterns arise and are reproduced, which genders enable sustainable lifestyles regardless of sex, and how these can be promoted.

Tourism, eco-tourism and environmental efforts

In a review of previous studies, Skanavis and Sakellari (2008) investigated the relationship between sex and tourism, and in particular the role of women in the development of sustainable tourism, focusing on the importance of environmental education in encouraging citizen participation and differences between women as a group and men as a group with regard to citizen participants' motivations, the types of participation processes preferred, and criteria for evaluating participation processes. The results indicate that tourism can contribute to both improvements and deteriorations in the local environments of destinations, and that both tourists and tourism may need guidance and education in eco-tourism and other alternative forms of tourism that may have less adverse impacts on the environment. Analyses are needed here, based on interacting categories such as gender, class, age, ethnicity, race and nationality, since these may be relevant to the design of everything from marketing to social development programmes at tourist destinations. The participation of women in tourism, often resulting from the commercialisation of domestic work, offers opportunities for greater participation in the world outside the home and in the preservation of the natural environment, and provides them with a source of income and a degree of financial independence, while it does not challenge a traditional gendered distribution of unpaid domestic and care work. Environmental education should be seen as a form of lifelong learning, accessible to people regardless of gender, age or cultural background which, by promoting relevant skills in critical thinking, enables responsible citizenship and participation in decision-making that is relevant to environmentally sustainable development. This requires a break with the traditional male dominance and marginalisation of women in these domains, in part related to the fact that environmental education courses feature science and technology to a large degree, which historically and still largely today remain fields in which men are mainly active. This is in contrast with the fact that women have been and are more involved in environmental issues, where

engagement is based on a caring attitude, while engagement among men has been motivated by a more instrumental interest in the natural environment. Differences between women as a group and men as a group, as well as norms of femininity and masculinity, can promote environmental education and eco-tourism.

Yudina and Grimwood (2016) investigated how representations of polar bears express norms that marginalise non-human animal others and reflect a patriarchal gender system that rewards dominance and instrumental rationality in a study based on analyses of the websites of tourism bureaus offering tours to see polar bears in Canada, promotional materials from two leading companies in this field, as well as postcards, brochures and souvenirs, etc. collected during one month's field work on site. The results indicate that there is a contradiction in the concern for nature and the environment on which the idea of environmentally sustainable (wilderness) tourism is assumed to be based, since the attitude to the polar bears and their habitat that emerges in the material is instead instrumental and anthropocentric, and focuses on 'performing spectacle bears'. The authors argue that a stronger impact of a care-oriented ethical stance would promote both ecological and social sustainability, in contrast to the currently prevailing instrumental rationality.

Three studies address different aspects of consumer demand for concern for the environment in tourism. Barber et al. (2010) investigated attitudes and socio-demographic factors among consumers in the area of wine tourism, in a survey of 315 respondents (approximately half women, half men, over 21 years of age and with an average age of 43 years) in the USA. The results indicate an openness to pay more for eco-labelled wines, where women as a group are particularly willing to contribute to protecting tourism destinations in wine-producing regions, which affects their purchasing intentions. Moise et al. (2021) investigated the importance of environmental sustainability efforts as a factor underlying customer satisfaction in terms of waste recycling, conserving energy and water, and other green practices in a survey study with 302 respondents (177 men, 125 women) staying at 3- and 4-star hotels in Colombia. The results indicate that environmental sustainability efforts at hotels contribute greatly to the image of the hotel and to guest trust and satisfaction. There was a difference in relation to the gender of the guests, where women as a group were more satisfied than men as a group when the level of sustainability efforts aligned with their expectations.

Tasci et al. (2021) investigated socio-demographic, psychological and behavioural characteristics of consumers interested in sustainability as a means of promoting demand for sustainability practices in the tourism and hospitality industry in a survey study with 474 respondents (56 per cent men, 44 per cent women, average age of 35 years, where 56 per cent had completed higher education) in the USA. The results indicate that when individuals think about global and environmental sustainability issues, this includes everything that is outside of themselves, with the greatest concern being expressed for future generations and the least for their own nation. Child abuse, pollution and climate change are the most pressing problems, while organ trafficking, natural disasters and epidemics lie at the opposite end of the scale. Femininity and conservatism have an impact on attitudes, ideas and behaviours related to sustainable development. The more a person has feminine tendencies, the more likely it is that they will consider themself to be a sustainable consumer, choose alternative forms of tourism, care about sustainability and, in particular, social sustainability, and the more likely they are to see responsibility for

sustainability issues as everyone's responsibility. Conversely, conservatism influences people towards choosing mass tourism and not caring for or taking responsibility for sustainability issues.

Cultural festivals

Slocum et al. (2020) examined socio-demographic factors underlying sustainability behaviours at home and while travelling in a survey study with 424 respondents (half women, half men) attending a Renaissance festival in the USA. The results indicate that women as a group report a greater incidence of buying locally produced, eco-labelled and recycled products, and of conserving water and energy, than men as a group, while there was no difference found between these groups with regard to the use of public transport. In general, both women as a group and men as a group engage less in different types of sustainability behaviours when they are travelling than when they are at home. In a survey-based study of attendees at a Renaissance festival in the USA, Slocum et al. (2021) investigated the importance of social norms for sustainable consumption behaviours. The results indicate that socio-demographic factors such as gender and education are important, where women as a group exhibit more sustainable behaviours than men as a group, and those with higher education exhibit more sustainable behaviours than those with lower levels of education. On the other hand, attending festivals, despite their cultural ethos of fostering sustainability, seems to undermine sustainable consumption behaviours at home. This could possibly be because the participants get an outlet for their need for a simpler lifestyle by going to the festivals and then can live on as usual at home.

Summary and reflections: Culture and tourism

Despite the limited number of the referenced studies in this theme, the patterns that emerged in other themes in this research overview nevertheless appear to correspond with those found here. Women as a group are more oriented towards sustainability than men as a group, and this seems to be largely associated with a greater prevalence of the ideal of caring among women than men as a group. The more that individuals, regardless of sex, exhibit feminine tendencies, the more they are oriented towards sustainability. The relationship between eco-tourism and alternative tourism and social and environmental sustainable development is not unambiguously positive. Stronger emphasis on caring ideals in the organisation and marketing of tourist attractions could promote both ecological and social sustainability.

Although the literature search was supplemented with a targeted search on the theme of culture, the material lacks studies in a number of areas of cultural consumption such as concerts and music festivals, visits to theatres, cinemas or museums, novels, etc. There have been studies of the environmental impact of music festivals for example (cf. Larasti, 2020), but none of these were found in the search. No comment is offered on whether this is due to the studies done not having included any gender analyses, but other studies have in fact shown differences between women as a group and men as a group in terms of cultural consumption, as

well as differences in terms of class, age and ethnicity, for example (cf. Bihagen & Katz-Gerro, 2000). In all cases, there is potential here for further knowledge development that included a gender perspective on sustainable lifestyles.

ACTIVISM AND INFLUENCE

In the Nordic countries, there is a long tradition of engagement with popular movements, offering opportunities for both personal growth and influence in the society. Many of the older organisations have been losing members, while new movements and opportunities for engagement are emerging. The green transition can represent such an opportunity with the growth of urban farming, reuse and recycling, and in recent years climate activism has grown strongly with Greta Thunberg and other teenage and young adult advocates.

This chapter discusses studies that shed light on the differences between women as a group and men as a group regarding engagement in climate issues through activism in protest movements or in other ways and analyses gender in relation to this theme. It is also about education and communication for sustainable development. The chapter concludes with a summary of salient patterns, along with reflections on how these patterns arise and are reproduced, which genders enable sustainable lifestyles regardless of sex, and how these can be promoted.

Engagement and activism, especially among young people

Two studies deal with the concerns and other feelings of young people related to climate change. Ojala (2012) investigated whether hope in relation to climate change can have an impact on pro-environmental behaviours regardless of well-known predictors such as values, social influence, knowledge and gender, in a two-part questionnaire study with 723 respondents (teenagers) and 381 respondents (young adults) in Sweden. The results indicate that constructive hope has a positive influence, while hope based on denial has a strong negative influence, and this factor neutralises the significance of gender in the sense that girls and young women are more inclined than boys and young men to change their behaviours in order to reduce their environmental impact. Ojala (2013) investigated how young people cope with climate change emotionally, and how different coping strategies are predictors of environmental efficacy, pro-environmental behaviour, and subjective well-being in a questionnaire study with 321 respondents (teenagers) in Sweden. The results indicate that problem-solving strategies increase the likelihood that young people experience negative affect in their everyday lives from climate-related worry, while emotional or meaning-focused strategies are positively correlated with both well-being and optimism. This factor neutralises the significance of gender, in that girls worry much more about the climate than boys.

Two studies deal with the climate movement Fridays for Future, which was started by young people in connection with the UN Climate Change Conference in Paris in 2015 and grew stronger when Swedish school student Greta Thunberg started a regular sit-down strike outside the Riksdag (Swedish parliament) building in Stockholm, Sweden, in the autumn of 2018. Boulianne et al. (2020) examined information, attitudes and values shared by activists and sympathisers in an analysis of 933 social media posts (tweets) on Twitter. The results indicate the existence of a contrast between notions of the 'good (school) girl' on the one hand, who complies

with society's expectations and works hard in school with the ambition of becoming a researcher to be able to solve the problems of climate change for example; and on the other hand, 'brave girls' who are rebelling against these expectations in order to urge decision-makers to act on knowledge about climate change that scientists have already produced. There are also ideas about blame and responsibility for the situation lying with the establishment in politics and the mass media, with the then US President Donald Trump as a particularly prominent example. Martiskainen et al. (2020) investigated their knowledge, emotions, motivations, and actions in relation to climate change, including any changes in lifestyle that the climate strikers had made before or after their participation in the strikes in a study based on interviews with 64 respondents who had engaged in climate strikes in the UK, Canada, USA and Norway. The results indicate that there is a wide range of climate strikers in terms of age, race and gender, including transgender persons, pensioners with grandchildren, or career-switching professionals. The strikes not only have a focus on raising awareness about climate change and protesting a lack of action on the causes of climate change, they are also used as an opportunity to create a sense of community and have fun. Connecting with previous studies, the article emphasises how the protests link the climate crisis to problems associated with capitalism, militarism, class divides and food production, and the strikers' mobilisation is reinforced by demands for social as well as environmental justice, including gender equality. The reasons for participating in the strikes vary among the climate strikers, as does as their knowledge of climate change and the lifestyle changes they have made.

Two studies address other types of engagement with environmental issues. Paço and Gouveia Rodrigues (2016) examined the relationship between perceived levels of individual environmental responsibility and degree of participation in environmental organisations, and whether sex functions as a predictor in this context in a survey study with 450 respondents (approximately half women, half men) in Portugal. The results indicate that women as a group report higher levels of perceived environmental responsibility than men as a group, but both women and men show only low levels of environmental activism and participation in environmental organisations. However, the level of perceived environmental responsibility is higher among those individuals who reported being members of environmental organisations, and among these the distribution of men and women is even. In a study based on the analysis of statistics covering 331 companies in 33 countries and spread across ten different industries, obtained from financial information company Bloomberg, Hossain et al. (2017) investigated the relationship between CO2 emissions, the size of the Board of Directors, and the proportion of women among Board members. The results indicate that companies with a larger Board and a higher proportion of women on the Board report lower CO2 emissions and a greater tendency to disclose their efforts in this area. However, the study did not investigate potential differences between industries, such as between health and mining, so it is not possible to establish whether the causal relationships could be explained by the fact that companies with lower emissions are simply found in industries where a greater proportion of women are active.

Education and communication efforts

In a review of previous studies, Dos Muchangos and Vaughter (2018) investigated the inclusion of gender in relation to waste education as part of Education for Sustainable Consumption (ESC). The results indicate that sex and gender are relatively superficially treated, mainly with sex as a statistical variable and with a significantly lower incidence of gender analyses. There are gender norms according to which women and girls exhibit higher emotional involvement in environmental education than men and boys because they are assigned specific attributes related to nurturing skills and tolerance – norms which are reproduced by more women than men engaging in environmental questions. There is also an emphasis on taking into account differences in power and influence, related to sex and class for example, for the formulation of programmes for local food production, waste reduction and recycling.

Harker-Schuch and Bugge-Henriksen (2013) investigates the effect on knowledge and attitudes of a lecture on climate science in a survey study with 188 respondents (107 girls, 81 boys, age 16–17 years) at four upper secondary schools in Denmark and Austria (for each country, one national school and one international school). The results indicate that students who had a higher number of correct answers in the test after the lecture were of the opinion that human beings are causing climate change and that both individuals and governments are responsible for addressing these problems, indicating that the lecture had an impact on their knowledge development. There was a difference between girls and boys, where although the latter group had more correct answers in the test, the former group showed a stronger belief that both individuals and governments bear a responsibility. In a comparison between the schools, the Austrian respondents were less likely to believe that climate change is a threat for which individuals and governments bear a responsibility than Danish respondents, while the same is true for the international schools compared to the national schools in both Denmark and Austria.

Damico et al. (2020) investigated an educational framework that can help teachers and students identify harmful and beneficial cultural narratives (stories-we-live-by) in relation to climate change in a study based on experiences from formal educational activities from primary school to university level in the USA, presented from an ecolinguistics theoretical perspective. The results indicate that the story of humans as the centre of existence, separate from nature, and that of consumerism as a main pathway to happiness and fulfilment are two such stories with harmful consequences for the climate. In contrast to these, teaching based on indigenous peoples' stories about the importance of place, stories from, for example, podcasts on gender equality and climate justice, and stories about youth-led activism and civic engagement, have proven to have the effect of stimulating engagement with climate issues among pupils/students.

Sjögren (2017) investigated the challenges of sustainable development in higher education, starting from a feminist philosophy of science perspective, and in particular the epistemological notions of situated knowledges (Haraway, 1988) and transcorporeality (Alaimo, 2010), in a study based on focus group conversations with teachers at eight universities in Sweden. Situated knowledge can be said to be about the knowledge object always coming from somewhere and always have a positional perspective, and that there is a need to take responsibility for this. Transcorporeality

opens the way for our knowledge always being embedded in a physical and material environment in which other, for example non-human animal, ways of interpreting and understanding the world are also important. The results indicate that there are two important balances: firstly, the role of the teaching body at the boundary between the private and the public, where the teacher may have experiences and values that clash with norms on how to do the teaching; and, secondly the reach of education, in other words what effect it is intended to have on the person being taught in relation to demands to change the current situation or to recreate the prevailing conditions. Environmental issues are perceived as problematic to deal with in higher education activities because they transgress these boundaries and challenge understandings of what legitimate knowledge is, and that it is uncomfortable but also necessary to remain in this borderland. There may be reason for researchers and university teachers to engage not only with environmental issues as individual consumers and citizens in the society, but also with questions of the organisation and content of knowledge in higher education.

Piñeiro et al. (2014) investigated the significance of gender in communications about environmental initiatives, in a study based on analyses of guide materials, interviews with 8 experts in communication and education concerning the environment, and four focus group interviews with a total of 20 participants involved in various sustainable consumption initiatives in Madrid. The results indicate some differences between the guide material's inclusion of gender and how the participants understand gender. The material highlights the vulnerability of pregnant women to environmental toxins, the importance of support structures in relation to child-raising, but also how patriarchal norms and over-consumption affect people's minds and bodies, and there is a particular focus on women in the global South. The participants discussed the need for a greater focus on people's needs to receive and give care, and would like to see greater attention paid to this in the global North. There was a general consensus among the participants that the gender perspective is largely absent in the initiatives and in the communications about them, although the fact that projects are led by women was used as a pretext for the gender perspective being there.

Summary and reflections: Activism and influence

Consumption patterns are relevant as an indication of individuals' lifestyles, not least in relation to environmental impact, but the term lifestyle also includes non-economic activities. People are so much more than just consumers, whether or not they are aware and responsible consumers, and studies referenced in other themes in this research overview have pointed out how a disproportionate emphasis on consumer responsibility risks rendering invisible the need for change at societal level. People are also citizens of a society, and engage in volunteering and activism. Young people in particular are concerned about climate change, especially girls and young women, and many are involved in climate activism. Engaging in something that is meaningful can be a better strategy, with regard to one's own well-being, for addressing worry about climate change than trying to solve the problems oneself. Individual responsibility, for example as consumers, only gets us so far.

Gender norms expressed in expectations of 'good girls' who do their school homework, as well as 'brave girls' who break with these expectations in order to draw attention to the political responsibility for climate change, are shown in the referenced studies on the Fridays for Future climate movement among other things. This can be compared with studies by Krange et al. (2019) and Vowles and Hultman (2022) for example, who show that the greatest climate denial is among influential, older men with links to the fossil fuel industry, and the right-wing nationalist movement. Climate activism is seen as a threat to the prevailing social order and to the prosperity of modern industrial society, and notions of femininity and masculinity are clearly voiced in how climate denial is expressed.

The formal education system, in particular the school system, has an important role to play in providing the future society with a set of citizens with the skills that are assumed to be necessary. Education thus has a fundamental role to play in a democracy (Young Håkansson et al., 2022). Among the referenced studies, material with a gender perspective on education for sustainable consumption, or more generally, education for sustainable development is largely lacking, but it does emerge that sustainability issues challenge norms regarding the impact of education on the person to be educated, as well as what is perceived as legitimate knowledge.

DISCUSSION

Sustainable lifestyles is an area that shows clear patterns of differences between groups of people depending on categories such as gender, class, age and ethnicity, and where social norms are drivers in how people, with their values and behaviours, express differences from and connection with others through paid and unpaid work and leisure activities (cf. Mont, 2007; Vogl & Baur, 2018; Akenji et al., 2021). Women as a group, compared with men as a group, are more engaged in both climate and social questions, and exhibit behaviours that minimise "the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardise the needs of future generations", to link to an established definition of sustainable lifestyles (Mont, 2007). Intersectional gender analyses can show that these patterns are associated with social norms of femininity and masculinity, rather than being dependent on natural characteristics of women and men respectively. Individuals oriented towards caregiving – an ideal often associated with femininity, regardless of gender – are more engaged with sustainability and show sustainable behaviour patterns. This is apparent in relation to food and clothing as well as transport patterns. The uneven distribution of unpaid domestic and care work, for which women as a group take more responsibility than men as a group, also has consequences for the everyday work of repairing clothing or searching for second-hand furniture. According to social norms, an interest in technology is understood as being associated with masculinity (Berner, 1996, 2003), and engagement in facilitating the green transition is often expressed in men as wanting to invest in solar panels or replace their fossil-fuel powered car with a plug-in hybrid. Associating technical expertise with masculinity risks excluding women from participation in these initiatives, in a similar way to women not being motivated to apply for study programmes and enter occupations in STEM fields (Jansson & Sand, 2021). In addition, technical solutions tend to be one-off investments, while behavioural changes often mean that more time has to be spent on unpaid domestic and care work, primarily by women as a group.

The interplay between actors and structures is highly relevant to the issue of sustainable lifestyles (cf. Young, 2006). Individual responsibility as a consumer – to buy more vegetarian, locally produced and organic food, to drive an electric car rather than a fossil-fuel powered car, to wear second-hand clothing or to repair the clothes you already have instead of constantly buying new products – only goes so far. Women as a group are ascribed a greater responsibility for the environment as consumers than men as a group due to social norms about fashion as a way of expressing femininity, but also because women more often than men are responsible for cooking the meals in households and for buying clothes for children and other family members. Individuals who, regardless of sex, are engaged in being more sustainable, for example in relation to household purchases or travel habits and transport patterns, state that they feel a time pressure and a pressure from social norms concerning what 'the good life' should look like. This is very much a question of class (cf. Bradley, 2009; Swyngedouw, 2010). A major and crucial responsibility also lies with decision-makers in traffic planning, vehicle manufacturers, food producers, energy companies, business in the fashion industry, etc.

Schools and the rest of the education system have an important role in shaping not

only conscious consumers and employable workers (cf. Simonsson, 2022), but have the basic function in a society to foster responsible citizenship and participation in decision-making relevant to sustainable development by teaching relevant skills in critical thinking. Education for Sustainable Development (ESD) is a framework developed within UNESCO that has gained wide acceptance in education systems, from compulsory school through to higher education, but more studies may be needed here to explore its implementation and consequences through intersectional gender analyses. In addition to education for sustainable development, young people are also given priority as change makers, particularly in the context of the Nordic countries (Jónsson et al., 2021; Neergaard & Ravnbøl, 2019; cf. Bauer et al., 2018).

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APPENDIX

Literature searches

This report was based on a systematic literature search conducted with the aid of KvinnSam, a Swedish national library for gender research located at the University Library of the University of Gothenburg.[11] The search strategy was discussed in consultation with librarians at KvinnSam, and through regular contact between KvinnSam and the author of the report.

This appendix describes the search strategy and the results of the searches conducted in more detail.

Search strategy

Initially, three key terms were identified as central to the literature search:

1. gender and gender equality,
2. climate and sustainability, and
3. consumption and lifestyles.

Based on these key terms, search blocks were constructed that included related words and concepts. This resulted in the following search string:

(gender OR femini* OR ecofeminis* OR masculinit*) AND ("climate change" OR sustainab* OR "eco* footprint*") AND (consum* OR lifestyle*)

A subset of the search above limited by "Nordic countries":

(gender OR femini* OR ecofeminis* OR masculinit*) AND ("climate change" OR sustainab* OR "eco* footprint*") AND (consum* OR lifestyle*) AND (nordic* OR "northern countr*" OR scandinavi* OR swed* OR finland* OR finnish* OR norway* OR norwegian* OR denmark* OR danish* OR iceland* OR "Faroe Islands" OR faroese* OR "Åland*" OR greenland*)

With the aim of capturing a broad range of relevant research publications, a combination of both international journal article databases (Ebsco, PsycINFO and Scopus) and gender research journals in the Nordic countries (*TGV*, *Tidsskrift for kjønnsforskning*, *Kvinder, køn & forskning*, *Nora*, *Norma* and *Sukupuolentutkimus*) were chosen. The searches were limited to publications from 2007 to 2021, a range of 15 years.

For journals, the search strings were adjusted somewhat depending on the nature of the sources, for example by excluding the gender block because gender was implicit.

11. For more information about KvinnSam, visit www.ub.gu.se/kvinn.

- *Norma*: (consum* OR lifestyle*) AND (sustainab* OR climate) = 21 träffar
- *Nora*: (consum* OR lifestyle*) AND (sustainab* OR climate) = 38 träffar
- *TGV*: (sustainab* OR hållbar* OR klimat* OR climate) AND (konsum* OR consum* OR livsstil* OR lifestyle*) = 119 träffar
- *Kvinder, køn & forskning*: (sustainab* OR climate OR holdbar* OR bæredygtig* OR klima) AND (consum* OR lifestyle* OR forbrug* OR livsstil*) = 42 träffar
- *Tidsskrift for kjønnsforskning*: (sustainab* OR climate OR bærekraft* OR klima) AND (consum* OR lifestyle* OR forbruk* OR livsstil*) = 13 träffar
- *Sukupuolentutkimus*: Indexerad i databasen KVINNSAM. Har sökt där på: hållbar*, sustain*, konsum*, consum*, miljö*, environment*, klimat*, climate* = 1–3 träffar per sökord, bedömning att inget är av relevans.

The search was performed in November 2021. In December, two supplementary searches were made in the databases, with the aim of capturing more articles on the themes of culture and climate activism.

Search string for the theme of culture:

NOFT("cultural consumption" OR "consumption of culture") AND NOFT(gender OR femini* OR ecofeminis* OR masculinit*)

Search string for the climate activism theme:

(TITLE-ABS-KEY ("climate change" OR "climate activism" OR "Fridays for future" OR fridaysforfuture) AND TITLE-ABS-KEY (nordic* OR "northern countr*" OR scandinavi* OR swed* OR finland* OR finnish* OR norway* OR norwegian* OR denmark* OR danish* OR iceland* OR "Faroe Islands" OR faroese* OR "Åland*" OR greenland*) AND TITLE-ABS-KEY (youth OR "young people" OR "youth activism" OR adolescen*))

Results of searches

The searches resulted in three hit lists comprising a total of 1388 records (main search 1120, culture 200, and climate activism 68), after removing the duplicates, delivered in the Rayyan QCRI tool.

Database	Number of hits
Ebsco (GreenFile, Gender Studies Database och Business Source Premier)	336
Ebsco Nordic border	31
PsycINFO	115
PsycINFO limited to Nordic countries	12
Scopus	825
Scopus limited to Nordic countries	40
TGV	119
Tidsskrift for kjønnsforskning	13
Kvinder, køn & forskning	42
Norma	21
Nora	38
Sukupuolentutkimus	0
Total	1509
After removing duplicates	1120
Culture theme	200
Climate activism theme	68
Total (with duplicates removed)	**1388**

To assure the quality of the search strategy, the search strings were reviewed using Peer Review of Electronic Search Strategies (PRESS), where a checklist of questions on operationalisation, search technique, spelling and limits for each search string were reviewed (McGowan et al., 2016).

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