Nordic Council of Ministers

HOW CLIMATE POLICIES IMPACT GENDER AND VICE VERSA IN THE NORDIC COUNTRIES

Contents

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PREFACE

At COP 25 (Madrid 2019), the Parties to the UNFCCC adopted a five-year enhanced Lima work program on gender and a gender action plan. The gender action plan (GAP) sets out five priority areas that aim to advance knowledge and understanding of gender responsive climate action and its coherent mainstreaming in the implementation of the UNFCCC. It covers the work of Parties, the secretariat, United Nations entities and all stakeholders at all levels, and aims to guarantee women's full, equal and meaningful participation in the UNFCCC process.

The Nordic Council of Ministers has developed a Nordic co-operation program on gender equality for 2019-2024, placing great emphasis on utilising the competencies and experiences of both women and men. All the Nordic countries have a progressive gender equality policy, and requirements to ensure gender equality and balance are laid down in laws and national strategies. However, knowledge on the links between gender and climate change has lacked documentation and has not been shared with relevant Nordic stakeholders and policy makers working with climate change.

This report seeks to close this knowledge gap. It provides a comprehensive understanding of how climate change policies affect gender and vice versa and provides clear evidence of the importance of and need to engage women and minorities in policy making. This is an important step towards implementing climate change policy that does not reproduce or contribute to further gender disparities.

The report is commissioned by the Nordic working group for Climate and Air (NKL) and has been carried out by Nina Lander Svendsen, Katrine Weber, Laura Winther Engelsbak and Rikke Fischer-Bogason from PlanMiljø, and consultant Gabriela Factor. Thanks goes to all the informants that have provided valuable input through interviews and written correspondence, as well as the Sounding Board members: Senior researcher Karina Standal, CICERO; consultant Mette Hoé; advisor Tonje Johansen, Saami Council; consultant Malin Gustavsson; researcher Tina Nyfors, Helsinki University; and associate professor Martin Hultman, Chalmers University of Technology.

It is our hope that this work will inform policy makers, practitioners, and members of the civil society, and that it will be an important steppingstone towards a gender-equal green transition in the Nordic countries.

SUMMARY

Climate change is impacting men and women differently and so are climate policies. This realisation brought the UNFCCC and its parties – including the Nordic countries – to take an important step towards integrating a gender perspective into climate actions by adopting the Lima Work Programme on Gender and its Gender Action Plan in 2019. This set the ambition of gender mainstreaming climate policies and ensuring female representation in climate policy. While both gender equality and climate policies are high on the agenda in the Nordic countries, the interlinkages between the two have been afforded less attention.

The aim of this study is to provide a knowledge base on how climate policies impact gender – and vice versa – within a Nordic context. This knowledge base has been constructed using literature studies, expert focus groups, interviews, and questionnaires. The scope has been limited to the national climate action plans and policies of climate mitigation across the carbon heavy sectors of energy, transport & mobility, agriculture & food and construction. The study gives an overview of existing and missing sex-disaggregated data as well as a status regarding gender equality in decision-making related to climate policy in the Nordic countries.

While all the Nordic countries acknowledge that climate policies impact gender, the actual gender mainstreaming of the climate action plans is limited. Even though a gender equality ratio of 40:60 is observed across all parliaments and ministers in almost all the Nordic countries - and even though the share of women in several cases is higher than men among the civil servants - equal gender representation of policy makers does not necessarily result in gender mainstreaming of climate action plans. Formal representation alone is thus not sufficient to create institutional changes in terms of gender equality: increased awareness and a change in norms are needed. Debate on how climate actions impact gender has been limited in Denmark, Norway and Iceland. To combat this, resources must be allocated to awareness-raising initiatives that educates both policy makers and civil society.

Gendered norms and patterns are at play across the domains of decision-making, employment, planning and production as well as consumption and the activities of everyday life. Research shows that responses to climate change are framed in a masculinised way. Men make up the majority in STEM education and consequently dominate the sectors of the new green economy – energy, transport, agriculture, and construction. This means that the new solutions, jobs and investments demanded by transition to a low-carbon society risk favouring men, missing out on the vital perspectives and competences of women, who have a comparatively greater interest in sustainability.

Sex-disaggregated data show that men generally have a larger carbon footprint than women. Male consumption in mobility and food, for example, tends toward car-based transport and a meat-based diet, while women tend toward public transport and walking, and vegetarian or low-meat diets.

Gender-blind climate actions risk perpetuating the gender-segregated labour market and the gender pay gap. The latter can be further reinforced if the gender pay gap is not taken into consideration in the design of climate taxes. In addition, as

a majority of the unpaid work in households still rests on shoulders of women in the Nordic countries, the responsibility of managing a low-carbon household and conducting a low-carbon lifestyle will fall disproportionately on women. This study recommends policymakers to be more attentive to how the transition to a low-carbon society will impact the division of both paid and unpaid labour, by taking gender and other intersecting identity factors into considerations, e.g., ethnicity, age, geographic location, sexuality, indigenous status, disability etc.

Knowledge on how climate policy and gender, including intersectionality, impact one another is currently insufficient to fully inform and support gender mainstreaming. This study recommends the implementation of Gender Impact Assessments in all the Nordic countries. Furthermore, the generation of more systematically collected data and analyses should be supported, and a common Nordic platform for information and resources on the intersecting issue should be developed and used.

Recommendations

1.1 RECOMMENDATIONS TARGETING THE NORDIC COUNCIL OF MINISTERS

1. Common guidelines for Gender Impact Assessment for the Nordic Countries

The Nordic countries should develop common guidelines and procedures for Gender Impact Assessment (GIA) of climate policies, programs, and projects. This will allow synergies in data collection and assessment, shared learning, and the possibility to compare and benchmark the gendered impacts and benefits of policies and interventions.

The common GIA guidelines should:

- Be implemented in all the Nordic countries, if possible, within the next two to three years;
- Be applied to climate action plans, policies, programs, and projects, including relevant sector-specific action plans;
- Be informed by and implemented with the participation of gender experts;
- Include the participation of women (and when applicable gender minorities) and civil society organisations committed to both feminism and environmentalism;
- Apply an intersectional approach, addressing the social, institutional, and symbolical mechanisms and norms that (re)produce gender disparities and power imbalances, and enquire into the intersecting and multiple forms of discrimination of men, women, and other gender identities;
- Incorporate targets and indicators of social sustainability and gender equality to monitor gender mainstreaming. Accountability frameworks, such as mechanisms of monitoring and evaluation should be developed in each country and financial resources and professional expertise allocated accordingly.

For inspiration see the Canadian GIA+ and the German Climate GIA tool.

2. Common Nordic platform for information and resources on climate and gender equality for the Nordic Countries

The Nordic Council of Ministers should support the development and maintenance of a free access platform for updated information, data, resources and tracking of indicators of climate and gender equality for the Nordic countries. The scope, governance and sustainability of the platform needs to be further discussed and defined.

The information available on this platform could include, among others:

- Gender mandates and commitments related to climate policies of the Nordic countries, i.e., all relevant UNFCCC decisions, including the Enhanced Lima Work Programme on gender and its Gender Action Plan;
- Updated lists of key roles within gender mainstreaming of climate policy, such as the National Climate Change and Gender Focal Point and other Gender Focal Points in the relevant national ministries;
- Climate measures and gendered impacts such as discussion on the gender dimensions of climate policies and estimated or evaluated impact of initiatives;
- Monitoring and dissemination of social and gendered climate conflicts and best practices on gender;
- Gender equality and climate tracker, reporting the progress on integrating aspects of gender equality into climate policy at a Nordic/national level, including tools for how to include gender in National Determined Contributions (NDCs);
- Routinely reported national sex-disaggregated and gender-sensitive data, from climate relevant institutions and companies;
- Introduction to links between climate relevant sectors and gender, including qualitative and quantitative information and data on climate sectors and gender;
- Directory of gender and climate networks, research groups and initiatives;
- Resources and events relevant to gender and climate;
- Videos, tutorials, and online courses.

For inspiration see *The Gender Climate Tracker* launched by the Women's Environment & Development Organization (WEDO) in partnership with the Global Gender and Climate Alliance (GGCA). The app and online platform provide on-the-go access to regularly updated information on policies, research, and actions related to gender and climate change. Link: https://genderclimatetracker.org/

3. Promote networking and collaboration with focus on gender and climate within and across the Nordic Countries

There are Nordic research groups as well as formal and informal networks and international alliances with focus on gender and climate. When such networks extend to the Nordics, mutual learning and inspiration influence national agendas and raise regional performance levels. The Nordic Council of Ministers should actively promote and facilitate formal and informal networking and alliances with focus on gender and climate mitigation in relevant sectors and within specific topics across Nordic countries. Special attention should be given to promote and support organisation and exchange across gender, generations, ethnicity, and socioeconomic position, e.g., by supporting youth organisations.

Some of the opportunities with potential for transformation and mobilisations towards gender equality that can be considered include:

- Support and promote initiatives where networking and collaboration across the Nordic Countries is an objective (e.g., Nordic Equality in Energy Network, NEEN) and where networking and collaboration is the approach to achieve common goals.
- Organise events and initiatives to facilitate mutual learning and inspiration among decision makers, department leaders and technical staff in government agencies involved in climate-relevant sectors.
- Identify opportunities to boost exposure, exchange and networking between students, academics and professionals within STEM and students, researchers and professionals from social science, humanities working with sustainability and/or gender.

1.2 RECOMMENDATION TARGETING THE NORDIC GOVERNMENTS

4. Identify and address institutionalised gendered norms and patterns in climate policy making and implementation

Government agencies and institutions involved in climate policy making and implementation should map and critically review institutionalised gendered norms and patterns to address barriers and gaps to gender mainstreaming.

Measures to operationalise this may include:

- Critically review institutionalised gendered norms and patterns across relevant policy making organisations and processes as well as relevant parliamentary commissions;
- Include this review as part of GIA or as a stand-alone procedure. The critical review of institutionalised gender norms and patterns can be done in parallel in the different agencies and institutions or piloted in a single or few institutions to gain insights and experience before applying more widely.
- Organise an event or a series of events where findings, lessons learned and challenges identified in relation to institutionalised gendered norms can be shared, discussed, and reflected upon;

- Raise awareness and knowledge in institutions by sharing and exchanging lessons learned, best practices, identify case studies and pitfalls to avoid among Nordic agencies;
- Consider the development of guidance/procedures and tools on how to operationalise the mapping and critical review gender norms and patterns;
- Monitor gendered citizen support (or lack thereof) of specific climate policies, programs, and projects;
- Monitor the progress towards gender mainstreaming targets;
- Consider other intersectional aspects, such as age, income, and location.

RESUME

Klimaforandringer påvirker mænd og kvinder forskelligt, og det samme gør klimapolitik. Denne erkendelse fik i 2019 UNFCCC og dets parter – herunder de nordiske lande – til at tage et vigtigt skridt hen imod at integrere et kønsperspektiv i klimahandlinger ved at vedtage en udbygget 'Lima Work Program on Gender' samt en 'Gender Action Plan'. Hermed var ambitionen sat for gender mainstreaming af klimapolitik, hvilket bl.a. indebærer en lige repræsentation af kinder i udviklingen af klimapolitik. Mens både ligestilling og klimapolitikker står højt på dagsordenen i de nordiske lande, er der mindre opmærksomhed på sammenhængen mellem de to.

Formålet med denne undersøgelse er at forstå, hvordan klimapolitikker påvirker køn – og omvendt – i en nordisk kontekst. I afgrænsningen af projektet er fokus rettet mod til de nationale klimahandlingsplaner på tværs af de klimatunge sektorer energi, transport & mobilitet, landbrug & mad samt byggeri. Det overordnede spørgsmål er besvaret gennem litteraturstudier, ekspert-fokusgrupper, interviews og spørgeundersøgelser, som har dannet afsæt for et overblik over eksisterende og manglende kønsopdelte data samt en status vedrørende kønsrepræsentation i klimapolitik i de nordiske lande.

Mens alle de nordiske lande anerkender, at klimapolitik påvirker køn, er den faktiske gender mainstreaming af klimahandlingsplanerne begrænset. Selvom der observeres en lige kønsfordeling på 40:60 på tværs af alle parlamenter og ministerier i næsten alle de nordiske lande - og selvom andelen af kvinder i embedsværket flere tilfælde er højere end mænd - så resulterer lige kønsrepræsentation blandt politiske beslutningstagere ikke nødvendigvis i gender mainstreaming af klimahandlingsplaner. Fokus bør derfor bevæge sig ud over formel repræsentativitet til institutionelle ændringer med hensyn til ligestilling. Da debatten om, hvordan klimahandlinger påvirker køn, har været begrænset, især i Danmark, Norge og Island, bør der afsættes ressourcer til oplysningsinitiativer, der uddanner både politiske beslutningstagere og civilsamfund.

Undersøgelsen peger på, hvordan kønnede normer og mønstre er i spil på tværs af både beslutningstagning, beskæftigelse, planlægning og produktion samt forbrug og hverdagsliv generelt. Kønsopdelte data viser, at mænd generelt har et større CO2-fodaftryk, da bilcentreret mobilitet og kødforbrug dominerer maskuline normer, mens kvinders mobilitet fx er kendetegnet ved at gå og tage bussen. Forskning viser, at den dominerende måde at frame klimaforandringer som et spørgsmål om teknologi påvirker, hvordan mænd og kvinder reagerer på klimapolitik. Dette afspejles ikke kun i tendensen til at mænd i højere grad end kvinder tager nye grønne teknologier såsom solpaneler i brug. Mænd udgør flertallet på STEM-uddannelser og dominerer derfor sektorerne i den nye grønne økonomi; energi, transport, landbrug og byggeri. Derved risikerer fremtidens løsninger, job og investeringer at favorisere mænd og gå glip af de nødvendige perspektiver og kompetencer hos kvinder, som sammenlignet med mænd generelt udtrykker større interesse for bæredygtighed.

Undersøgelsen viser, at gender blind klimahandlinger risikerer at fastholde eller forstærke det kønsopdelte arbejdsmarked samt løngabet mellem kønnene i Norden. Sidstnævnte kan ligeledes forværres, hvis der ikke tages hensyn til kønsbestemte lønforskelle i udformningen af klimaafgifter. En anden måde, hvorpå nordiske klimapolitikker kan påvirke ligestillingen negativt har at gøre med klimapolitikker, der

lægger vægt på forbrugerens hverdag. Da det ulønnede arbejde i husholdningerne stadig hviler på kvinders skuldre i Norden, vil ansvaret for at føre en klimavenlig hverdag bidrage til denne ulige fordeling. På baggrund af undersøgelsen anbefales det, at politiske beslutningstagere er mere opmærksomme på, hvordan transitionen til et CO2-neutralt samfund påvirker arbejdsfordelingen, ved at tage hensyn til aspekter af køn såvel som andre marginaliserende dynamikker, f.eks. etnicitet, geografisk placering, seksualitet, oprindelse, fysisk formåen mm.

Konkluderende kan det siges, at viden om, hvordan klimapolitik og køn – herunder intersektionalitet – gensidigt påvirker hinanden, i øjeblikket er utilstrækkelig i forhold til at informere og understøtte gender mainstreaming fremadrettet. På baggrund af undersøgelsen, opfordres der kraftigt til at gennemføre Gender Impact Assessments i alle de nordiske lande. Endvidere anbefales det at understøtte genereringen af mere systematisk indsamlede data og analyser, samtidig med at der bør udvikles en fælles nordisk platform for information og ressourcer om køn og klima. Undersøgelsen vil forhåbentlig informere og inspirere til yderligere opmærksomhed, debat, forskning og gender mainstreaming-aktiviteter inden for både udvikling og implementering af national klimapolitik i Norden.

Anbefalinger

1.1 ANBEFALINGER MÅLRETTET NORDISK MINISTERRÅD

1. Fælles retningslinjer for kønskonsekvensanalyse af klimapolitik for de nordiske lande

De nordiske lande bør udvikle fælles retningslinjer og procedurer for kønskonsekvensanalyser ('Gender Impact Assessment') af klimapolitikker, -programmer og -projekter. Dette vil muliggøre synergier i dataindsamling og -analyse, fælles læring og muligheden for at sammenligne og benchmarke klimapolitikkens virkninger på køn, samt effekter af bestemte politiske tiltag, der kønsmainstreamer klimapolitik.

De fælles retningslinjer for kønskonsekvensanalyser af klimapolitik bør:

- Implementeres i alle de nordiske lande, hvis det er muligt, inden for de næste to-tre år.
- Anvendes til klimahandlingsplaner, politikker, programmer og projekter, herunder relevante sektorspecifikke handlingsplaner
- Bliv informeret af kønseksperter
- Inkludere deltagelse af kvinder (og når det er relevant forskellige køn) og kvinderettighedsorganisationer
- Anvende en intersektionel tilgang, der adresserer de sociale, institutionelle og symbolske normer, der (re)producerer kønsforskelle og magtubalancer, og undersøge mænds, kvinders og øvrige køns sårbarheder, når det er relevant.
- Indarbejde mål og indikatorer for social bæredygtighed og ligestilling for at overvåge kønsmainstreaming. Ansvarlighedsrammer, såsom mekanismer til overvågning og evaluering bør udvikles i hvert land, og finansielle ressourcer og faglig ekspertise bør allokeres i overensstemmelse hermed.

Den canadiske og det tyske værktøj for kønskonsekvensanalyser kan anvendes som inspiration.

2. Fælles nordisk platform med information og ressourcer om klima og ligestilling i de nordiske lande

Nordisk Ministerråd bør støtte udviklingen og vedligeholdelsen af en platform, hvor opdateret information, data, ressourcer og sporing af klima- og ligestillingsindikatorer for de nordiske lande er tilgængelige. Omfanget, styringen og bæredygtigheden af platformen skal diskuteres og defineres yderligere.

De tilgængelige oplysninger på denne platform kan blandt andet omfatte:

- Kønsmandater og forpligtelser relateret til de nordiske landes klimapolitikker, dvs. alle relevante UNFCCC-beslutninger
- Opdaterede lister over nøgleroller inden for kønsmainstreaming af klimapolitikken, såsom 'National Climate Change and Gender Focal Points' i de relevante nationale ministerier.
- Klimapolitiks påvirkning på køn og ligestilling
- Monitorering og formidling af 'best practices', der integrerer kønsperspektivet i klimapolitik samt evt. konflikter.
- Monitorering og formidling af kønsrepræsentation i udviklingen af klimapolitik på nationalt niveau, herunder værktøjer til, hvordan man kan inkludere køn i 'National Determined Contributions' (NDC'er)
- Monitorering og formidling af kønsopdelte data, fra klimarelevante institutioner og virksomheder
- Introduktion til sammenhænge mellem køn og klimatiltag i relevante sektorer, herunder kvalitativ og kvantitativ dokumentation
- Oversigt over netværk, forskningsgrupper og initiativer, der arbejder i krydsfeltet mellem køn og klima
- Ressourcer og begivenheder med relevans for krydsfeltet mellem ligestilling og klima
- Videoer og onlinekurser.

For inspiration se 'The Gender Climate Tracker' lanceret af Women's Environment & Development Organization (WEDO) i samarbejde med Global Gender and Climate Alliance (GGCA). Appen og onlineplatformen giver eksperter, beslutningstagere, fortalere osv. adgang til information relateret til køn og klimaforandringer. Link: https://genderclimatetracker.org/

3. Fremme netværk og samarbejde med fokus på køn og klima i og på tværs af de nordiske lande

Der er nordiske forskergrupper samt formelle og uformelle netværk og internationale alliancer med fokus på køn og klima. Når sådanne netværk strækker sig til Norden, påvirker gensidig læring og inspiration nationale dagsordener og hæver det regionale arbejde med at integrere kønsperspektivet i klimapolitik. Nordisk Ministerråd bør aktivt fremme og facilitere formelle og uformelle netværk og alliancer med fokus på relevante sektorer specifikke emner. Der bør lægges særlig vægt på at fremme og støtte organisering og videndeling på tværs af køn, generationer, etnicitet og socioøkonomisk position, fx ved at støtte ungdomsorganisationer.

Mulige nordiske initiativer, der kan fremme ligestilling, omfatter:

- Støt nordiske initiativer, netværk og samarbejder for ligestilling (f.eks. Nordic Equality in Energy Network, NEEN)
- Afhold arrangementer, der faciliterer gensidig læring og inspiration mellem beslutningstagere og embedsværk på tværs af de nordiske lande og sektorer, der er involveret i klimaomstillingen
- Identificer muligheder for at samle studerende, akademikere og fagfolk inden for STEM og studerende, forskere og fagfolk fra samfundsvidenskab, humaniora, der arbejder med bæredygtighed og/eller køn.

1.2 ANBEFALING MÅLRETTET DE NORDISKE REGERINGER

4. Identificer og adresser institutionaliserede kønsbestemte normer og mønstre i klimapolitikkens udformning og implementering

Offentlige organer og institutioner, der er involveret i udformning og implementering af klimapolitik, bør kortlægge og kritisk gennemgå institutionaliserede kønsbestemte normer og mønstre for at imødegå barrierer og huller i kønsmainstreaming.

Foranstaltninger til at operationalisere dette kan omfatte:

- Kritisk gennemgang af institutionaliserede kønsbestemte normer og mønstre på tværs af relevante beslutningsorganer- og processer. Den kritiske gennemgang af institutionaliserede kønsnormer og -mønstre kan foretages parallelt i de forskellige instanser og institutioner eller pilottestes i en enkelt eller få institutioner for indledning at indsamle indsigter og erfaring.
- Organiser en begivenhed eller en række arrangementer, hvor resultater, erfaringer og udfordringer identificeret i forhold til institutionaliserede kønsnormer kan deles og diskuteres.
- Øg bevidstheden og viden i egne institutioner ved at dele og udveksle erfaringer, bedste praksisser, muligheder og faldgruber.
- Overvej udvikling af vejledning/procedurer og værktøjer til, hvordan man operationaliserer kortlægningen og kritisk gennemgang af kønsnormer og -mønstre.
- Monitorer borgernes støtte (eller mangel på samme) af specifikke klimapolitikker, -programmer og -projekter på tværs af køn, alder, indkomst, geografi, mv.

- Sæt mål for og monitorer kønsmainstreaming af klimapolitik
- Overvej andre intersektionelle aspekter, såsom alder, indkomst og placering.

ACRONYMS AND TERMS

Committee on the Elimination of Discrimination against Women	CEDAW
Civil Society Organisation	CSO
European Bank for Reconstruction and Development	EBRD
The European Institute for Gender Equality	EIGE
Environmental Protection Agency	EPA
Full-time equivalents	FTE
Gender Action Plan	GAP
Global Gender and Climate Alliance	GGCA
Greenhouse gas	GHG
Gender Impact Assessment	GIA
Gender Mainstreaming in Government Agencies	GMGA
International Transport Forums	ITF
Lima Work Programme on Gender	LMPG
Non-governmental Organisation	NGO
Organisation for Economic Co-operation and Development	OECD
Sustainable Development Goals	SDG
Science, Technology, Engineering, Mathematics	STEM
United Nations	UN
United Nations Framework Convention on Climate Change	UNFCC
Users Technology Collaboration Programme	Users TCP

1 INTRODUCTION

In 2015, the Paris Agreement was adopted, which obliges the parties to limit global warming to 2 degrees Celsius and preferably 1.5, compared to pre-industrial temperatures. The Nordic countries have addressed the obligations of the Paris Agreement with ambitious climate mitigation goals (see table 1 below) and climate action plans that show the way towards low-carbon Nordic societies within the next couple decades.

In 2019, an important step of integrating a gender perspective into climate actions was taken by the UNFCCC and its parties - including the Nordic countries - by adopting the Enhanced Lima Work Programme on Gender (LMPG) and its Gender Action Plan (GAP). LWPG and GAP recognise that climate change is impacting men and women differently and that women have been less represented in decision making of climate change policies. LWPG and GAP thus aim to mainstream gender into climate actions and policies, to ensure that women are represented in decision making, and to implement climate actions and policies in a gender-responsive way. The Nordic countries are committed to ensuring compliance with the LWPG and GAP.

The work on gender equality is not new to the Nordic countries. The Nordic countries have been collaborating on promoting the gender agenda for over 40 years and are continuously working on the full and effective implementation of the Beijing Platform for Action which was formulated 25 years ago[1]. The efforts in the Nordic countries have brought about progress in several areas; the majority of women are in paid employment, the gender pay gap continues to narrow, and women have a high level of education. Yet, gender equality has not yet been fully achieved, and the Nordic countries are still facing challenges in avoiding violence against women, ending sexual harassment and rape, closing the gender pay gap, removing occupation segregation and ensuring work-life balance.

While both the gender inequalities and climate policies are high on the agenda in the Nordic countries, the links between gender and climate mitigation policies have received less attention, even though climate mitigation goals require comprehensive and cross-sectoral transitions. A thorough knowledge base of how climate policies impact gender and vice versa is therefore a first step for the Nordic countries to mainstream gender into climate actions and policies, to ensure that women are represented in decision making, and to implement climate actions and policies in a gender-responsive way.

This report presents the current knowledge base of how gender impact climate policies and vice versa in the Nordic countries. Climate policies are understood as the climate mitigation action plans prepared by each of the Nordic countries to realise the Paris Agreement. Gender is understood in an intersectional perspective, but binary categories have been applied to identify differences between men and women.

1. Nordic Council of Ministers (2020). The Nordic road towards Beijing+25.

The impact of gender on climate mitigation policies is investigated through a) an overview of the gendered representation and participation in decision making in climate mitigation policies; b) presenting what the Nordic countries have done to gender mainstream climate policies; and lastly c) by discussing gendered norms and patterns. A thorough description of the methods applied can be found in Annex B.

The impact of climate policies on gender is investigated through a presentation of the current knowledge found in existing literature and through focus groups with experts and stakeholders. Furthermore, the investigation is structured by the gendered roles, labour market, consumption patterns, and carbon taxes. The interlinkage between gender and climate policies have further been studied in four sectors – energy, mobility, construction and the built environment, and agriculture and food.

BOX 1: Examples of how the interlinkage between climate policies and gender equality

Occupational segregation, pay gaps and climate change policy

How many of the "green jobs" go to women? Which livelihoods and occupations of men and women are promoted or impacted by climate policy interventions? Women and men dominate specific occupations, industries, and sectors. Climate Action Plans generally promote development, innovation and the associated job creation in sectors that require mainly technical skills. Women are particularly underrepresented in science, technology, engineering, and mathematics (STEM) roles, and are therefore also underrepresented in industries and sectors crucial for achieving climate goals in the Nordic countries. The demand for occupations and educations also influences the financial gender pay gap.

Work-family balance and climate change policy

Who and for whom are decisions made around transport and mobility, consumption, and services? Who pays the cost (in time and resources) of climate friendly policies affecting conducts of consumption and services in domestic life? Women in the Nordic countries are still responsible for most housework and childcare, but are not necessarily well represented in instances of decision making in sectors and activities relevant to climate policies that affects their everyday life.

2 SCOPE AND DEFINITION OF TERMS

This section defines the terms that are used to delineate the scope and limitations of the project, including climate policies, gender (equality) and representation. Likewise, the sector selection is explained.

2.1 How are climate policies understood? Defining and scoping climate policies

All of the Nordic countries have adopted climate mitigation targets. Norway's target for 2030 is to reduce emissions by at least 50% and up to 55% compared to pre-industrial levels[2]; Iceland aims at 55%[3]; Sweden at 63%[4]; while Denmark aims at a reduction of 70%[5]. Finland aims to be climate-neutral in 2035[6], Iceland before 2040, Sweden in 2045, and Norway and Denmark in 2050, which is aligned with the EU target of carbon-neutrality in 2050.

These ambitious climate targets require structural changes within the Nordic societies that involve most sectors and policy areas. The Nordic governments have thus developed national climate action plans that map out how to reach the climate goals and implement climate actions.

In this study, these climate action plans have been reviewed to investigate:

- How gender has been represented in the creation of the climate action plans and thus how gender has affected the creation process and the content of the climate action plans.
- How the climate action plans' sector-focus and policy tools impact gender; whether gender has been considered and included in the policy design, and thus whether climate policies have been implemented in a gender-responsive way.

Given the number and diversity of sectors and policies involved in the climate mitigation, and the numerous activities that affect climate outcomes, four sectors have been selected as described below. This project has not included climate adaptation policies nor local/regional climate policies.

2. The Norwegian Government (2020). Norway steps up 2030 climate goal to at least 50% towards 55%.
3. Icelandic Ministry of Environment and Natural Resources (2020). Climate Action Plan.
4. Swedish Government (2019). En samlad politik för klimatet – klimatpolitisk handlingsplan.
5. Danish Ministry of Climate, Energy- and Supply (2020). Klimahandlingsplan 2020.
6. The Finnish Government (2021). Finland's national climate change policy.

Table 1: Climate Mitigation Target and Climate Action Plan Studies

	Denmark	Finland	Iceland	Norway	Sweden
Climate target 2030	70% reduction of CO_2-emissions in 2030 compared with 1990	CO2 reduction of 40% in 2030 compared with 1990[7] Carbon neutrality in 2035	CO_2- reduction of 55% in 2030[8].	50% reduction of CO_2-emissions compared to 1990-levels[9] and towards 55%.	CO_2 reduction of 63% in 2030.
Climate target 2050	Climate neutrality in 2050	80% reduction of CO_2-emissions in 2050 compared with 1990-levels.	Carbon neutral before 2040	"to become a low emission society"	Carbon zero net emissions of GHG in 2045 (corresponding with a reduction of 85% compared to 1990)
Climate action plans	Danish Ministry of Climate, Energy- and Supply (2020). Klimahandlingsplan 2020[10]	Finnish Ministry of Environment (2017): Government Report on Medium-term Climate Change Policy Plan for 2030 (non-emission trading) policy[11] Finnish Ministry of Economic Affairs and Employment (2017). Government report on the National Energy and Climate Strategy for 2030: (emission trading)[12]	Icelandic Government (2020). Climate Action Plan[13]	Norwegian Government (2020). Klimaplan for 2021–2030[14]	Swedish Government (2019). En samlad politik för klimatet – klimatpolitisk handlingsplan[15]

Notes: [7] [8] [9] [10] [11] [12] [13] [14] [15]

7. The Finnish Government (2021). Finland's national climate change policy.
8. The Icelandic Government (2021). Update of the Nationally Determined Contribution of Iceland.
9. The Norwegian Government (2020). Norway steps up 2030 climate goal to at least 50% towards 55%.
10. https://kefm.dk/Media/F/5/Klimahandlingsplan%202020a.pdf
11. https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/80769/YMre_21en_2017.pdf?sequence=1&isAllowed=y
12. https://tem.fi/documents/1410877/2769658/Government+report+on+the+National+Energy+and+Climate+Strategy+for+2030.pdf/0bb2a7be-d3c2-4149-a4c2-78449ceb1976/Government+report+on+the+National+Energy+and+Climate+Strategy+for+2030.pdf?t=1496315660000
13. https://www.stjornarradid.is/library/02-Rit--skyrslur-og-skrar/Iceland%20National%20Plan%202020.pdf
14. https://www.regjeringen.no/contentassets/a78ecf5ad2344fa5ae4a394412ef8975/nn-no/pdfs/stm202020210013000dddpdfs.pdf
15. https://www.regeringen.se/4a9c81/contentassets/61f93d2abb184289a0c81c75395207b6/en-samlad-politik-for-klimatet--klimatpolitisk-handlingsplan-prop.-20192065

2.2 Choice of sectors

The following four sectors have been selected for the study[16]: Mobility, Energy, Agriculture and food, and Construction and the built environment. The sectors are assessed from a value chain perspective, looking into both design, production, consumption, and waste (where data is available). There is some overlap between the energy sector and the other three sectors, as energy-related emissions make up a large share of the total emissions. All findings related to energy production emissions are presented in the energy sector, with the exception of households' energy use, which is presented under the construction and buildings sector.

The sectors were selected on this basis of the following two criteria:

a. The carbon impact of the sector
b. The gender representation in the sector

According to the European Environmental Agency, the sectors with the highest carbon emission in EU are energy, industry, transport, residential/commercial, agriculture and waste[17]. Construction is included under industry, and when looking at carbon footprints of product groups, construction is also one of the most heavily emitting sectors[18].

Looking at the gender representation of sectors, it is evident that those sectors with the greatest carbon impact also tend to have a low representation of women. The sectors with high carbon emissions are science- and technology based. Women make up just 21% of management jobs in STEM and only 14% of management jobs in science, engineering, and technology (SET) occupations[19].

2.3 Defining gender within this study

The division into two rigid and mutually exclusive genders, female, and male, is and has long been a central principle in the organisation of people in modern societies[20] [21]. However, this gender binary has been challenged in recent years, and an increase in specific attention to non-binary recognition has been seen, especially within academia[22] [23]. The academic understanding of gender as a social system of dynamic differences, coexists with a still very powerful structural view on gender as an inherent source of universal and fixed male/female difference. Although the two views are contradictory, both views are in circulation. The terms men and women, therefore, signify categories that are "messy and contested"[24]. This project is informed by reflective approach to the application of gender categories. We understand gender equality in a broader and more inclusive sense than that of binary gender categories. However, due to the scope of the project, we limit our

16. The textile sector was also considered for inclusion, but its carbon footprint is relatively low in relation to the other four sectors, and almost no studies were found on the gendered sector activities in a Nordic context.
17. European Environment Agency (2019). Greenhouse gas emissions by aggregated sector.
18. Eurostat (2021). Emissions of greenhouse gases and air pollutants from final use of CPA08 products.
19. WISE (2017). Women In STEM Workforce 2017.
20. Fausto-Sterling, A. (2000). Sexing the Body.
21. Lorber, J. (2005). Breaking the bowls: Desgendering and feminist change.
22. Vincent, B. (2020). Non-binary genders: Navigating communities, identities, and healthcare.
23. Richards, C., & Barker, M. J. (2015). Assigned at Birth. The Palgrave Handbook of the Psychology of Sexuality.
24. Hanson, S. (2010). "Gender and mobility: new approaches for informing sustainability". *Gender, Place & Culture.*

application of gender categories within the gender binary of men and women.

Nordic women are not a homogeneous group. Neither are Nordic men or people who define themselves between or beyond the binary gender system. How gender identities are combined with statuses such as socioeconomic background, ethnicity, disabilities, age, sexual orientation, and gender expression plays a crucial role in terms of an individual's situation and position in society.

As stated in other reports from the Nordic Council of Ministers and academic research[25], the progressive work on gender equality in the Nordic countries aims to take intersectionality into consideration. An intersectional approach helps focus on systems and contexts and ensures that the efforts on gender equality benefits all marginalised groups. This includes reviewing the research questions asked, questioning assumptions made in policies and programs, considering who the work impacts (or doesn't), noticing whose voices are missing, and connecting what is discovered to larger systemic issues.

For this study, an intersectional approach has been used to:

- Inform the literature review by, for example, exploring impact of climate change policies in specific social, ethnic groups and areas of work and education. In the current study, emphasis has been placed on the Sámis, as we have found that this group is highly affected by climate policies.
- Shape the research questions regarding participation of not only *women* but also various marginalised groups of both men and women in decision making.
- Inform which data disaggregation is required, beyond sex disaggregation, to meaningfully inform and address impacts and opportunities related to gender equality and climate change policy.
- Consider gender impacts of climate change policies in specific groups likely to have a different experiences and narratives, such as the Sámi, income-levels rural and urban livelihoods, and female academics in STEM.

2.3.1 Mainstreaming gender

Gender mainstreaming involves the integration of gender equality in the preparation, design, and implementation of climate policies. Mainstreaming should thereby contribute to women and men having equal influence on shaping society and their own lives.

Inspired by the Nordic Council of Ministers' policy for mainstreaming sustainable development, gender equality, and children's rights and youth perspective into all the work of the Nordic Council of Ministers (2020)[26], mainstreaming gender into climate policies will, in this study, mean to:

- Base climate policies upon knowledge about gender equality;
- Carry out consequence analyses of how climate mitigation impacts gender equality;
- Set operational goals of how gender equality can be reached in climate policies;

25. Borchorst, A., Freidenvall, L., Kantola, J., Rrisel, L., & Teigen, M. (2012). Institutionalizing Intersectionality in the Nordic Countries: Anti-discrimination and Equality in Denmark, Finland, Norway and Sweden.
26. Nordic Council of Ministers (2020). The Nordic Council of Ministers' policy for mainstreaming sustainable development, gender equality, and a child rights and youth perspective.

- Integrate gender perspectives in all climate policy documents and tools in a systematic way;
- Act consciously and contribute to strengthening the integration of gender perspectives in climate policy in the Nordic co-operation;
- Ensure time and budget in resource planning that enables integration of gender equality in climate policies;
- Work to attain diversity and an even distribution between men and women (40–60 percent) in policy making;
- Ensure that meetings and other events about climate policies are accessible on the basis of the participants' capabilities.

Mainstreaming of gender into climate policies also captures gender-responsive implementation of climate policies, which means to respect, promote and consider gender equality and the empowerment of women in the implementation of climate policies.

2.4 Defining representation and involvement

The gender balance, i.e., the share of women in political institutions, is commonly used as an indicator of the inclusion of women in decision-making. This focus is referred to as equal descriptive representation and is supported by the argument that the number of women in politics leads to policies that are gender sensitive[27]. Gender sensitivity requires, however, a certain level of women. This has led to the concept of *critical mass* of representation[28] which suggests that the share of women determine the level of the impact. The critical mass of women in politics is commonly translated into the aim of a 40 to 60 % representation range[29]. A sole focus on numbers when examining representation has been problematised. Drude Dahlerup (2006)[30] has proposed the concept of *critical acts*, to capture the *substantive* gender representation being the actual involvement and impact of women in politics. Critical acts in this project translate into gender mainstreaming of the climate action plans.

The overall question of how gender impacts climate policies in the Nordics includes questions of how gendered dimensions inform, reinforce, and shape the climate policies and solutions in the Nordic countries. In this study we have identified three parameters on which the gendered impact on climate policy can be evaluated. One way in which gendered dimensions can shape the development of climate policy is *a)* through gendered representation and participation in decision-making. As stated previously, this can be assessed both quantitatively (how close to a 50:50 or 40:60 female/male distribution?) and qualitatively (to what extent is the representation translated into actual influence and what gendered norms and ideals characterises the environment of decision-making?). Another aspect that influences climate policy and solutions in the Nordics, is *b)* the gendered patterns of activities and attitudes within the sectors of attention – and the data documenting these patterns. This kind of data can be both quantitative in the form of gender-disaggregated data or

27. Magnusdottir, G. L., & Kronsell, A. (2014). The (In)Visibility of Gender in Scandinavian Climate Policy-Making.
28. Dahlerup, D. (1988). From a Small to a Large Minority: Women in Scandinavian Politics.
29. Niskanen, K. (2011). Gender and Power in the Nordic Countries.
30. Dahlerup, D. (2006). Women, Quotas and Politics.

qualitative in the form of insights into context and cause[31]. This knowledge base can then inform *c)* gender mainstreaming activities, which constitute the third aspect of how gender processes (can) shape climate policy.

In the following chapters, we will describe our findings on how gender impacts climate policy in the Nordic countries through the three aspects of:

a. Gender representation in climate policy decision-making
b. Gender mainstreaming in Nordic climate policy
c. Gendered norms and patterns affecting the formation of climate policies.

2.5 Analytical framework

The afore mentioned terms and the related scoping of the current study make up the analytical framework of how climate policies and gender equality impact one another, as illustrated.

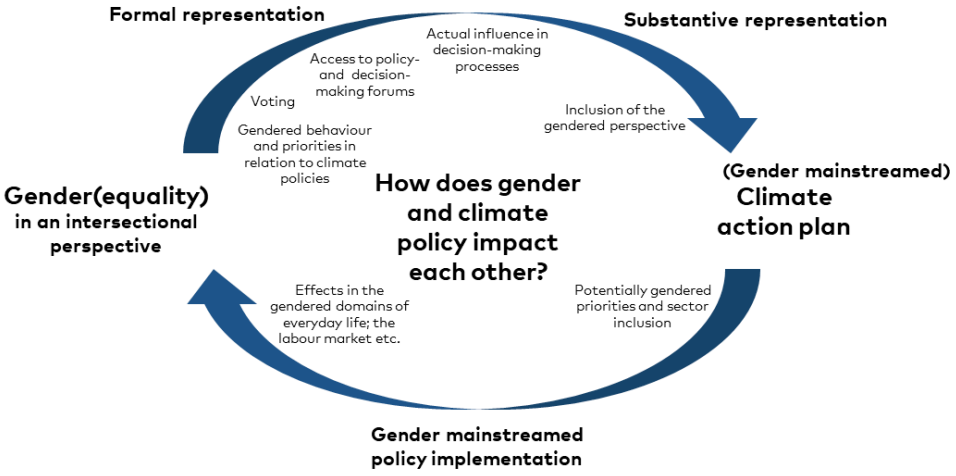

Figure 1. Analytical framework illustrating the interlinkage between gender equality and climate action plans applied in this study

31. Hanson, S. (2010). "Gender and mobility: new approaches for informing sustainability". *Gender, Place & Culture.*

3 HOW GENDER IMPACTS CLIMATE POLICY IN THE NORDICS

This report understands the impact of gender on climate policy in the Nordics as 1) the descriptive representation, and 2) the substantive, actual representation. These are both addressed in the following country-specific insights, which are based on the email-based questionnaire completed by policy officials (see Appendix B for more information).

Table 2: Share of women in the Nordic countries' ministries and parliaments

Country	Share of women ministers	Share of women members of Parliament
Denmark	6 out of 20 ministers (30%).	39,1%
Finland	11 out of 19 ministers (57,9%)	46,5%
Iceland	5 out of 11 ministers (45,5%)	47,6%
Norway	9 out of 20 (45%)	45%
Sweden	12 out of 23 (52,2%)	47%

3.1 Denmark

As of 2021, only 6 out of 20 Danish ministers (30%) are women[32], which does not meet the requirements for gender equality (understood as a 40:60 ratio), while 39,1% of the Danish members of Parliament are women[33]. In the Climate-, Energy and Supply committee, 7 out of 29 participants are women[34].

The Gender Equality Act from 2007 states that public councils, committees, and similar government appointed organisations must have an equal gender representation. All ministries and public institutions must prepare a statement of the gender representation every second year[35].

The Danish government has appointed a citizens' council ("Borgerting") of 100 citizens representing the Danish population in terms of gender as well as age, geography, education, and income. The council is to debate various climate policies to ensure that the voice of the citizens is heard in the making of climate policies[36]. The citizens' council has not, as far as this study can uncover, discussed gender issues, but the representation ensures that diversity and gendered preferences are included in the council.

No women's right associations are known to have been consulted on how climate

32. The Danish Parliament (2019). Ministre i regeringen.
33. The Danish Parliament (2021). *Kvinder i Folketinget.*
34. The Danish Parliament (2021). Climate-, Energy and Supply Committee.
35. The Danish Ministry of Environment and Food (2013). Bekendtgørelse af lov om ligestilling af kvinder og mænd (LBK nr 1678 of 19/12/2013)
36. The Danish Parliament (2021). Climate-, Energy and Supply Committee.

policies impact gender. Denmark's knowledge centre for gender and equality, KVINFO, has taken the first steps to start the debate about how the climate crisis and climate policies affect gender, but has so far experienced little public attention. It is, however, part of KVINFO's strategy to create awareness and advocate about the interlinkage between gender and the green transition. The debate about the climate crisis and gender has so far been centred around foreign affairs and development policies.

3.2 Finland

In Finland, 11 out of 19 (57,9%) ministers are women, while 46.5% of the members of the Parliament were women, thus achieving gender equality among the parliamentarians[37].

Finland has carried out an open public consultation about the interlinkage between gender and climate policies as part of the process for making the new climate- and energy policy, where all interested stakeholders could participate. The consultation took the form of a workshop discussing how various policies might be gendered, which informed the Gender Impact Assessment (as described under gender mainstreaming). Finland has thus actively consulted a gendered perspective and by clearly pointing out the linkage, it invites key stakeholders to reflect upon the mutual impact.

Finland has moreover conducted wide consultations with CSOs and NGOs in relation to the climate plans. For the mid-term climate plan, 18,000 stakeholders were engaged. The Sámi people have also been actively consulted throughout the negotiations, and by translating all consultation surveys to Sámi languages. Likewise, Finland has sought to engage citizens across all ages, by involving youth organisations and association of disabled citizens to in climate policy processes.

3.3 Iceland

In the Icelandic government elected in 2017, five out 11 ministers were women (45%). In the parliament, 38% were women, thus almost obtaining gender equality[38].

With the Gender Equality Act in 2008, Iceland introduced a gender quota of 40% in political appointed committees, councils, and boards. The representation of one sex must not be less than 40%[39]. All Ministries comply with this quota, with an average of 49%[40].

In the policy making process for the climate action plans, an open public consultation was conducted electronically (2018), followed-up with meetings. A range of NGO's, CSO's and labour organisations had their say. However, no organisations representing women's interests or gender minorities participated.

37. The Finnish Government (2020). 110 years of women's right to vote in Finland – in the 21st century, roughly half of all Finnish ministers are women.
38. The forming of the new government (2021) is in a process, and gender equality seems to be achieved both in parliament and in the government
39. The Icelandic Gender Equality Agency (2020). Skyrsla jafnrettisstofu um nefndir rad og stjornir.
40. The Icelandic Gender Equality Agency (2020). Skyrsla jafnrettisstofu um nefndir rad og stjornir.

3.4 Norway

In the Norwegian government, 9 out of 20 ministers, corresponding to 45%, were women in 2021, while 45% of the Parliamentary members were women, reflecting an equal gender representation.

According to the Norwegian Equality and Anti-discrimination Act, public authorities are obliged to promote gender equality in all activities. The Act moreover states that all public committees must have equal gender representation, including the Climate Committee advising the government in realising its 2030 climate mitigation target.

The public authorities' duty to promote gender equality has been maintained and clarified in section 24 of the Equality and Anti-Discrimination Act. This demands that public authorities must make active, targeted, and systematic efforts to promote equality and prevent discrimination. Under the revised Act, the public authorities must now also conduct a gender equality report, describing their actions to incorporate the considerations of gender equality and anti-discrimination into their work in their role as a public authority. Before this revision, the public authorities only reported on the status of gender equality in their role as an employer. Public authorities must explain how they work to translate principles, procedures, and standards relating to gender equality and anti-discrimination into action. The public authorities must assess the results that have been achieved and explain their expectations towards this work going forward. The gender equality report must be reported annually in a publicly available document.

The Ministry of Climate and Environment has consulted various NGOs in the development of the climate action plan. The youth environmental organisation, SPIRE, works actively on the climate- and gender agenda (e.g., with the campaign "climate fight is a women's fight" (klimakamp er kvinnekamp) from 2018) and SPIRE has been invited to participate in public consultations about the subject, however mostly in relation to development- and foreign policies. SPIRE experiences that many official documents recognise the interlinkage between gender and climate, but the concrete policy actions are yet to be seen.

3.5 Sweden

The Swedish government has had a norm of equal representation of women in the Minister's cabinet since 1994. As of June 2019, 12 out of 23 ministers and 47% of the parliamentarians are women. The Swedish Government has moreover had an objective of gender equality in all government boards and committees, which has been met since 2015.

Sweden has consulted with civil society in the development of specific climate policies under specific themes, as well as legislative suggestions. The gender perspective has also been represented by the civil society such as Green Women (Gröna Kvinnor) that work in the interface between gender and climate.

3.6 How is the gendered perspective represented in the policy making of climate action plans across the Nordic countries?

The Nordic countries have achieved gender equality (40:60) among parliamentarians and ministers apart from the Danish government (elected in 2019), where only 30% of the ministers are women, and the Danish and Iceland parliaments almost reaching the target with 38% women. It is assumed that all policy areas have an influence on the climate action plans. Surveys of the gendered representation of permanent committees in the parliament that work directly with the areas covered by the climate action plans may, however, give a more accurate picture of the gendered representation of policy makers.

Although elected policy makers have the most pronounced influence on climate policy development, other group of actors also exert influence: civil servants drive the policy machinery; lobbyists and experts provide supporting data and representation; and voters.

Lobbyists – and representatives of gender equality and diversity more broadly – can contribute to a critical view on how climate policies might impact gender and vice versa. It is, however, clear that across the Nordic countries, the awareness and knowledge about the interlinkage between gender and climate policies is limited and has mostly focused on developing countries. Finland has had an open consultation workshop in 2021 that investigated the gender-climate nexus in a national context, but otherwise, the gendered perspective has not – to our knowledge – been engaged in the policy making of the climate action plans. The Women's Right Associations across the Nordic countries call for additional research in this area to inform how climate policies impact gender.

The Nordic countries have, to a large degree, included a diversity perspective in the making of their climate action plans with consultation of the civil society. There is, however, no systematic collection of data on which organisations have been consulted and the extent to which their input has been considered in the making of the climate action plans. There may also be lobbyists that have a negative impact on gender equality. As an example, the Norwegian oil sector, which has a major impact on Norwegian climate policies, is criticised as promoting male-biased climate policies[41].

Voters gendered attitudes and actions towards climate mitigation policies and how these are met in the climate action plans also reflect representativity. The Swedish EPA conducts a survey of the Swedish citizens opinion on various climate mitigation actions and policy tools every third year (since 2002)[42]. The last survey from 2021 indicates that women believe to a greater extent than men that Sweden will be affected by climate change and find climate mitigation actions more important. The study further shows that women are more positive towards changing their own behaviour in terms of lowering the residential electricity use, green investing, choosing train over aeroplane and consuming less. Women are also more likely to support economic incentives (carbon taxes and subsidies) and bans of products or services with a very high a carbon footprint. Likewise, young people living in urban areas and university students are more likely to support climate mitigation actions[43].

41. As expressed by Karina Standal, who was part of the sounding board for this project.
42. Naturvårdsverket (2021). Allmänhetens kunskap och attityder till klimatfrågor.
43. Naturvårdsverket (2021). Allmänhetens kunskap och attityder till klimatfrågor.

In Iceland, a similar survey has been conducted by Gallup[44]. In Norway, the Centre for International Climate Research (CICERO) is to carry out a similar survey[45].

A study of the Danish voters' preferences was conducted in relation to the last Danish national parliamentary election in 2019. Election researchers called the election as a "climate election", as climate became decisive for the outcome. Around 55% of the population saw climate action as one of the most important agendas[46]. The same survey indicated that gender and age had little influence on how respondents assessed climate action. With that being said, more women stated that Denmark plays an important role in achieving climate mitigation, and women tended to be less sceptical about taxes on beef compared to men (yet, still sceptical)[47]. These sources provide a little knowledge about citizens/voters' preferences of different climate solutions and whether these are gendered, which can contribute to gender mainstreaming.

Civil servants play a crucial role in developing climate action plans through advising politicians, consulting stakeholders, and preparing the action plan text. A study from 2015 shows that most state bodies dealing with climate change are either gender-balanced or have a descriptive overrepresentation of women[48]. As illustrated in figure 2, there was an overrepresentation of women in both in the Environmental Ministry, the Environmental Protection Agency (EPA) and the Energy Agency in Sweden, in the Environmental Ministry and the Climate and Pollution Agency in Norway, and in none of the state bodies dealing with climate change in Denmark. In addition, both the Energy Agency in Norway and the Ministry of Climate and Energy Agency in Denmark is within the general equality norm of 40 to 60 percent female. Thus, it is only three out of eleven of the explored state units where men are overrepresented[49]. A study by the European Institute for Gender Equality (EIGE) (2012) shows that in Finland, 57.9 percent women hold high-level positions in national ministries working with the environment, 60 percent in transport and 16.7 percent in energy.

44. Gallup (2020). Environmental Survey 2019.
45. The Icelandic Government (2021). Update of the Nationally Determined Contribution of Iceland.
46. Stubager, R., and K. Møller Hansen (2021). Klimavalget: folketingsvalget 2019. 1. udgave. Kbh: Djøf, 2021. Print.
47. Andensen, J. (2021). Miljø-, energi- og klimapolitiske holdninger gennem 40 år: I Samfundsøkonomen 4/2019, Djøfs forlag, temanummer: Klimakrisen – de næste skridt. Retrieved from: https://www.djoef-forlag.dk/openaccess/samf/samfdocs/2019/2019_4/Samf_13_4_2019.pdf
48. Magnusdottir, G. L., & Kronsell, A. (2014). The (In)Visibility of Gender in Scandinavian Climate Policy-Making.
49. Magnusdottir, G. L., & Kronsell, A. (2014). The (In)Visibility of Gender in Scandinavian Climate Policy-Making.

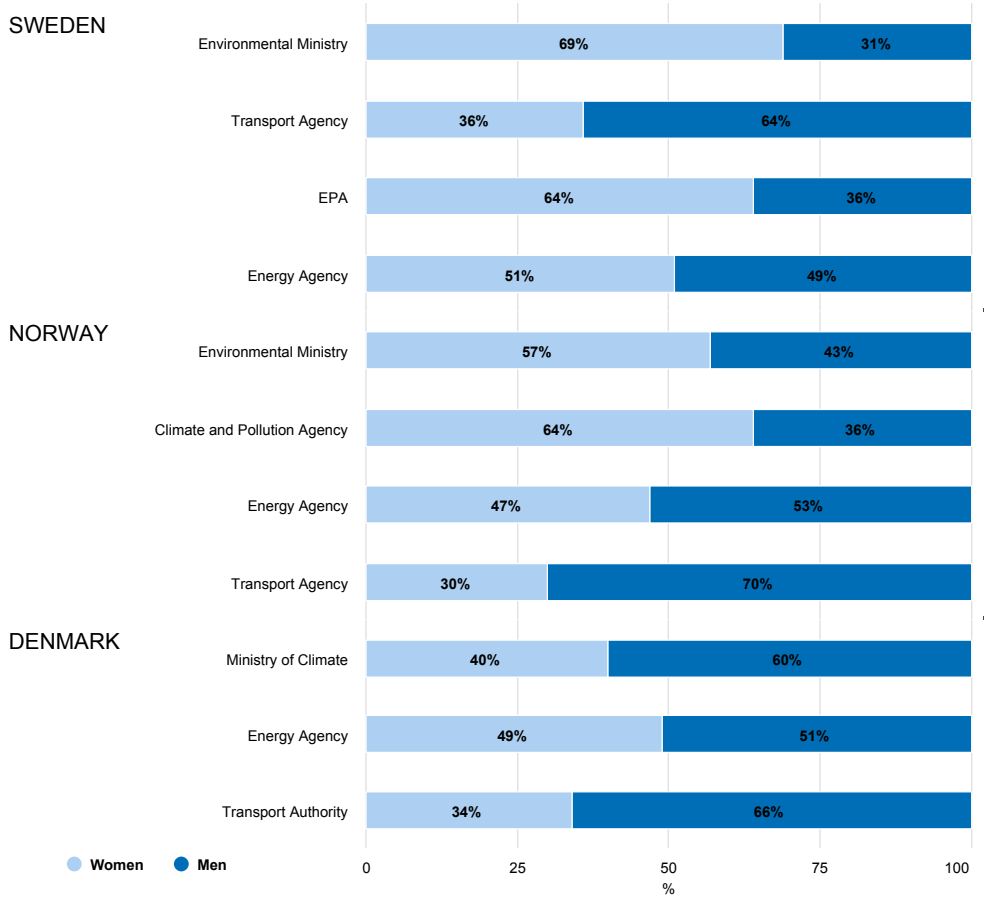

Figure 2. Distribution of women and men in state bodies dealing with climate change. Please note that the data is from 2012, yet the only data available[50].

According to the general equality norm of 40 to 60 percent female, the explored Scandinavian climate change policy-making units are, thus, gender-equal with some of the units exceeding the general equality norm of 40 to 60 percent females.

It is however also interesting to look at the gender balance in public agencies engaged in climate policies across levels of position. EIGE did such a study in 2012 (we have not been able to find any more recent data), which showed that in Denmark, fewer women were represented in higher positions. In Finland and Sweden, gender equality was found across all levels[51].

50. Magnusdottir, G. L., & Kronsell, A. (2014). The (In)Visibility of Gender in Scandinavian Climate Policy-Making.
51. European Institute for Gender Equality (2012). EIGE Annual Report 2012.

3.7 Existing and missing data and insights into gender representation and climate policies

Existing data

- Sex-disaggregated data on representation among ministers and parliamentarians.

Missing public data:

- Sex-disaggregated data on support of specific climate policies.
- Diversity (including representation of the gender perspective) in development of climate action plans such as the share of organisations invited for consultations representing minorities and/or a public list of the organisations consulted in the making of climate mitigation policies.
- Gender representation in government agencies related to climate policies, hereunder full-time equivalent positions, and leadership (head of organisations, head of departments or directors).
- An analysis of the institutionalised gendered norms and patterns in the making of climate action plans.

The number of articles about the interlinkage between gender and climate mitigation policies in a Nordic context can also be applied as a temporary indicator to reflect awareness raising.

4 GENDER MAINSTREAMING OF CLIMATE POLICIES

The Nordic countries are all formally obliged to work towards gender equality and to eliminate discrimination against women as per the United Nations Convention on the Elimination of all forms of Discrimination Against Women (CEDAW). The Treaty of the European Union likewise obliges Denmark, Finland, and Sweden to integrate gender equality in public policies and management. The Nordic countries further have Gender Equality Acts that sets out obligations for gender mainstreaming. Yet, the actual gender mainstreaming of climate action plans in the Nordic countries seems to be limited or in process.

4.1 Denmark

Gender is not explicitly addressed in the Danish climate action plan[52]. The climate action plan does, however, refer to a principle of the climate law stating that means of decarbonisation must not be at the expense of a strong welfare state nor social stability. "Social balance" must be maintained. Social balance is understood as social coherence including: ensuring equal opportunities of citizens living in urban- and rural areas throughout the green transition; ensuring livelihoods for those working in the oil- and gas sector; avoiding increasing inequality from the green transition; avoiding carbon leakage. No indicators related to social balance and therefore related to gender are proposed for the monitoring of the climate policies and action plans.

According to the Danish Gender Equality Act[53], gender equality must be incorporated in public planning and administration, where all Ministries are responsible for their own area. The responsibility for equality mainstreaming of the climate action plans thus falls under the Ministry of Climate-, Energy and Utilities, while the Ministry for Gender Equality has the coordinating responsibility.

All proposed legislative bills are screened for the impact on gender equality and rights, a so-called "a test of relevancy". If the test of relevancy finds that the bill impacts gender, a more in-depth equality assessment is conducted. This equality assessment describes and documents where and how men and women have different needs, resources, preferences, conditions, opportunities, and behaviours. Any gendered consequences are added under the comment section of the bill to inform policy makers.

The climate law, which sets out the climate mitigation goal of reducing CO_2-emissions by 70% in 2030 compared to 1990, has been assessed as having no gender impact, thus no thorough gender assessment has been made. The proposal of changing CO_2-quotas was gender assessed[54]. As the climate action plan is not itself a bill, the Ministry of Climate-, Energy and Utilities has no direct obligation to

52. Danish Ministry of Climate, Energy- and Supply (2020). Klimahandlingsplan 2020.
53. The Danish Ministry of Employment (2021). Bekendtgørelse af lov om ligestilling af kvinder og mænd (LBK 2021-04-26 no. 751).
54. Danish Ministry of Equality (2021). Orientering til Folketinget om ligestillingsvurdering af lovforslag 2020/21

carry out gender mainstreaming. Any bill proposals in the sector action plans will, however, be taken through the test of relevancy. This implies that no holistic gender assessment of the overall climate action plan has been conducted.

Compared to the other Nordic countries, it is apparent that less attention has been paid in Denmark to the links between gender and climate policies. No clear responsibilities, process, tools nor initiatives were identified during this study.

4.2 Finland

The Finnish climate action plan for non-emission sectors includes a gender impact assessment (GIA) from 2017 to ensure that climate decisions and -measures promote gender equality and avoid discrimination. The climate action plan acknowledges that the Finnish labour market is highly gender segregated and that both climate objectives and measures might have a different impact on male- and female-dominated sectors. The climate action plan further indicates that political participation, consumption patterns and attitudes of climate change might be gendered.

The GIA shows that gendered differences appear in climate relevant areas such as the mobility practices, eating habits, and how information campaigns are received. These gendered differences should ideally be considered when designing and implementing climate policies[55].

The Finnish government is now preparing a new Climate- and Energy plan, for which an additional gender impact assessment (following EIGES GIA process) has been conducted. This plan includes 101 policy measures proposed in the Climate and Energy Strategy. It was based on the previous GIA, but further collected data from literature and consultation with 18 stakeholders.

Under the Ministry of Environment, a working group of civil servants engaged in the gender and climate policy interlinkage has been established. Some initiatives for gender assessment of climate actions at municipal level have also taken place, including the development of a 5-step tool to support the assessment[56].

4.3 Iceland

The Icelandic Climate Action Plan acknowledges that climate change and climate actions will have a significant impact on the Icelandic society that may vary across societal groups such as gender, income, sector, inabilities etc. The climate action plan strives for equality, and all climate actions must be socially just and be aligned with the Sustainable Development Goals. Iceland has further initiated monitoring of welfare to supplement economic growth measures to capture social and environmental development[57].

Iceland has taken steps to assess how climate actions impact different income

55. The Finnish Ministry of Enviroment (2017). Valtioneuvoston selonteko keskipitkän aikavälin ilmastopolitiikan suunnitelmasta vuoteen 2030.
56. The Finnish Ministry of Enviroment (2017). Ilmastosuunnitelma 2030 – missä mennään.
57. Icelandic Ministry of Environment and Natural Resources (2020). Climate Action Plan.

groups as part of a larger cost-benefit assessment of the climate actions. Likewise, a gender impact assessment of the climate actions will be conducted and reported in line with the Act on Equal Status and Equal Rights Irrespective of Gender, which systematically mainstreams gender equality in legislative processes[58]. This assessment mainly focuses on cost-benefits and does not make any substantial conclusions about how climate policies impact gender. Procedures for gender mainstreaming are developed but are not always actively enforced. An earlier gender action plan (2016–2019) stated that the gendered impact of climate funding should be assessed[59].

In 2012–2015, a GIA of the previous Climate Action Plan was conducted showing that climate actions mostly create jobs within masculine fields related to agriculture, mechanical- and technical work, which is due to the gender-segregated labour market. The assessment further concluded that women tend to have a lower carbon footprint than men due to different consumption patterns; women tend to eat less, use more public transportation, and carry out more environmentally friendly behaviour (which seems to be a general picture for the Nordic countries). The GIA thus concludes that special attention should be put on consumption and lifestyle if the carbon footprint of women and men are to be the same[60].

Resources and budgeting are not set aside for gender mainstreaming of climate actions and has not been a priority. Gender and climate change have mostly been addressed internationally and from an intersectional perspective in terms of vulnerability and income.

4.4 Norway

Norway's climate action plan refers to the Sustainable Development Goals that include gender inequality (SDG5). The impact of climate actions on gender is, however, not further discussed. It is stated that any climate actions must be balanced with the other SDGs, and climate action must not negatively affect low-income or vulnerable groups, nor negatively affect employment[61].

One review of policy related to climate concludes that Norwegian climate policies are gender blind, and the link between gender and climate is absent in Norwegian policy making[62]. The Norwegian Ministry of Climate and Environment points out that the lack of knowledge about how climate impact gender equality means that no actions have been taken to carry out gender mainstreaming of the climate action plan.

58. Government of Iceland (2020). The Act on Equal Status and Equal Rights Irrespective of Gender no. 150/2020 states the legal obligation for gender mainstreaming.
59. Government of Iceland (2020). Jafnréttisþingi 2020 er lokið.
60. Icelandic Ministry of Environment and Natural Resources (2014). Loftslagsmal og kynjaahrif þeirra.
61. Norwegian Government (2020). Klimaplan for 2021-2030.
62. Stave, T. K. (2021). Norsk klimapolitikk mangler kjønnsperspektiver. Kjønnsforskning.

4.5 Sweden

The Swedish Government has declared itself a feminist government, which demonstrates that gender equality is of high priority. Gender is not addressed in Sweden's overall climate action plan. The plan does, however, refer to the SDG's, stating that Sweden will take a leading position in the sustainable transition and that this transition, of which the climate neutrality objective is part of, must be based on a broad societal participation. Climate actions must not take place at the expense of the other SDG's. Rather, the SDGs demonstrate how the different areas are interlinked. Overall, the Swedish government aims to implement aa coherent approach – the transition should be a controlled one, high societal costs are to be avoided and differences across income groups and urban/rural areas are to be considered[63].

The Swedish Environmental Agency has proposed a strategy of gender mainstreaming the implementation of the Paris Agreement. The suggested strategy recommends the establishment of a supportive organisation with a clear mandate and responsibility for mainstreaming gender in the implementation and monitoring of climate policies, allocating resources, and strengthening coordination with academia, civil society, public authorities, and businesses as well as developing and making accessible sex-disaggregated statistics. The proposed strategy further recommends the that government promote equal representation in climate action plans within STEM. The strategy further calls for more knowledge about how to achieve gender mainstreaming in climate actions[64].

The Swedish Government and the Swedish government offices have adopted an improved gender mainstreaming plan (2021–2025), demonstrating how ministries and universities are to gender-mainstream and integrate a gender perspective into all decision and policy making (including budget, law, government control of agencies, EU- and international work). Gender mainstreaming thus includes all climate policies, across all policy areas[65]. As of 2020, the Swedish EPA is part of the Gender Mainstreaming in Government Agencies (GMGA) network that work to mainstream gender in all operations. As a partner in GMGA, the Swedish EPA is to assess impacts disaggregated by gender. Gender mainstreaming of climate policies is thus work in progress.

63. Swedish Government (2019). En samlad politik för klimatet – klimatpolitisk handlingsplan.
64. The Swedish EPA (2021). Förslag till strategi för att beakta och integrera jämställdhetsaspekter vid Sveriges genomförande av Parisavtalet.
65. Ref A2021/01442, Government decision on Gender Mainstreaming the Government Offices of Sweden 2021-2025.

4.6 Concluding notes on gender mainstreaming of climate action plans

All of the Nordic countries are obliged to gender-mainstream their climate action plans, although fulfilment of this obligation differs between countries.

All the Nordic countries formally acknowledge that climate policies impact gender e.g., through the Lima Work Programme and the Gender Action Plan[66]. However, only Finland explicitly addresses gender in their climate action plan, while Sweden and Iceland are working towards gender mainstreaming.

The Danish and the Norwegian climate action plans seem gender blind. Norway calls for additional knowledge to carry out gender mainstreaming in climate policies, and Denmark has procedures for gender assessments of bill proposals, but not for not-legislative policies. The focus of the intersection of gender and climate policies seem to be absent in a national context, but rather a topic of international relations. Finland is the only country so far to conduct a gender impact assessment. Iceland is under way, and Sweden is working on a strategy to mainstream gender in the implementation of the Paris agreement.

All countries call for additional knowledge about the interlinkage between gender and climate policies in a Nordic context. Despite the gender assessments conducted, we have seen no examples of gender targets, gender budgets allocating resources to gender mainstream nor any steps towards addressing gendered norms and patterns.

66. Submission by Finland and the European Commission on behalf of the European Union and its Member States (2019). The implementation of the gender action plan, identifying areas of progress, areas for improvement and further work to be undertaken in subsequent action plans.

Box 2: Gender mainstreaming in Canada

The Canadian framework to gender mainstreaming, Gender-based Assessment (GBA+), can be considered a best-practice of gendered mainstreaming of any policy. GBA+ applies an intersectionality approach and considers several identity factors such as race, ethnicity, religion, age, and mental or physical disability, and how the interaction between these factors influences the way we might experience government policies and initiatives. GBA+ encourages policy makers to question institutionalised assumption related to gender:

- Do I believe that the issues I work on are gender neutral? Or culturally neutral? Ability neutral? Is this based solely on my own experience?
- Is it possible that my assumptions prevent me from asking questions and hearing or understanding answers that are outside my own experience?
- How might attitudes and norms, my own, those of my organisation, and those of the institutions and society that surround me, limit the range of policy options I consider and propose?

Figure 3. Process of gender mainstreaming in Canada

At GBA+ webpage you can find:

- ADetailed description of the tool
- Courses and micro-learning videos
- How to apply GBA+ on your work
- Examples of how can be implemented

Soruce: https://women-gender-equality.canada.ca/en/gender-based-analysis-plus.html

4.7 Existing and missing data and insights into gender mainstreaming of climate policies

Indicators that monitor and evaluate climate policies in terms of their ability to mainstream gender should, according to OECD, include: 1) whether planned gender equality initiatives have been implemented, 2) whether progress towards gender equality has been made, and 3) whether any unintended impact have occurred. These policy indicators should reflect the targets of gender mainstreaming in climate policies[67]. As there are no such targets present in the Nordic countries climate policies, a first step in the Nordic countries is to develop measurable targets for gender equality in climate change policies that ensure gender mainstreaming. Secondly, the Nordic countries can develop indicators that show how many resources are allocated to promote gender equality such as full-time equivalents working with gender mainstreaming of climate policies, but also in terms of which projects receive funding. Lastly, more qualitative assessments of the degree to which new power dynamics that enable gender equality outcomes are reflected in climate action plans should be conducted – preferable by a third-party.

67. OECD (2013). Tool kit for gender mainstreaming indicators.

5 GENDERED NORMS AND PATTERNS AFFECTING THE MAKING OF CLIMATE CHANGE POLICIES

"*Through historical processes, power inequalities become deeply embedded in organisations and are reinforced over time and the resulting institutional arrangements then steer or guide political actions.*"[68]

Whether an actor can participate in climate policy making does not only depend upon the formal principles that structure who has access to the policy making process, but also on the social norms of political participation. The institutionalised social norms define not only what capabilities actors should possess to participate in climate policy making, but also what social categories they need to fit into. Categories such as gender, sexuality, and race play a subtle and yet significant role in terms of who and how people can access and practice involvement. This means that a category or a combination of categories (e.g., being a white, heterosexual man) allow one to seamlessly enter decision-making bodies – and often we might not even notice that we inhabit these very categories. However, bodies that do not inhabit the social categories corresponding with the institutionalised norms tend to be questioned, challenged, and restricted in practice.

On this topic we lean on feminist theorists such as Sarah Ahmed who have written about how some more than others will be "at home" in institutions that assume certain bodies as their norm (2012)[69]. How gendered norms of policy-making constitutes social and cultural mechanisms of exclusion and inclusion, has been analysed and described by several feminist institutionalist scholars. They argue that over time, institutions tend to lock power inequalities into place through both formal and informal rules and practices[70] [71]. Because of this, historically derived notions and norms tend to persist[72] [73].

Assessing climate change policymaking from the feminist institutional perspective outlined above, scholars have concluded that climate institutions accept and adapt to established masculinised norms and "gendered logics of appropriateness"[74] [75]. The latter refers to how the institutional practices of decision-making bodies in climate policy are based on logics that view certain masculine and feminine values and norms are more appropriate than others – in this case, being a white, heterosexual

68. Kronsell, A. & Magnusdottir, G. L. ,2021. Gender, Intersectionality and Climate Institutions in Industrialised States
69. Ahmed, S. (2012). On Being Included: Racism and Diversity in Institutional Life.
70. Mackay, F., Kenny, M., & Chappell, L. (2011): New Institutionalism Through a Gender Lens: Towards a Feminist Institutionalism?
71. Kronsell, A. & Magnusdottir, G. L. (2021). Gender, Intersectionality and Climate Institutions in Industrialised States.
72. Kronsell, A. & Magnusdottir, G. L. (2021). Gender, Intersectionality and Climate Institutions in Industrialised States.
73. Kronsell, A. & Magnusdottir, G. L. (2016). The double democratic deficit in climate policy-making by the EU Commission.
74. Chapell, L., & Waylen, G. (2013). Gender and the hidden life of institutions.
75. Kronsell, A. & Magnusdottir, G. L. (2021). Gender, Intersectionality and Climate Institutions in Industrialised States.

man. Thus, women and gender minorities or e.g., people that are not white, are in lower social classes, or people with a lower educational level, are then considered "less appropriate" as this challenges the historically institutionalised norms.

"If climate policy-making is taking place in the energy, environment or transport agencies, as is the case in most industrial states, then the rules and culture of those institutions as well as the professional identity of the policy-makers, perhaps educated as engineers or economists, are likely to affect whether and how they view social power relations in policy-making. Within engineering, technical solutions may seem most appropriate while economists may focus on societal costs." [76]

The degree to which the descriptive gendered representation in climate policy will affect the actual climate policy and have substantive impact, depends on how decision-makers adopt, negotiate and challenge these institutionalised gendered norms.

Gendered norms and patterns will be further identified and analysed in the sector specific chapters below.

5.1 Concluding notes on gendered norms and patterns affecting the making of climate policies

It is not a given that equal gender representation results in gender mainstreaming of climate action plans. Policy makers and civil society must be aware of the linkage between gender and climate policies and allocate sufficient resources to carry out gender mainstreaming. The focus should move beyond representativity to *critical acts*, being those acts leading to policy changes and institutional changes[77]. Whether the representativity leads to gender mainstreaming of the climate action plan thus depends on the gendered norms and patterns. Policy makers in agencies preparing climate policies tend to be economists or engineers that are educated to focus on societal costs and technical solutions rather than the social context. The Canadian Gender Impact Assessment emphasises the importance of questioning the institutionalised norms and assumptions by asking whether the climate policies are gender neutral, and whether these norms and assumptions are limiting the policy options considered and the policy impact included.

5.2 Existing and missing data and insights into gendered norms and patterns affecting the making of climate policies

Few studies[78] [79] have investigated the gendered norms and patterns that affect the making of climate policies. There is thus a need for further studies on the topic to understand the barriers and enablers of gender mainstreaming climate policies.

76. Kronsell, A. & Magnusdottir, G. L. (2021). Gender, Intersectionality and Climate Institutions in Industrialised States.
77. Magnusdottir, G. L., & Kronsell, A. (2014). The (In)Visibility of Gender in Scandinavian Climate Policy-Making.
78. Kronsell, A. & Magnusdottir, G. L. (2021). Gender, Intersectionality and Climate Institutions in Industrialised States.
79. Magnusdottir, G. L., & Kronsell, A. (2014). The (In)Visibility of Gender in Scandinavian Climate Policy-Making.

6 HOW CLIMATE POLICIES IMPACT GENDER IN THE NORDICS

"No policy response to climate change is gender neutral."
(UN Women, Undesa, UN Climate Change Secretariat, 2016)[80]

Following the statement above, it is commonly recognised that climate change policies and actions can reinforce, exacerbate, or preserve gender inequalities – or intentionally aim to transform and overcome them.[81] The recognition of and the knowledge on the link between gender and climate policy in an international context (e.g., in the Global South) is widespread among decision-makers within climate change policy in the Nordic. However, the question of the gender-differentiated response to climate action in the Nordic countries is left almost unanswered. This is not only supported by the fact that gender-specific outcomes of environmental policies are rarely collected in the OECD-countries[82], but also by a study on gender in Scandinavian climate policymaking[83]. This is also an overarching finding of this current study.

To ensure an efficient and fair transition to a low-carbon Nordic region, the impact on gender equality must be kept in mind. This chapter presents existing knowledge on the impacts of climate policy on gender structured by four overall themes: 1) The framing of climate policy, 2) how climate policies impact the labour market, 3) gendered consumption, and 4) gendered income level, respectively. Sector specific climate mitigation policies' impact on gender will be presented in the respective sector chapters.

As the knowledge of how climate mitigation policies impact gender is limited, this chapter must not be seen as exhaustive, but rather as a contribution to an overview of existing knowledge. To fully understand how climate mitigation policies impact gender, one should conduct gender impact assessment of the concrete climate policy tools implemented under the national climate action plans.

80. UNDESA, UN Women & UNCCS (2016). Implementation of Gender-Responsive Climate Action in the Context of Sustainable Development.
81. Aguilar, L., Granat, M., & Owren, C. (2015). International Union for Conservation of Nature & Global Gender and Climate Action. In Roots for the Future: The landscape and way forward on gender and climate change.
82. OECD (2020). Gender and the environment - Building Evidence and Policies to Achieve the SDGs
83. Magnusdottir, G. L., & Kronsell, A. (2014). The (In)Visibility of Gender in Scandinavian Climate Policy-Making.

6.1 Gendered effects of the technology-framing of climate mitigation policy

Climate change has been put on the global agenda as a highly scientific, technical, and therefore culturally masculinised issue[84] [85]. Consequently, this framing demands solutions drawing on competences from the male-dominated fields of Science, Technology, Engineering and Mathematics (STEM) (see the figure below). Furthermore, this tendency is reflected in the way investment and funding is applied and distributed:

"In the Icelandic climate fund, we have two types of grants for green solutions –for education and for innovations. It's mostly women who apply for the education grants for actions related to reuse and food waste prevention. And a lot of men are applying for the technological solutions."
(Hildur Knútsdottír, chairman of the fund)

Following Magnusdottir and Kronsell (2021), the technological framing not only includes a gender imbalance in terms of recruitment of STEM-professions, and privileges these profiles in terms of defining both problems and solutions, it also downplays the social interpretations, considerations, and professions[86]. This will be unfolded in the following paragraph on the occupational gender-segregation.

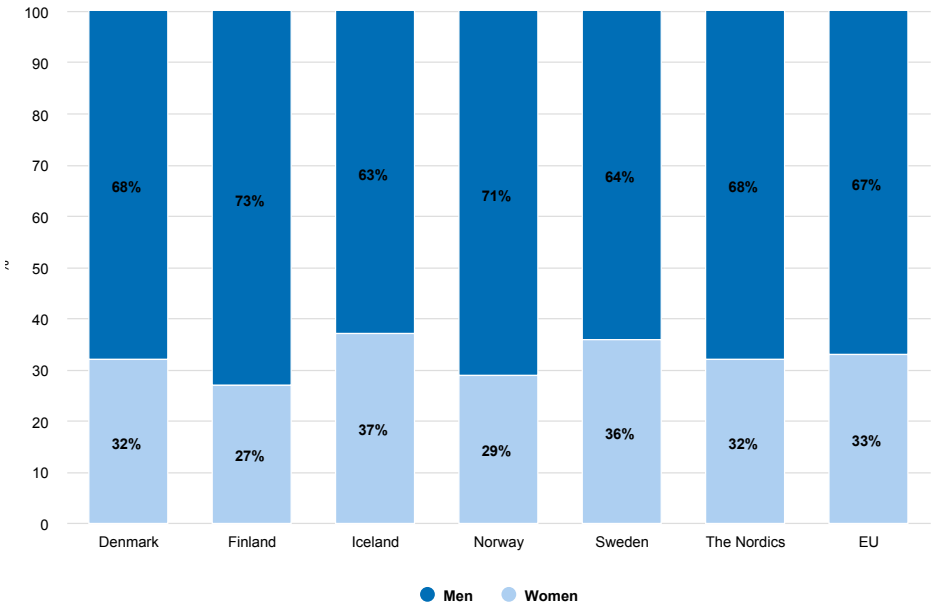

Figure 4. Women and men graduated from higher education. STEM 2018.Gender perspective on the high-tech labour market of the future[87].

84. UNDESA, UN Women & UNCCS (2016). Implementation of Gender-Responsive Climate Action in the Context of Sustainable Development.
85. Kronsell, A. & Magnusdottir, G. L. (2021). Gender, Intersectionality and Climate Institutions in Industrialised States.
86. Kronsell, A. & Magnusdottir, G. L. (2021). Gender, Intersectionality and Climate Institutions in Industrialised States.
87. Nordic Council of Ministers (2021). Genusperspektiv på framtidens högteknologiska arbejtsliv. En nordisk forskningsöversikt om utbildningsval inom STEM (Science, Technology, Engineering and Mathematics).

Box 3: Framing of women in relation to climate change

In a global context, women are most often understood and recognised as the vulnerable group in terms of the gender-differentiated impact of climate change (UN Women 2016). While the gendered vulnerabilities should be addressed, several voices in the literature also points to the importance of not overlooking women's role and capacity as agents of change in climate action (UN Women 2016).

[Women's] participation and leadership in accelerating the adoption of renewable energy technologies and climate-smart agricultural practices, promoting sustainable transport and urban development, and acting to reduce and respond to climate-related disaster risks are overlooked: unmeasured, unnoticed and unsupported.
(UN Women 2016 In Leveraging Co-benefits Between Gender Equality And Climate Action For Sustainable Development. Mainstreaming Gender Considerations In Climate Change Projects)

6.2 How climate policies impact the gender-segregated labour market

Climate policies tend to contribute to increased employment in male-dominated sectors (such as energy, construction, industry, mobility, and forestry) as a result of investments and increased activity, while positions in employment related to fossil fuel will decrease. Broadly speaking, more jobs will be created by the green transition, but employment will move within the energy sector, from jobs engaged with fossil fuels to jobs engaged with renewable energy[88].

"In the oil sector in Norway it's mostly men working there – of course men then will be most affected. But we need policies to secure people with new green jobs."
(Julie Rødje, the Norwegian Environmental- and Development organisation, SPIRE)

While there is a need of re-educating and re-locating workers into the jobs of the green economy, it is argued that attention should also be given to the quality of employment created by climate policies. Some of the jobs created within the area of for example recycling have been argued to be less attractive. A study from the UK shows that the jobs within recycling are often taken by male migrant workers under precarious working conditions[89] (Interview 3). While this intersectional perspective should be taken into consideration, the reality is that the new "green jobs" are created in male-dominated sectors. All the while, climate policies decrease employment in female-dominated service sectors[90].

The Finnish gender impact assessment indicates that the Finnish climate- and energy action plan will recreate jobs for men but have a negative impact on female-dominated sectors such as consumer services, tourism and restaurant services[91]. Yet. more knowledge about how the green transition impact female-dominated sectors is needed.

88. The Finnish Government (2021). Gender impact assessment of the Finnish Climate and Energy Sector.
89. Wilson, J., & Chu, E. (2019). The embodied politics of climate change: analysing the gendered division of environmental labour in the UK.
90. The Finnish Government (2021). Gender impact assessment of the Finnish Climate and Energy Sector.
91. The Finnish Government (2021). Gender impact assessment of the Finnish Climate and Energy Sector.

"When talking about climate change response we focus on carbon intensive sectors which are mostly dominated by men – and how they are in danger of losing their jobs. But this can't be the only discussion we have about the gendered effects on the labour market of climate change policy. We don't know how the climate policies effect the sectors where mostly women work, e.g., the service sector? And we don't have that discussion. I feel like we need to widen the scope and have more research."
(Niina Ratilainen, Plan International Finland).

As a large share of the tasks traditionally carried out by women as unformal work is now undertaken by women in the public sector in the form of childcare, healthcare etc.[92], the question of the Nordic climate policies' impact on the gender segregated labour market should be further investigated. Following Wilson and Chu's analysis of the gender impacts of British climate policies, it could be argued that climate policies should incorporate strategies for creating and securing attractive jobs for women and men in traditionally female-dominated low carbon sectors such as social care or education[93].

Box 4: Gendered health impacts

OECD has pointed out that a gender difference in exposure to pollution and hazardous chemicals, is linked to consumption habits and gaps in socioeconomic backgrounds (OECD 2020). In advanced economies like the Nordics, a gender-difference can be found in health impact and occupational exposure, leading to more male deaths due to exposure of occupational carcinogens and particles (OECD 2020). While this specific gender gap is larger in developing countries, it should however be examined in a Nordic context.

6.3 How climate policies impact the gendered income-level

In a European context, the European Institute for Gender Equality (EIGE) has delivered some data and arguments related to the interconnection on gender and climate policy. One of them being that gendered economic disparities lead to differences in men and women's capacity to mitigate climate change. This disadvantages women, as their salaries and assets are lower than men's. In the Nordic countries, an average gender pay gap of 14.3% exist[94]. This concern was also raised by Nordic gender organisations and activists interviewed as part of this study:

"At least in Finland, and I guess it goes for the other Nordic countries, women earn less than men and their wages are smaller, so if climate policies raise prices – it does not necessarily go that way – but if it does, the women are the ones who will suffer the most."
(Niina Ratilainen, Plan International Finland).

In the focus group interview with these stakeholders, attention was brought specifically to carbon taxes. Carbon taxes are discussed as a tool for making prices more reflective of the climate costs of products. Yet, if carbon taxes are placed on

92. Nordic Information on Gender (NIKK) (2019). The Nordic Gender Effect at Work.
93. Wilson, J., & Chu, E. (2019). The embodied politics of climate change: analysing the gendered division of environmental labour in the UK.
94. Nordisk Information för Kunksab om Kön (NIKK) by the Nordic Council of Ministers (2021). Equal Pay in the Nordic countries – the law and policy strategies.

products, the price changes will affect lower income groups more than higher income groups – and thus have a more pronounced impact on women. That is due to the gender pay gap.

"Many politicians want to have more carbon taxes, but the question is how and who – who will it affect economically and geographically? – who is doing what work, what are the income level in these jobs and if you have a higher income, you will not be affected as much of the taxes in comparison with those with lower income. If men have higher salaries and more power this is an element than reinforces inequality as well."
(Julie Rødje, the Norwegian Environmental- and Development organisation, SPIRE)

On the other hand, as will be further elaborated in the section below about gendered consumption, men tend to have a higher carbon footprint as men tend to buy more carbon intensive products and services such as fuel and meat. Any taxes on meat or fuel may impact men more, when taking current consumption patterns into account.

6.4 How climate policies impact the gendered consumption

An average single man has a larger carbon footprint (10,000kg/year) that an average single woman (8,100kg/year), which is not due to expenditure levels (single men spend on average only 2% more than single women), but rather expenditure patterns. Men tend to spend more money on carbon intensive products and services such as fuel and meat, whereas women spend more money on lower-emitting products and services such as furniture and clothing. This implies that any climate tools targeting climate friendly consumption may impact men and women differently. This gendered carbon footprint is further elaborated in the sections addressing specific sectors[95].

Feminist researchers have documented the household as a deeply gendered space (Sjoberg 2012; Peterson 2017). Even though the Nordic model has increased the share of women participating at the labour market – to a large extent in the public sector in the form of childcare, healthcare, and eldercare – women in the Nordic countries are still responsible for most of the tasks in the household[96]. In our focus group with organisations and activists engaged in the agenda of gender and climate in the Nordics, general concerns were raised revolving the gendered effects of climate policies' focus on households and everyday consumption. In the focus group, the participants agreed that the Nordic climate policies should not place the responsibility on the individual consumer, but instead make solutions on the structural level, and place the responsibility at governments, companies, and industries.

"If we look at the statistics women are generally more concerned about the environment than men. They are more likely to make sustainable changes in their lives than men.
(Julie Rødje, the Norwegian Environmental- and Development organisation, SPIRE)

The fact that females are more climate-aware in their actions is also found in the

95. Kanyama, A. et al. (2021). Shifting expenditure on food, holidays, and furnishings could lower greenhouse gas emissions by almost 40%
96. Nordic Information on Gender (NIKK) (2019). The Nordic Gender Effect at Work.

literature. A study from Canada shows that a critical mass of women at board-level within a company leads to more ambitious climate actions[97]. Likewise, gender- and sexual minorities are more likely to engage in climate activism[98]. Female minorities also contribute to reorganisation of work as seen in the construction sector, where female craftworkers tend to be more innovative and more verbalized in how they organise their work, which result in e.g., improve waste sorting.

"Women are worn down because they have to buy stuff to make them prettier and better and everything. And now they are telling us by doing this we are ruining the planet. I have heard so many women say that they are ashamed about wanting children. They decide not to have kids – a really personal sacrifice for the climate. Being a women concerned about climate is so anxiety-inducing when there are no climate actions by the state."
(Hildur Knútsdóttir, Icelandic climate activist and member of the Icelandic Women Right Association)

The concern raised by gender and climate activists echoes the argument from the researchers Joanna Wilson and Eric Chu, who recently conducted a study on this matter in the context of UK (2019)[99]. Wilson and Chu argue that notions of green citizenship, i.e., the idealised image of the good green citizen who recycles, shops locally, mends clothes and cooks from scratch, is notoriously blind to the fact that women are the ones doing the unpaid household work:

"increasingly stringent 'reduce, reuse, recycle' regulations result in a 'double-day' for many women in the name of climate change mitigation (...) By applying an environmental lens to the household jobs of climate change, women are not only expected to become a hockey-mom, full-time mum, or yummy mummy, but they must also be an eco-mom and a good green citizen who shops locally, mends clothes, and recycles religiously."[100]

The risk that Nordic climate policies might double the burden of informal work carried out by women finds support in the report "Ensuring gender equity in climate change financing"[101]. The report argues that times of shock and economic realignment to shocks, have entailed an increased dependence on the household sector and women's domestic labour[102]. While women in developing countries are predicted to be disproportionately impacted by the climate crisis related burdens, the nature and extent of Nordic climate policies' effects on gendered households should be further examined.

"The nature and extent of the domestic burden transfer that will be associated with climate change impacts and adaptation and mitigation strategies in the economy is unknown, though it is likely that the household sector will have to make significant adjustments."[103]

97. Hossain, M., Farooque, O. A., & Momin, M. (2017). Women in the boardroom and their impact on climate change related disclosure.
98. Ferrer, M. (2020). Why is environmentalism more popular in LGBTQ+ communities?
99. Wilson, J., & Chu, E. (2019). The embodied politics of climate change: analysing the gendered division of environmental labour in the UK.
100. Wilson, J., & Chu, E. (2019). The embodied politics of climate change: analysing the gendered division of environmental labour in the UK.
101. United Nations Development Programme (UNDP) (2011). Ensuring gender equity in climate change financing.
102. United Nations Development Programme (UNDP) (2011). Ensuring gender equity in climate change financing.
103. United Nations Development Programme (UNDP) (2011). Ensuring gender equity in climate change financing.

6.5 Conclusion: What do we know, what can we measure and where do we lack information?

Climate policies impact gender through where and for whom jobs are created. Climate policies tend to create jobs for men in male dominated sectors (energy, construction, industry, mobility, and forestry). Policy responses to climate are often relying on technological development requiring competencies from STEM, a highly male-dominated field. Also, any economic incentives to consume in a more climate friendly manner – such as carbon taxes – must be attentive to how that may impact gender differently, as well as vulnerable groups more broadly. Climate policies placing a great responsibility on the individual consumer further risk placing more pressure on women as they are more often responsible for household consumption.

The overall themes presented in this chapter also appear in each of the following sector-specific chapters. It is, however, clear that further knowledge about how specific climate policies impact gender is needed, and gender impact assessments on specific policy tools must be conducted to fully understand the impact that climate policies have on gender.

7 GENDER AND THE DECARBONISATION OF SELECTED SECTORS

In this section, four carbon-heavy sectors are analysed: 1) The energy sector, 2) The mobility and transport sector, 3) The agriculture and food sector, and 4) The construction sector. The sectors analysis focuses on:

1. Decarbonisation of the sector
2. Gender mainstreaming of the sector-specific climate action plans
3. Gendered culture and participation in the sector
4. How gender impacts the decarbonisation of the sector, and
5. How decarbonisation of the sector impacts gender.

Each section is concluded by a summary of what we know, what we can measure, and where we lack information in each sector. The evidence and knowledge of the interlinkage between climate policies and gender equality differ across the four sectors. As an example, the intersection between climate and gender is an established research area within mobility, whereas almost no research has been conducted within agriculture- and food sector.

7.1 The energy sector

This report defines the energy sector primarily as the generation and consumption of energy for electricity and heating, as well as the infrastructure and systems for transmission and distribution and the industries direct energy use. Energy storage has not been directly addressed due to lack of literature and information about its interlinkage with gender.

In terms of final energy consumption, the Nordic countries differ particularly in their energy-intensive industries (paper and pulp, aluminium, steel industry, etc.) and natural resource endowments. While the Nordic countries are among the least CO_2 intensive among the OECED countries[104], the Nordic energy consumption per capita is higher than any other region in the world. With the exception of Iceland, which primary energy demand increased significantly the last 20 years, the Nordic energy and electricity consumption have reminded stable since 2005. The Nordic countries have a high share of renewable energy consumption, ranging from 36 to 73 percent in 2019, relative to the EU-28 share of 19 percent. Nordic renewable energy consumption had an average annual growth of 2.5 percent between 2005–2019, while that of non-renewables fell 2 percent each year on average, in the same period[105].

104. Nordic Energy Research (2020). Tracking Nordic Clean Energy Progress.
105. Nordic Energy Research (2021). Renewable Energy in the Nordics 2021.

Hydropower provides more than half of all Nordic electricity generated, and it is increasingly supplemented with biomass, wind and solar. Heat primarily comes from electricity, district heating and biomass, all largely generated from renewable energy sources like geothermal energy in Iceland. In most Nordic countries, widespread district heat networks offer the flexibility to switch fuels. Deployment of variable renewables, such as wind and solar power, is an important factor in the green transition of Nordic energy systems[106]. The table below shows the diversity of the Nordic energy mixes and energy demanding industries.

Table 3: Energy consumption and sources

Energy consumption and sources	
Denmark	Denmark has less energy-intensive industry than other Nordic countries, although this is changing as more large data centres are being established. Combined heat and power together with district heating networks, often fired with renewable biomass, provide much of the country's heat supply, while wind power met 45 percent of electricity demand in 2019.
Finland	Finland's most important forms of renewable energy are forest-based bioenergy, side streams and other wood-based fuels stemming from its large forest and paper industries. Hydropower, wind power and geo-thermal energy play important roles, and combined heat and power and district heating are both central in the country's energy system.
Iceland	Iceland meets most of its heat demand with geothermal resources, via district heating. Much of the coun-try's tapped hydropower supplies energy-intensive industries, including aluminium and data centres. While Iceland is not connected to the European grid, renewable energy used to produce goods and services for export displaces carbon intensive operations elsewhere.
Norway	Norway's hydropower has fostered electric heating and energy-intensive industries, such as manufacturing and mining. The country's reservoir capacity stores and regulates fluctuating energy supply from renewable sources like wind in neighbour countries, via the common Nordic grid.
Sweden	Sweden's energy intensive industries include paper and pulp, as well as steel manufacturing. A range of low-carbon sources are found in the country's energy mix, including hydropower – mostly for electricity – and bioenergy for heating, while wind power capacity is expanding rapidly

The specifics of the gender and energy links in the Nordic countries are still poorly understood. In general, green energy policies in the Nordic countries are not only gender blind, but also largely silent on social impacts, energy justice aspects, and reasonable, fair, and equitable distribution of impacts and benefits associated to energy decarbonisation.

106. Nordic Energy Research (2020). Tracking Nordic Clean Energy Progress.

7.1.1 Gendered representation and participation of women in the energy sector

Representation and participation of women in the energy sector is one of the areas where up-to-date quantitative information is available. The report *'Gender Equality in the Nordic Energy Sector'* (Nordic Energy Research, 2020) as well as in country reports, like *'Gender Diversity in the Icelandic Energy Sector'* (EY, 2019) lay a foundation for monitoring the development of gender balance in the Nordic energy sector in the coming years. The work of Nordic Energy Research on integrating gender equality in cooperative energy research and policy development, and the role of regional and national professional networks focusing on women, are key drivers of these efforts.

Key findings of these reports show that the lack of women in decision-making positions in industry, research groups, and at energy authorities is often identified as the energy sector's obvious shortcoming. Similarly, gender parity within Nordic research groups is limited. When comparing the gender balance scores in the energy sector for each Nordic country, Iceland ranks in first place, whereas Denmark has the lowest score. While showing better gender balance compared to the rest of Europe and the world, gender balance in the energy sector is behind that in other economic and political areas in the Nordic countries. Low levels of female employment in the energy sector, especially in technical positions, are related to low number of women with STEM background. The reasons behind the low enrolment levels and a leaky pipeline of female students in STEM studies is not yet fully understood (Interview 6).

Women make up one third of decision-making positions in the energy companies in the Nordic region and 28% of the companies' full-time equivalents[107] (FTE). Nevertheless, there is a lower share of women in leadership positions with 16% of board members, while only 5% of the Nordic energy companies have women in top leadership roles. The average women's leadership score[108] among the respondents of the survey is 24. It is interesting to notice that the analysis points to a strong relation between a high women's leadership score and having policy and/or gender equal pay policies implemented at the workplace.

107. FTE= Full time equivalent is calculated as an employee working hours divided by the number of full-time hours of workload of the company´s employee. For example, two employees both working 80% of time on a given task, makes a FTE=1.6
108. Women's leadership score: Women's decision making-power is analysed by the gender balance in the company's position of decision-making, here defined as board of directors, C-suite executives and department managers.

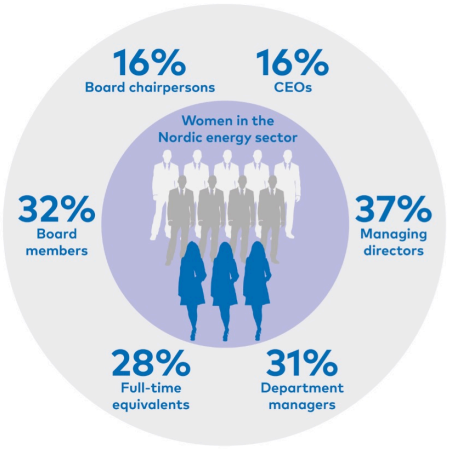

Figure 5. Women in energy companies in the Nordic energy sector[109]

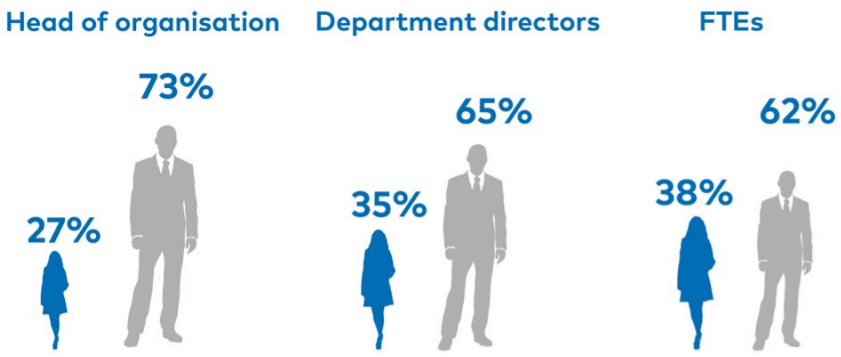

Figure 6. Gender balance within Nordic energy authorities[110]

Less than a third of energy companies have an equal gender balance (understood as 40–60% ratio) in their boards. Norway and Iceland have introduced gender quotas in boards and are also the countries with nigher gender ratio. None of the Danish companies reach 40% representation of women[111]. Energy companies in the Nordic region have the highest women's leadership score worldwide. Nevertheless, as some the experts pointed out:

"It is not a numbers game: it does not make sense to have more women in the Board if the decision are taken in the golf course!".

Iceland stands out both in terms of gender representation in energy companies, but also in analysing, reporting, and tracking gender equality in the energy sector. Besides statistics of representation and status, the report *'Women in Icelandic Energy: 'Gender Diversity in the Icelandic Energy Sector'* (2019), commissioned by Women in Energy, includes the benchmarking energy companies in terms of gender equality as well as analysis of female job satisfaction in the sector. The progress observed suggest that, among other measures, reports that provide data and support transparency and accountability send strong signals to the sector and encourage the companies to improve their performance.

Women are a minority in all energy research positions in the Nordic countries. In

109. Nordic Energy Research. (2020). Gender Equality in the Nordic Energy Sector.
110. Nordic Energy Research. (2020). Gender Equality in the Nordic Energy Sector.
111. Nordic Energy Research (2020). Gender Equality in the Nordic Energy Sector

2019, 27% of the group leaders and professors were women, 12% of the department leaders and 19% of the professors, most of them within engineering or technical science departments. Almost half of the research groups implement gender equality policies and 81% of the research groups also state that their department or institute maintains equal pay.

There seems to be agreement that the main reason behind gender imbalance in research groups is a deficit of applications from women, but the reasons behind this pattern are not fully explored. The relatively high number of female PhD students in research groups could indicate that an increasing number of women in the Nordic countries are attending an education within STEM and in social dimensions of the green transition.

Nordic energy authorities almost achieve the 40:60 gender balance in full-time equivalents (FTE), but no significant change has been observed. Women are a minority in leadership roles within the Nordic energy authorities: only 27% of head of organisations 35% of department directors were women in 2019. Nordic energy authorities take steps to improve gender equality within the workplace and 82% of the organisations in the survey have both gender equality policy and equal pay policy.

7.1.1.1 How gender impacts the decarbonisation of the energy sector

Three main conclusions emerge of the document review and expert inputs in relation to the impacts of gender in the decarbonisation of the energy sector:

- Climate policies need to emphasise the necessity of absolute reduction in consumption of energy and goods, and not only technological solutions to decarbonisation. Gender aspects of such measures are not well understood and should be prioritised in research.
- Norms and practices linked to gender have an impact on the development of policies, user systems and energy technologies. Lack of gender considerations can lead to the implementation of inefficient and excluding energy solutions.
- Gender is only one of the factors that determine energy consumption and climate footprint in general. There is a need of research on the intersection of gender, income, location, and age, among others, and how these may affect energy choices and possibilities.

The importance and need of increasing the number of women in the pay role or decision-making positions has been established in literature and confirmed by the experts interviewed in this study. But number is not enough and diversity of backgrounds, age groups and academic profiles has been identified of a necessary first step.

"More diversity means much better use of talent. Factors like more women, different ethnicities and different age groups provide a diversity that makes us all better at both research and decision making. We need all the talent we can get for the green transition. If we settle for just half, we won't make the transition"
*(*Birte Holst Jørensen)[112]

112. Nordic Energy Research (2020). Tracking Nordic Clean Energy Progress.

7.1.1.2 Attitudes, behaviour, and consumption patterns

Experts consulted during this study identified energy and goods consumption as an area that deserve special attention. Despite the importance and rapid mitigation potential of behavioural change, most policy approaches to climate change solutions have given it scant attention, choosing to focus instead on the application of technology[113] [114]. Nordic experts[115] agree that absolute reduction in the consumption of energy, kilometres driven, living space, food and services consumed, etc. are necessary to achieve climate goals. There is limited information and research on the gender aspects of these measures. A study on energy consumption by gender in Europe from 2010 reveals that the total energy consumption of Norwegian and Swedish single men is considerably higher than the energy consumption of women of the same group[116] and recent studies indicate that male activities in the country lead to higher emission level, partly due to consumption patterns[117]. Observations from the Equal Climate portal suggests that energy consumption, and in general climate footprint is more related to income than gender: in Norway, where incomes are higher than in the other Nordic countries, climate impact was also higher for both men and women[118].

Gender affects lifestyle, which in turn affects energy behaviours. Recent publications[119] conclude that energy policy should account for gendered impact of energy on factors such as energy poverty and energy saving choices. Rigorous empirical studies starting from household level will be required to better understand gendered impacts of energy. Studies on energy behaviours of families where gender is constructed non-traditionally (such as same sex couples, single parents raising children, elderly people living alone – typically females as they tend to have longer lifespan than males etc.) need to be conducted. Such studies help in devising energy policies that cater to those who are most affected by energy poverty.

7.1.1.3 Impacts of not considering energy and gender links

Research has shown that norms and practices linked to gender have an impact on the development of policies, user systems and energy technologies, and that ignoring these links can lead to the implementation of inefficient and exclusionary energy solutions. Gender blind energy policies – that neglect the differential impacts on genders as well as socio-economic and cultural groups – lead to policies and technologies are less effective and may have unintended effects, hindering transitions to more sustainable energy systems. The Users Technology Collaboration Programme (Users TCP) is one initiative involving Nordic countries that intends to bridge the research gap in behaviour, gender, and energy. More specifically, the task force lead by Chalmers University in Sweden" Empowering *all: Gender in policy and implementation for achieving sustainable energy"* aims to provide evidence from socio-technical research on the design, social acceptance and usability of clean energy technologies to inform policy making for clean, efficient and secure energy

113. Creutzig, F. et al. (2016). Beyond Technology: Demand-Side Solutions for Climate Change Mitigation.
114. Lettenmeier et. al (2019). 1.5-degree lifestyles. Targets and options for reducing lifestyle carbon footprints – A summary.
115. Nyfors, Tina. Oersonal communication (mail 21.09.21)
116. Räty, R., & Carlsson-Kanyama, A. (2010). Energy consumption by gender in some European countries.
117. Paavola, J-M. et al. (2021). The Gender Impact Assessment of the Finnish Climate and Energy Strategy
118. Nyfors, Tina. Oersonal communication (mail 21.09.21)
119. Fathalla, J and Pyakurel P. (2020) Addressing gender in energy studies – Energy Research & Social Science 65 (2020)101461

transitions. Other important research groups are the research centre "Include", which works with the socially inclusive energy transitions at the University of Oslo[120], and work with the EU funded project ENABLE.EU[121].

7.1.2 How decarbonisation of the energy sector impacts gender

On the question of who enjoys the benefits and who pays the price of the energy transition policies as currently planned and regulated in the Nordic countries, the energy experts interviewed indicate that:

- Green energy policies benefit those who can afford investments in energy efficiency and smarter solutions;
- Industry and energy companies enjoy most benefits, while households are affected by increased tariffs and the fast-growing levels of electrification;
- Urban dwellers enjoy most benefits while rural households are most affected by the footprint of energy utilities

The gender dimensions of these asymmetries and inequalities are very poorly explored to date and therefore information and data is limited or non-existent.

The focus of energy policies is almost exclusively on economic and technological solutions toward decarbonisation, in line with the norms of ecological modernisation. The attention on public interest and welfare is generally weak, and with a very narrow understanding of gender[122], considerations of equality, equity, and social justice in climate mitigation appears to be shadowed by the urgency of meeting decarbonisation targets. According to the focus group with experts and stakeholders from the energy sector (Interview 6), the lack of information and data to explain and demonstrate the links between gender and the decarbonisation of energy makes it difficult to construct compelling arguments and narratives to support a more systemic change on gender roles in the energy sector, and to enable a more fair and equitable energy transition in the Nordic countries.

Results of document review and interviews with Nordic energy experts identified the following priority issues, impacts and areas for further research:

- Intersectionality of energy justice
- The Sámi: impacted by climate change and by energy transition
- Gender dimensions of energy poverty
- Weak focus of gender in impact assessment of energy policies and projects.

7.1.2.1 Intersectionality of energy justice

Studies of intersectionality and energy transition indicate that renewable energy projects alone cannot achieve gender and social equity. If existing power asymmetries related to access and resources distribution are not addressed early on, the same structural inequalities will be replicated and transferred to the new energy regimes. Renewable energy systems may not be any fairer, inclusive, or just than the

120. https://www.sum.uio.no/
121. http://www.enable-eu.com/
122. Kronsell, A. & Magnusdottir, G. L. (2021). Gender, Intersectionality and Climate Institutions in Industrialised States.

conventional systems they displace[123].

From the literature review and expert interview, it is apparent that in the Nordic countries there is weak visibility, understanding and political focus on the distribution of the impacts and benefits of the energy transition. The gender dimension is either absent or addressed within a narrow focus, and other dimensions relative to social equity, such as demography and urban density (urban vs rural) are in most cases missing or barely addressed[124]. One of the conclusions of the Gender Impact Assessment of Climate Policies in Finland published in September 2021 states:

"*A singular factor, the role of gender in the way negative impacts of policy measures are distributed is, in most cases, not decisive. But as an element in the cross-cutting factors its importance may become disproportionate. The impacts of the proposed policy measures are particular significant in groups in which several vulnerabilities intersect. Such groups are often small but can nonetheless be of great significance in terms of just transition and the acceptability of climate policy*".

7.1.2.2 The Sámi: impacted by climate change and by energy transition

"For centuries, it was the land of the reindeer, not that of the strong and electrified man. A new and white man spread out his three wings, and dispossess centuries and future memories" (Sara Emilie Jåma, reindeer herder and poet. Translation from original in Norwegian by Susanne Normann[125].*)*

The Sámi communities in Norway, Finland, and Sweden, their livelihoods and cultural survival, deeply linked to natural resources, are disproportionally impacted by climate change and by the measures proposed to mitigate it. Impacts of renewable energy sources on the Sámi rights and lands is not a recent struggle. Ever since 1910, Sweden has established power plants and reservoirs for hydroelectric power production in Sápmi—the traditional land of the Indigenous Sámi people. Sweden's environmental policies of today are focused on what is perceived as renewable and sustainable energy sources. While leaning heavily on hydropower, these policies rarely acknowledge the consequences of hydropower extraction in Sápmi: drowning of ancestral land, homesteads, and reindeer pastures. Nor are the water rights in the terrain recognised[126]. A similar situation can be observed in Norway, where forty years ago, the Sámi struggled to defend the rivers and traditional territories against the Alta–Kautokeino hydroelectric power station. In Sápmi, especially Sweden and Norway, wind power development is yet another element in the continuing colonial situation[127].

Although large scale wind energy projects are framed as climate change mitigation strategies and wind industries claim negligible social and environmental impacts, they can simultaneously endanger sustainable life systems, violate human rights, or add an "insult to the injury" of communities already striving to adapt to climate change[128]. Among the Indigenous Saami population, tensions concern the survival of

123. Jhonson, O. W. et al. (2020). Intersectionality and energy transitions: A review of gender, social equity and low carbon energy.
124. (Interview 6).
125. Normann, Susanne (2021) Green colonialism in the Nordic context: Exploring Southern Saami representations of wind energy developments. Journal of Community Psychology 2021; 59:77-94
126. Össbo, Åsa (2018) Recurring Colonial ignorance: A genealogy of the Swedish energy system. Journal of Northern Studies Vol. 12 No. 2 2018
127. Normann, Susanne (2021) Green colonialism in the Nordic context: Exploring Southern Saami representations of wind energy developments. Journal of Community Psychology 2021; 59:77-94
128. Dunlap, A. (2019). Renewing destruction: Wind energy development, conflict and resistance in a Latin American context,London, UK: Rowman & Littlefield International.

their ancestral reindeer herding, which, given its cultural centrality, is protected by international law. Winters are becoming unstable, causing threats for both herders and animals[129]. Large scale wind power facilities can further reduce resilience in herding by dispossessing Saami herders of their pasturelands through increased human activity, the construction of energy infrastructure, and new road networks. Thus, threatening Saami herding practices, livelihoods, and consequently their cultural survival. In Norway, Aili Keskitalo, the Saami parliament's president, has summarized this policy and development practice as "green colonialism"[130] linking current trends of renewable energy development with historical processes of dispossession and subjugation inflicted on the Saami[131]. Young Sámi have even defined wind energy development as racism or cultural genocide.

Research in Norway[132] indicates that media discourses might also be having a negative effect on Saami reindeer herding. Rather than focusing on how climate change affects herding districts, the Norwegian government and the media appease the distorted belief that reindeer herding is an environmental "offender". The Sámi, on the other hand, question whether green discourses are truly sustainable and to continue defending the legitimacy, and even global importance of herding as an ecological and responsible practice. The social sustainability is also questioned: one Southern Saami woman witnessing during a lawsuit pointed during her testimony to how the enclosure and loss of land in the wake of the construction of a wind energy industrial site in Sweden had forced her district to implement soybean-based food during winter. In her view, this was highly problematic: "It is extremely harming to know that the compound feed we are now using, is made out of Brazilian soybeans, contributing to the genocides of other indigenous peoples."[133]

Academic research and national and international media highlight historical and current cases of impacts and conflict triggered by renewable energy projects and climate policies that threaten the rights of Sámi communities and the survival of traditional livelihoods in Sweden[134] [135] [136] [137] Norway[138] [139] and to a less degree in Finland[140]. The interviewed experts agree that that energy transition policies are reinforcing, rather than addressing, structural inequalities. The multidimensional and cumulative impacts

of climate change, energy transition and measures to manage natural resources on the Sámi territories and people are neither considered nor addressed in the energy

129. Riseth, J. Å., & Tømmervik, H. (2017). Klimaendringenes påvirkning av reindrift og villrein [How climate change affects wildand domesticated reindeer]. Norut. Retrieved from: https://norceresearch.brage.unit.no/norceresearch-xmlui/bitstream/handle/11250/2659191/Norut_rapport_6-2017.pdf?sequence=1&isAllowed=y
130. The arctic circle. (2020, January 17). Global Indigenous Dialogue on Indigenous Guardianship and Governance.[Video]. YouTube. Retrieved from https://www.youtube.com/watch?v=Dpbh4ED_NPA&feature=youtu.be
131. Normann, Susanne (2021) Green colonialism in the Nordic context: Exploring Southern Saami representations of wind energy developments. Journal of Community Psychology 2021; 59:77-94
132. Normann, Susanne (2021) Green colonialism in the Nordic context: Exploring Southern Saami representations of wind energy developments. Journal of Community Psychology 2021; 59:77-94
133. Benjaminsen, T. A., Reinert, H., Sjaastad, E., & Sara, M. N. (2015). Misreading the Arctic landscape: A political ecology ofTidsskriftreindeer, carrying capacities, and overstocking in Finnmark, Norway. Norsk Geografisk Norwegian Journal of Geography, 69(4), 219–229. https://doi.org/10.1080/00291951.2015.1031274
134. Cambou, D. (2020). Uncovering Injustices in the Green Transition: Sámi Rights in the Development of Wind Energy in Sweden.
135. Liljenfeldt, J. (2017). Distributional justice in Swedish wind power development – An odds ratio analysis of windmill localization and local residents' socio-economic characteristics.
136. Larsen, R. K., & Inga, K. (2020). *Sámi lands and hydroelectric power in Sweden – what's the potential to redress harm and injustice?*
137. Swedish University of Agricultural Science (2020). Wind power in operation and impacts on reindeer and reindeer herding.
138. Fjellheim, E. M. & Florian, C. (2020). *Green' colonialism is ruining Indigenous lives in Norway.*
139. Strzyżyńska, W. (2021). *Sámi reindeer herders file lawsuit against Norway windfarm?*
140. Hermann, L. J. (2021). *Sami-youth in Finland: "Our culture is threatened by climate change – and we are not even part of the conversation.*

policies. United Nations reports[141] call for the inclusion of indigenous knowledge in policies of climate change mitigation. Sámi, and specially herders, unique and profound knowledge should be included, instead of lost, in the making of political agendas in the Nordics.

One finding of the research is the lack of information on the gendered dimensions of the impacts and conflicts mentioned above. There is research on the dynamics of gender equality, indigenous self-determination, governance, and traditional livelihoods, such as the work of Sámi academic Rauna Kuokkanen in Finland. But no information or initiatives were identified that discuss the gender implications of the energy transition among the Sámi, nor the different gendered perspectives and experiences across regions, age groups and other intersectional dimensions. Discussions with Sámi experts indicates that while the impacts of the land conflicts are deeply gendered, the pressure of continuously addressing conflicts "one windfarm after the other" and fighting to have a voice at the table on land rights dominates the agenda and exhausts the energy of the Sámi institutions and communities.

"*If we want to hear the voice of Sámi woman, first we need to get the Sámi to the table*"
(Tonje Johansen, Adviser Arctic and Environmental Unit at The Sámi Council).

7.1.2.3 Energy poverty

The issue of energy poverty is not visible in the energy agenda of Nordic countries. There are only few studies, statistical data, and political measures that address energy poverty[142]. It is a focus area in the EU and most information in the topic is available for Denmark, Sweden, and Finland in the annual Member State Reports on Energy Poverty and in specific studies as Vulnerable Consumers and Fuel Poverty Report who includes only Finland among the Nordics.

Compared to other European countries, research on energy poverty is very limited in the Nordic countries and the existing studies fall short in terms of gender considerations. For example, in Denmark the most vulnerable groups to energy poverty included single persons under 60 years old in low incomes levels and living in rented dwellings, including single parents of an average age of 40 years old[143]. Information is not sex-disaggregated, and gender aspects are not analysed. While drivers of energy poverty and aspects like socioeconomic status, demographics, urban density, and homeownership are considered, the data and analysis are largely gender blind in these reports. The same can be said about the few studies identified in the Nordics addressing energy poverty. Gender perspective on access to energy in the EU provides a good conceptual framework for understanding gender in energy poverty and guiding future research as well and points to a consistent lack of gendered data[144].

As 50% or more of the energy bill is heating, energy poverty becomes more pronounced in the winter months. Some coping mechanisms include borrowing money for paying energy bills, reducing heating temperatures, social isolation, and "using the body as saving account": eating less, worse, and less often to save money.

141. IPBES. (2019). The Global assessment report on biodiversity and ecosystem services of the Intergovernmental Policy Platform on Biodiversity and Ecosystem Services. IPBES secretariat, Bonn, Germany.
142. Assist Consortium (2018). Vulnerable consumers market segmentation. (ASSIST Consortium, 2018, 2019).
143. Nierop, S. (2014). Energy poverty in Denmark?
144. Clancy, J. et al. (2017). Gender perspective I the access to energy in the EU.

This has consequences for both physical and mental health: the study reports tales of increased number and severity of respiratory issues, worsening of chronical health conditions and depression[145].

Gender perspective on access to energy in the EU provides a good conceptual framework for understanding gender in energy poverty and guiding future research as well and points to a consistent lack of gendered data[146].

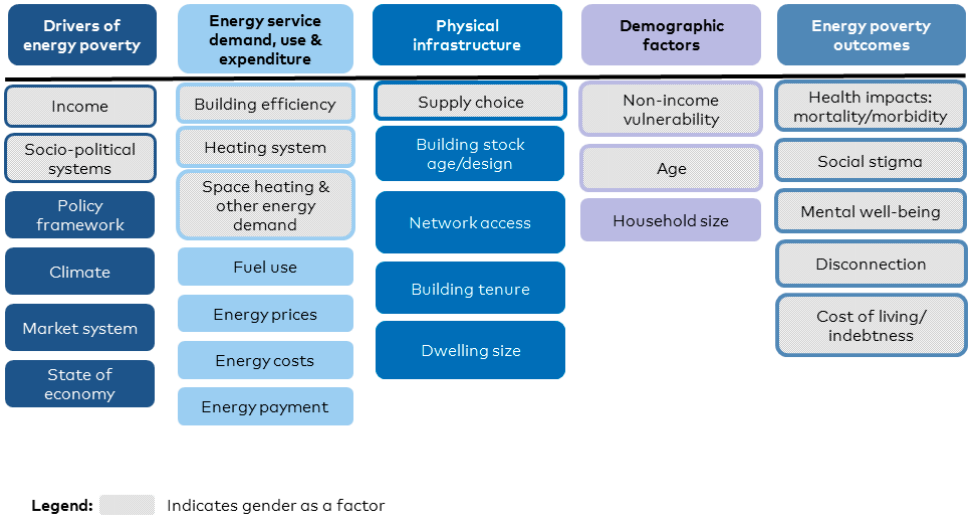

Figure 7. Gender gaps operating in the drivers causes and effects of energy poverty[147]

7.1.2.4 Weak focus of gender in impact assessment of energy policies and projects

The experts consulted for this study confirmed that there is very limited understanding and political focus of the social implications of energy policies. This applies to all levels: the policies themselves, the impacts on people's wellbeing and livelihoods of energy utilities and ramping electrification, the impacts of new technologies for energy production, storage, distribution, and carbon removal.

Impact assessments with focus on social and gender aspects and dynamics at each of these levels are important not only to identify the potential consequences, take corrective actions and inform decisions, but also to know what to monitor and measure to track social sustainability and gender equality.

In 2021 Iceland conducted a gender impact assessment and Sweden drafted a strategy of how to gender mainstream the implementation of the Paris agreement. Finland has completed a Gender Impact Assessment of its climate policies and the document was released on September 17, 2021[148]. 41 out of the 101 measures assessed were related to the energy sector. The assessment also identified other issues and areas that require attention and information, such as health impacts of and the need of a stronger focus on vulnerable groups, where gender dimension is particularly significant.

In the future it may be useful to assess factors over and above the outcome of

145. Bredvold, T. L. (2020). *Where no one is poor, and energy is abundant: a study of energy poverty in Norwegian households.*
146. Clancy, J. et al. (2017). Gender perspective I the access to energy in the EU.
147. Clancy, J. et al. (2017) Gender perspective I the access to energy in the EU.
148. Paavola et al. (2021). The Gender Impact Assessment of the Finnish Climate and Energy Strategy

economic activities, which would enable a more holistic assessment of the gender impact assessment of energy policies and projects in the Nordic countries. Good practice example includes Gender-based Analysis (GBA+) in Canadian Impact Assessment and the Gender Impact Assessment (GIA) tool for climate policy, developed by the German Environment Agency, which has a strong focus on intersectionality[149].

7.1.3 Conclusion: What do we know, what can we measure and where do we lack information?

In terms of the climate policies in the energy impacts on gender and vice versa, the only area where disaggregated data and information is available is representation of women in the energy sectors in companies, government institutions and academia. This data could be reported and collected systematically by the institutions and companies.

Data addressing the following subjects is valuable for developing gender sensitive climate policy:

- Gender-segregated information on energy consumption and behaviour, and the intersection of inter alia gender, income, location, and age, and how these may affect policy choices and possibilities.
- Gender-segregated information and gender analysis of energy poverty, more specifically comprehensive sex-segregated data which covers drivers, causes and effects of energy poverty.
- Gendered dimensions of the attitudes towards renewable energy projects, and the intersection with other relevant parameters like age, income, location, and education.
- Reasons behind low enrolment and retention of women in STEM: requires an intersectionality assessment.
- Whether and how increased diversity in energy workplaces and decision-making effects performance, quality of workplaces and sustainability outcomes.

Key areas where gender impacts must be better understood to inform which disaggregated data needs to be collected are listed below. An intersectional and holistic approach to research and data collection are recommended as way forward to bridge the knowledge gap.

- Gendered impacts of increased electricity and heating tariffs, in combination with other relevant categories like age, income, urban density (rural vs urban), type of dwelling, etc.
- Social sustainability and gender impacts of electrification, and construction and operation of energy utilities.
- Cumulative impacts of climate change and green energy infrastructure in Sámi people
- Gender dimensions of the impacts of green energy infrastructure in Sámi people
- Gender dimension of health impacts of the benefits and impacts of energy transition.

149. Sauer, A., & Stieß, I. (2021). Accounting for gender in climate policy advice: adapting a gender impact assessment tool to issues of climate change, Impact Assessment and Project Appraisal.

7.2 The mobility sector

On a structural level the transport sector can be understood as a technological system of both public and private institutions and organisations responsible for providing mobility and accessibility[150]. On this level, gendered participation in and influence on decision-making, planning and policy is of interest, as are the gendered aspects of representation, recruitment, promotion, and work culture within the transport sector[151]. To emphasise the importance of accessibility and everyday modes of moving from A to B, including walking, the technological connotations of the sector headline are extended with the concept of 'mobility'. This definition of the transport and mobility sector incorporates a wide range of actors and stakeholders including politicians, planners, employees, and users. The latter both including public transportation users, car drivers, bike riders, users of new mobility solutions, pedestrians, etc. This section will, however, focus less on the gendered representation among business leaders in the sector as well as on the level of design and production of vehicles. This is due to a lack of identified relevant studies in the Nordic context.

According to European Environment Agency around 71 % of the transport-related greenhouse gas emissions are from road transport.[152] On that basis and for the sake of the scope of this project, we limit our focus on motorised and non-motorised land-based mobility patterns, however with minimal focus on railway-mobility. It must be noticed that as boat and ferry transport are not included, specific challenges of some regions and groups in the population are not being considered and should be addressed in future studies.

7.2.1 Towards decarbonisation of the mobility and transport sector

The Nordic countries are dominated by carbon-intensive fossil-based forms of transport and the fact that demand for transport is expected to continue to grow in the coming decades means that decarbonising transport one of the biggest energy challenges in the Nordic region[153]. In the OECD Transport Climate Action Directory's online database, electrification and low emission fuel vehicles, demand management and shift of transportation mode and transport system planning, innovation, and design improvement are the key measures for decarbonising the sector on a national and urban scale;[154]. Transport system planning includes the promotion of public transport and enhancement of the walking and cycling infrastructure as well as research and development of concepts such as bike-, car- and ride-share and on-

150. Christensen, H. R., Poulsen, H., Oldrup, H. H., Malthesen, T. Breengaard, M. H., & Holmen, M. (2007). Transgen. Gender Mainstreaming European Transport Research and Policies.
151. Christensen, H. R., Poulsen, H., Oldrup, H. H., Malthesen, T. Breengaard, M. H., & Holmen, M. (2007). Transgen. Gender Mainstreaming European Transport Research and Policies.
152. European Environment Agency (2020). Greenhouse gas emissions from transport in the EU.
153. Langeland, O., Andersson, M., Julsrud, T. E., Sarasini, S. Schnurr, M., & Tongur, S. (2019). Decarbonising the Nordic transport system: A TIS analysis of transport innovations.
154. The Transport Climate Action Directory is a project of the Decarbonising Transport initiative, a partnership of more than 70 governments, organisations, institutions, foundations and companies under the auspices of the International Transport Forum. The project is anchored within the ITF Corporate Partnership Board. https://www.itf-oecd.org/tcad

demand public transport[155]. In the box 5 presents an overview of the Nordic transport-specific climate change policies.

BOX 5: The sector specific decarbonisation policies of the Nordics

The climate policy actions within the transport and mobility sector in **Denmark** mainly focuses on the green transition of road transport and cars. The Danish government states that sustainable development in the Danish transport sector will be measured using the following indicators: the energy efficiency of new cars and trucks, the share of green cars, the number of public available charging stations, and the share of renewable fuel.

In **Finland**, decarbonisation efforts in the sector focus on road transport, where fossil fuels are to be replaced with renewable and low emission fuels and power sources. The plan includes improving the energy efficiency of vehicles, developing of the sharing sector, and promoting walking, cycling, and public transport in urban areas.

In **Iceland**, decarbonisation of the transport sector is measured using the following indicators: the average number of cars per household, the share of renewable fuels in land transport, the share of environmentally friendly vehicles in new registrations – car rental companies inclusive, the percentage of people using public transport, the percentage of people who walk or use bikes, scooters and electric bikes when travelling, and the number of imported bikes – and electric bikes.

The goal of the **Norwegian** plan for the transport sector is to reduce emissions by 50 % by 2030. The government will increase the taxes on emissions of greenhouse gases and implement incentives for phasing in zero-emission vehicles, using both public procurement and regulation. The plan includes the goal of zero growth in passenger transport by car, which will be achieved through the investment in and development of an efficient and attractive public transport service that makes it easier to cycle and walk.

In **Sweden**, the transport sector must reduce emissions by at least 70% compared to 2010 by 2030 the latest. The goal will be achieved through increasing transport efficiency, electrification and by moving from fossil fuels to renewable fuels and energy efficient vehicles.

Source: Danish Ministry of Climate, Energy- and Supply (2020): "Klimahandlingsplan 2020"; Finnish Ministry of Environment (2017): "Government Report on Medium-term Climate Change Policy Plan for 2030"; Icelandic Government (2020)" Climate Action Plan"; Swedish Government (2019). "En samlad politik för klimatet – klimatpolitisk handlingsplan"; Norwegian Government (2020). "Klimaplan for 2021-2030."

155. Find more recommendations for policy tools for decarbonization of transport in the International Transport Forum's "Transport Climate Action Directory".

7.2.2 Gender mainstreaming in the mobility and transport related climate policy

"It is not about collecting more data per se here [in Norway but more about how the existing data is being explored and utilised – what is coming out of it? – and how can you integrate the analyses with policy making!"
(Tanu Priya Uteng, Ph.D. at the Norwegian Centre for Transport Research)

Lack of data and knowledge is not a determining problem for gender mainstreaming the policies of decarbonisation of the Nordic mobility sector. Several resources within the area of gender and green mobility are available, and researchers within the field express that they have been consulted in relation to the development of sector specific climate policies in the Nordic countries. However, researchers still point to the need for continuous and differentiated data on gendered and sustainable mobility practices including knowledge on how principles of gender equality and sustainability can be translated into planning procedures. As it is now, the data and insights at hand do not seem to have been translated into fully gender mainstreamed sector plans.

"Climate policy making is getting a lot of focus in Norway, and of course at the municipal level in the capital city of Oslo, but when you really start digging down in the climate policy documents, what you see is that gender disaggregated analyses are not really mentioned or taken up. Travel patterns are considered gender neutral and the same for everyone – which is not the reality."
(Tanu Priya Uteng, Ph.D. at the Norwegian Centre for Transport Research).

Researchers agree that gender mainstreaming with an isolated focus on gender will fail to integrate essential social concerns that cannot be separated from the gender equality agenda. An intersectional view that considers all the factors that influence mobility patterns and needs is crucial:

"There is a need to look into every specific mobility policy and do a gender analysis, mainstreaming and assessment of the effects and benefits on different social groups – not just gender – but income level, age, class, education, disabilities etc."
(Michala Hvidt Breengaard, Postdoc at the University of Copenhagen)

In February 2021 the OECD International Transport Forum published "Transport Innovation for Sustainable Development – A Gender Perspective", which presents political initiatives promoting gender equality in transport sector innovation, with the purpose of steering the sector towards inclusive and sustainable mobility.

The literature review and focus group sessions conducted for this project also point to the need to address decarbonisation of mobility from a gender mainstreaming perspective. Gender-segregated data are key to increasing the understanding of gendered mobility patterns and designing transport solutions with women's needs in mind. Both quantitative data and qualitative, deeper, and more differentiated knowledge on mobility is required in order to properly meet peoples' actual needs in a sustainable matter[156].

156. Interview 3

Box 6: Research project within the intersection of gender, mobility, and the green transition

In a Nordic context, environment, transport, and gender, have been linked in research projects such as Gendering Smart Mobilities in the Nordic Region, Gender Mainstreaming European Transport Research and Policy (TRANSGEN) and TInnGO.

Gendering Smart Mobilities in the Nordic Region points out that the intersection of transport, gender and sustainability is both a vital and neglected issue in research and within policy. The overall objective of the project is to contribute to a new Nordic model in transport, mobility, and gender equality. *TRANSGEN* aims at developing gender mainstreaming in transport while making transport more sustainable. *TInnGO* aims at creating a route to gender sensitive smart mobility.

Box 7: Gender considerations in the Swedish climate action plan for land transport

In a brief scanning of the sector-specific climate action plans across the five Nordic countries, we only find one clear example of gender mainstreaming of land transport. In the Swedish climate action plan, gender considerations are mentioned in relation to transport. It is stated that the transport system must be respond equally to the transport needs of women and men respectively (Swedish Government 2019, p. 112). Objections have been raised over the regulation of travel deductions, as they favor metropolitan areas and business travelers by car compared to other means of transport, and that they benefit men over women (Swedish Government 2019, p. 131 and 195).

7.2.3 Descriptive representation in the mobility and transport sector

According to the OECD's International Transport Forums (ITF)[157] recent numbers, women count for only 17% of the employees in transport-related industries across a sample of 46 countries[158]. While the ITF provides vast amounts of international of resources and data on gender representation in transport[159], we find that the Nordic sector of transport and mobility is to be only sparsely covered when it comes to representation in policy decision-making.

The HORIZON 2020 TInnGO projects' key element of the observatory for policymakers, scholars and citizens consists of e.g., a Scandinavian Hub[160] as well as a data repository, which provides recent data on the gender distribution among

157. ITF is an intergovernmental organisation with 62 member countries. It acts as a think tank for transport policy and organises the Annual Summit of transport ministers. ITF is the only global body that covers all transport modes. The ITF is politically autonomous and administratively integrated with the OECD.
158. Ng, W. S., & Acker, A. (2020). The Gender Dimension of the Transport Workforce.
159. Ng, W. S., & Acker, A. (2020). The Gender Dimension of the Transport Workforce.
160. The Scandinavian Hub. https://transportgenderobservatory.eu/national-hubs/scandinavian-hub/

transport ministers in EU. Data shows in the period from 1945 to 2019 3 out of 46 transport ministers in Denmark has been women. In Sweden the number is 6 out of 24[161].

A study from 2014 on gender equality in climate policy making in the Scandinavian countries concludes that the only units among those involved in climate policy making that were *not* gender-balanced were the Scandinavian transport administrations[162]:

- Danish Transport Administration consisted of 66 % male officials
- The Norwegian Transnova consisted of 70 % male officials
- The Swedish Transport Agency consisted of 74 % of male officials (numbers from 2012)

These numbers resonate with data from 2012 from the *European Institute for Gender Equality* (*EIGE*), which indicates that the transport sector is among the EU economy's most male-dominated sectors with women occupying only 22% of jobs[163].

The TRANSGEN-project of 2007, which provided sex-disaggregated data on representation in the Swedish, Finnish, and Danish transport sector, concluded that, with the exception of Sweden, transport is a male-dominated field when it comes to political representation[164]. In the Danish parliament for example, only 11.8% of the members in the transport committees were women compared to the 36.9% women in the Danish parliament. The numbers in the Danish regions showed a similar pattern[165].

"We need to ask; Where and how are women placed in the sector? Are they making decisions and how are finances being allocated? That kind of hierarchy matters." (Tanu Priya Uteng, Ph.D. at the Norwegian Centre for Transport Research)

Our search for data on the representation in the Nordic transport and mobility sector points to mainly two types of information missing: 1) continuously updated and further systematically collected data across all five countries and 2) data on the gendered representation across all levels of the sector in the Nordic countries; from national to regional and municipal level as well as within employment and finance and investment.

"Men with a background in the engineering profession control decisions on transport infrastructure investments and men dominate the transport sectors in the labour force, the educational system and in management for Sweden."[166]

161. Christensen, H. R. (2021). Gender distribution of Transport ministers in Europe 1945–2019.
162. Magnusdottir, G. L., & Kronsell, A. (2014). The (In)Visibility of Gender in Scandinavian Climate Policy-Making.
163. EIGE (2012). EIGE Annual Report 2012.
164. Christensen, H. R. et al. (2007). Transgen. Gender Mainstreaming European Transport Research and Policies.
165. Christensen, H. R. et al. (2007). Transgen. Gender Mainstreaming European Transport Research and Policies.
166. Magnusdottir, G. L., & Kronsell, A. (2014). The (In)Visibility of Gender in Scandinavian Climate Policy-Making.

7.2.4 Gendered cultural patterns in the mobility and transport sector

"Power, masculinity and freedom influence how we transport ourselves and how we drive – macho transportation patterns are still quite dominant."
(Petter Næss, Professor at the Norwegian University of Life Sciences)

The gender imbalanced transport sector may be both an effect of and explanation for transport issues being masculine coded[167]. Several studies describe the transport sector as a workspace dominated by masculine values, norms, and practices[168]. Studies at both Nordic and European levels have identified how transport and mobility produce and reflect notions of men and masculinity as being linked with speed, competition, and mobility – especially in relation to the private car – while women and femininity are associated with household, care, and family[169]. These norms are powerful structures and have given rise to the male commuter as the denominator of transport planning, while female modes of mobility have been marginalised (Interview 3).

"Women drive less and use more public transportation – that has been known since the 1970's. We know all that!" (Tiina Männistö-Funk, Research Fellow at University of Turku)

It is important that sex-disaggregated data on transport addresses the representation of men/women among transport modes (passengers, cyclists, walkers, drivers etc.), as well as the trip purpose.

Female mobility is characterised by walking and the use of public transport – especially busses, whereas men are drive significantly more than women. Men make up the majority of cyclists in at least three out of the five Nordic countries (see figure 8). However, in countries with safe cycling infrastructure, e.g. Denmark, there are more female cyclists than male (see figure 8)[170]. According to The Cycling Embassy of Denmark female cyclists count for 53%[171] of journeys.

Box 8: Gendered fear in relation with transport

The general research shows that women, to a greater extent than men, feel uncomfortable walking to and from and waiting at public transport in the evening/at night. Fear of harassment and assaults also mean that women worry more than men about which routes to take and what time they travel and, because of the gender pay gap, also don't have the same resources available for transport and mobility. *Source: Ramboll (2021) Gender and (Smart) Mobility – Green Paper 2021.*

167. Polk, M. (2009). Gendering Climate Change through the Transport Sector.
168. Christensen, H. R. et al. (2007). Transgen. Gender Mainstreaming European Transport Research and Policies.
169. See for instance: Næss, P. (2008). "Gendered Differences in the Influences of Urban Structure on Daily Travel" in *Gendered Mobilities*, pp. 173-193.
170. Rambøll (2021). Social Equity in the Decarbonisation of the European Built Environment.
171. Cycling Embassy of Denmark. https://cyclingsolutions.info/embassy/danish-cycling-statistics/

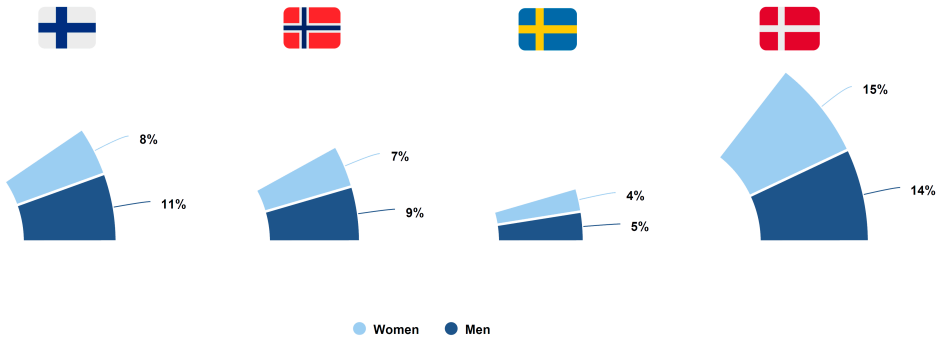

Figure 8. Share of women and men cycling in Finland, Norway, Sweden and Denmark. Figure taken from Rambøll's publication "Green Paper 2021: Gender and (Smart) Mobility."

The Danish bus agency Movia informs that 57% of the bus passengers in Copenhagen are women and data from the national Danish travel card" Rejsekortet", which is used for all public transport, show that 57% of all card holders are women. Data from Rejsekortet also show that women in Copenhagen to a greater extent than men check in with children, dogs, and other adults. This example points to the difference in trip patterns, that seem to cut across modes of mobility in varying but notable ways. In general women take multiple shorter trips and are more often travelling with groceries or kids (Interview 3).

"Women tend to have more multi-purpose travel patterns"
(Michala Hvidt Breengaard, Postdoc at the University of Copenhagen)

The gender differences in choice of transport mode are linked to a number of structural gendered inequalities e.g., the gender power gap, the gender segregated occupation, the gender pay gap as well as the gaps of unpaid care work and parental leave[172] [173]. These structures are affected by and reinforced through the aforementioned tendency to design and plan transport with the male example – and the private car – as the gender "neutral" end user.

"In the 50s and 60s female pedestrians were the largest group in the streets, but the transport system was structured in a way that totally ignored this group of people. We live with the impact of that today (...) and actually the same development goes on when it comes to ignoring the female mobility models in a way that is harmful."
(Tiina Männistö-Funk, Research Fellow at University of Turku)

172. Polk, M. (2004). Gender Mainstreaming in Transport Policy in Sweden. *Kvinder, Køn & Forskning*; Næss, Peter (2008). "Gendered Differences in the Influences of Urban Structure on Daily Travel" In *Gendered Mobilities*, pp. 173-193
173. Næss, P. (2008). Gendered Differences in the Influences of Urban Structure on Daily Travel. *Gendered Mobilities*, pp. 173-193

7.2.5 How gender impacts the decarbonisation of the mobility and transport sector

"We don't get anywhere if we don't change the gender-neutral view of the user. All policy and planning that you work with at the moment has this view of the standard user as the already privileged in terms of mobility – and therefore we will continue to create these differences and imbalances in planning a future green sector."
(Michala Hvidt Breengaard, Postdoc at the University of Copenhagen)

As described in the paragraph above, the overriding masculine norms of the mobility sector has direct influence on the way the mobility of today and tomorrow are prioritised and planned. Researchers are observing that the decarbonisation policies and green transition of the sector to a large extent repeats the same trajectory of the past i.e., privileging masculine mobility modes with the private car at the centre of attention. Researchers also warn how a one-sided version of the gender equality agenda can threaten both social and environmental sustainability, if liberation of women means adopting the same privileges and practices as men (Interview 3).

"It is important to combine the gender equality feminist agenda with the environmental sustainably agenda, so we don't run into this liberal feminist approach where women must catch up with all the males' bad behaviour in environmental sense, which seems to have taken place within travel modes. We see more women driving now"
(Petter Næss, Professor at the Norwegian University of Life Sciences)

As described in the paragraph on mobility patterns, women to a greater extent than men travel by sustainable modes i.e., public transport, walking etc. According to a recent study conducted by the European Commission, women not only practice low-carbon patterns of mobility, but they also have a greener attitude towards mobility. Compared to men, women are more willing to limit their car use, more supportive towards environmental issues and more positive towards car-use reduction measures[174]. For example, women in Stockholm, Copenhagen, Oslo, and Helsinki to a larger degree consider cars as a problem in relation to climate change, in comparison with men[175].

Clear evidence of how gender representation and the culture within the sector affects climate change policies across the Nordic countries is the notable priority afforded to cars, electrification, and road infrastructure at the expense of public transport and walking (focus group).

The masculine norms and male perspectives informing the culture of mobility needs to be challenged if we are to reach our climate goals. If the modes of mobility more favoured by women were at the top of the hierarchy when prioritising in policy and planning, more investment would have been put into solving some of the challenges for walking identified in box 10 (Interview 3).

174. European Commission (2019). Women in European Transport with a focus on Research and Innovation.
175. Rambøll (2021). Social Equity in the Decarbonisation of the European Built Environment.

BOX 9: Gender-equal snow-clearing in Sweden

Some years ago, the Swedish Gender Equality Initiative Team made an analysis of Sweden's snow-clearance practices that showed that it disadvantaged women, who were more likely to walk, bike or take the bus, while employment districts where men predominantly work were more likely to have streets plowed first. Therefore, they launched an initiative called "Gender-equal snow-clearing" focusing on the need for clearing sidewalks, cycle-paths, and bus lanes before the car roads.

"*Not only was the impact of snow clearance priorities discriminatory, there were negative consequences for society as a whole. Three times as many people are injured while walking in icy conditions in Sweden than while driving. And the cost of those injuries far exceeds the cost of snow clearance. So the order was reversed. Municipalities faced no additional cost for clearing pedestrian paths first. And it reduced injuries, in addition to being objectively fairer.*"

Source: Sveriges Radio (2018). Gender-equal snow-clearing to benefit cyclists and pedestrians. https://sverigesradio.se/artikel/6864241

7.2.6 How decarbonisation of the mobility and transport sector impacts gender

"It seems to be a Nordic feature that there tends to be a lot of focus on electrification of cars, and we know from our transport research who is keener to own cars – from that we can see that there is a tendency that [this focus] includes and benefits more men than women"
(Annica Kronsell, Professor at the University of Gothenburg)

Focusing on and prioritising the transition from fuelled cars to electric cars entails several gendered effects. First, the aforementioned car-centric and masculine structures defining the priorities, planning and practices of the sector are maintained. This implies that investment and innovation will be channelled into the infrastructure around electric cars, while less attention will be afforded to the promotion of walking, public transport and cycling (Interview 3). Secondly, the focus on the electric car in respective Nordic countries transport policy tends to favour those who can afford an electric car – the already privileged people in society – often the well-off men (Interview 3). As one researcher point out, some men might even acquire the electric car as their second or third car, which allows them to drive in the bus transit lanes in Oslo. This also implies a gender issue:

"Those who are mostly hit by congestion and accidents are women, who are less likely to be car drivers and more likely to sit in the buses that are delayed because of the electric cars in these same lanes."
(Petter Næss, Professor at the Norwegian University of Life Sciences)

Researchers argue that climate policies within the mobility sector prioritise technical

innovations, efficiency, and electrification at the expense of social concerns, alternatives to (electrified) cars, and considerations around the distributional effects of the decarbonisation strategies. Our focus groups with Nordic researchers identified the framing of green mobility as a question of technical innovation as a key challenge in relation to funding and investment of non-motorised modes of mobility i.e., walking and cycling. Even though improving cycling and walking safety is a lot less resource intense than e.g., innovation for electrifying goods transport, it tends to be under-prioritised (Interview 3).

Initiatives aimed at expanding and improving the network of bike lanes can, however, also carry on masculine and male norms of mobility in the way they are planned and built.

"In Oslo they build very high standard two-lane bike paths, that invite very high speed. This might be in conflict with facilitating cyclists with a bag on their handlebar and who have children on their bike, compared to those who are cycling very fast – those having a little daily competition every morning on who can cycle the fastest"
(Petter Næss, Professor at the Norwegian University of Life Sciences)

In the case of sustainable services, for example shared bike solutions, as well as other new mobility services (ride sharing, car sharing, e-scooters etc), the data also points to notable gendered differences. They are, to a great extent, used more by men than women[176]. An explanation could be found when looking closer at how these services resonate – or fail to resonate – with the general needs and preferences of women.

"It is primarily men who are using bikes for last mile solutions, whereas women want to rent it for a longer period – at least two hours, as they tend to use it to run a number of different errands and trips, popularly known as trip-chaining. But in Oslo the renting scheme does not support women's priorities and patterns of mobility. You can rent a bike for 45 minutes only." (Tanu Priya Uteng, Ph.D. at the Norwegian Centre for Transport Research)

Finally, data shows that more women than men experience the sustainable concept of ride sharing as less safe – both in terms of "Corona" and in terms of "Personal safety (harassment, assault)". For instance, in Stockholm 150 % more women than men identify personal safety as a challenge and concern in relation to ride sharing, while in Copenhagen 160% more women than men identify this as a challenge and concern. As mentioned earlier, general research points to the fear of harassment and assaults in relation to both walking and public transport as an issue that affect women more than men. This issue should be further explored across the Nordic countries – in both urban and rural areas[177].

176. Uteng, T. P., Christensen, H. R., & Levin, L. (2020). Gendering Smart Mobilities.
177. Rambøll (2021). Social Equity in the Decarbonisation of the European Built Environment.

7.2.7 Conclusions: What do we know, what can we measure, and where do we lack information?

When it comes to gender mainstreaming the climate policies of the transport sector, the established research field on gender and green mobility in the Nordics deliver a solid knowledge basis.

However, more disaggregated data and analysis – both quantitative and qualitative – still needs to be both generated and reported systemically to build a more reliable foundation for developing the sector in a social sustainable direction.

In terms of the gendered patterns of mobility use, some quantitative disaggregated data is available and collected by organisations and companies offering mobility services. Following the recommendations of ITF, this study also highlights the importance of continuously collecting and sharing gender-disaggregating user data.

The following areas would benefit from improved data availability:

- Updated and routinely collected gender disaggregated data on the descriptive representation of women at the decision-making level in national, regional, and municipal authorities as well as within organisations and companies in the sector.
- Gender disaggregated data and analysis on the gendered employment in the Nordic transport sector – combined with income, age, location etc. Including an analysis and assessment of the quality of the jobs in green mobility and the employee groups they attract.
- Analysis on whether and how increased diversity in transport and mobility workplaces and decision-making effects performance, quality of workplaces and sustainability outcomes.
- Gender disaggregated in-depth analysis of the experience – and related challenges and drivers - of sustainable mobility modes such as walking, biking, using public transport, bike- and ride sharing etc.
- Further gender analysis of how the innovations and new technologies in the sector are expected to impact gender – in combination with other intersecting factors.

Key areas where gender impacts must be better understood through more research in a Nordic context are listed below. An intersectional and holistic approach to research and data collection are recommended as way to bridge the knowledge gap.

- Research on how to transform the male-dominated and masculinised norms and practices of the transport sector, including research on how to foster female representation – both descriptive and substantive – in decision-making jobs of the sector of transport.
- Research uncovering the gendered and intersectional impacts of the Nordic mitigation policies within other areas of the mobility sector aside from land transport (aircraft, ferry traffic, goods transport etc)
- Research on how climate change and transport mitigation policies and associated infrastructural projects impact the mobility, accessibility, livelihoods, and everyday lives of various social groups in both urban and rural areas in the Nordic countries, including marginalised groups such as the Sámi people.
- More knowledge and guidance on how to secure actual gender mainstreaming in the sector in terms of integration and implementation.

- As the Swedish climate action plan carries evidence of a gender concern being raised, it could be of value to follow the integration of this concern in future amendments to the plan and associated policies. Researchers indicate the need for a procedure for integrating social sustainable considerations and demands into both the actual policy documents as well as the implementation and concrete transport planning tools and use models.

Box 10: Gendered challenges for walking

Copenhagen: 175% more women than men identify "Traveling with groceries and bags" as a challenge for walking.

Stockholm: 144% more women than men identify "Personal safety (harassment, assault) as a challenge and concern for walking.

Helsinki: 122% more women than men identify "Personal safety (harassment, assault)", 67% more women than men identify "Traveling with groceries and bags as a challenge", and 36% more women than men identify "Travel time" as a challenge.

Oslo: 55% more women than men identify "Traveling with groceries and bags" as a challenge.

Source: Rambøll 2021

7.3 The agriculture and food sector[178]

The value chain in the agriculture and food sector ranges from production, to processing and distribution to the world market, to the consumption of food and disposal of food loss and food waste[179]. The manufacturing, processing, retailing, packaging, and transportation of food make a major contribution to air, soil and water pollution and greenhouse gas emissions[180]. This report will primarily focus on agriculture, food production and food consumption. This is due to the lack of identified relevant studies on the interlinkage between gender (equality) and food provision and -logistics in a Nordic context.

The EU is the biggest importer and exporter of agri-food products and the largest seafood market in the world. in the Nordic countries, the agriculture and food sector is often family driven, with land transferred from father to son. Women most commonly enter and engage in farming through marriage rather than through occupational choice[181]. This means that women and men are very unequally represented in the agriculture and farming sector. According to the EU Gender Equality Index (2019)[182] only 8% of danish farmers are female, 12% of Finnish farmers and 16% of Swedish farmers[183]. Norwegian data from 2014 indicate that the distribution is similar – 14% of Norwegian farmers are women[184].

178. Due to the scope of the project, the sector of agriculture and food includes, in this study, farming and agri-food, and not forestry and fishery.
179. European Commission (2020). Farm to Fork Strategy – for a fair, healthy and environmentally-friendly food system.
180. European Commission (2020). Farm to Fork Strategy – for a fair, healthy and environmentally-friendly food system.
181. Bock, B. B., & Shorthall, S. (2006). Rural Gender Relations – Issues and Case Studies.
182. It has not been possible to identify the proportion of female farmers in Iceland.
183. European Gender Equality Index (EIGE) (2019).
184. Heggem, R. (2014). Exclusion and Inclusion of Women in Norwegian agriculture: Exploring different outcomes

7.3.1 Towards decarbonisation of the agriculture and food sector

The agricultural sector is currently responsible for 10.3% of EU greenhouse gases[185] and 11% of global greenhouse gas emissions[186]. Reducing emissions in the agricultural sector is thus crucial in achieving a green transition.

The EU[187] strategy, "Farm to Fork strategy – for a fair, healthy and environmentally-friendly food system" aims to accelerate EU's transition to a sustainable food system that should:

- Have a neutral or positive environmental impact;
- Help to mitigate climate change and adapt to its impacts;
- Ensure sustainable food production;
- Stimulate sustainable food processing;
- Promote sustainable food consumption;
- Reduce food loss and waste.

The strategy includes 27 concrete actions to transform the EU's food system by 2030, including[188]:

- A reduction by 50% of the use and risk of pesticides
- A reduction by at least 20% of the use of fertilizers – including animal manure
- A reduction by 50% in sales of antimicrobials used for farmed animals and aquaculture
- Reaching 25% of agricultural land under organic farming: current only 8% of agricultural land is organically farmed[189].

The Fark to Fork strategy is generally more concerned with environmental issues than climate issues, and compared to other sectors, there is a greater emphasis on the consumers as important decision-makers rather than on policy tools.

All the Nordic countries have included agriculture as a target sector in their Climate Action Plans. The actions for the decarbonisation of the sector includes using existing instruments (e.g., afforestation) and investments in 'green research' and new technologies in the field of agriculture[190]. In recent years, the Nordic countries have begun to integrate an increased focus on an increased focus on food consumption patterns including plant-based food in climate policy[191] [192] [193]. Due to the production intensity of different foods of animal origin, eating more plant-based food plays a crucial role in the green transition of the agriculture and food sector (see figure 9)[194].

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of the 'tractor gene'.

185. Food and Agriculture Organization of the United Nations (2020). European Union's Farm to Fork Strategy – for a fair, healthy and environmentally-friendly food system.
186. Arcipowska, A. Mangan, E. Lyu, Y., & Waite, R. (2019). 5 Questions About Agricultural Emissions, Answered.
187. Obs. Norway is not a part of the EU
188. Food and Agriculture Organization of the United Nations (2020). European Union's Farm to Fork Strategy – for a fair, healthy and environmentally-friendly food system.
189. In addition to Common Agricultural policy (CAP) measures, such as eco-schemes, investments and advisory services, and the Common Fisheries Policy (CFP) measures, the Commission will put forward an Action Plan on organic farming (European Commission (2020): Questions and Answers: Farm to Fork Strategy – building a healthy and fully sustainable food system).
190. United States Department of Agriculture (2021). Government Introduces Climate Action Plan for Agriculture (Denmark).
191. Ministry of Agriculture and Forestry of Finland (2014). Climate Programme for Finnish Agriculture – Steps towards Climate Friendly Food
192. The Danish Government (2021). Regeringen viser vejen til 7,1 mio. Tons CO_{2e}-reduktioner I 2030.
193. UNFCCC (2020). Norway's long-term low-emission strategy for 2050
194. Meier, T., & Christen, O. (2012). Gender as a factor in environmental assessment of the consumption of animal and plant-based foods in Germany.

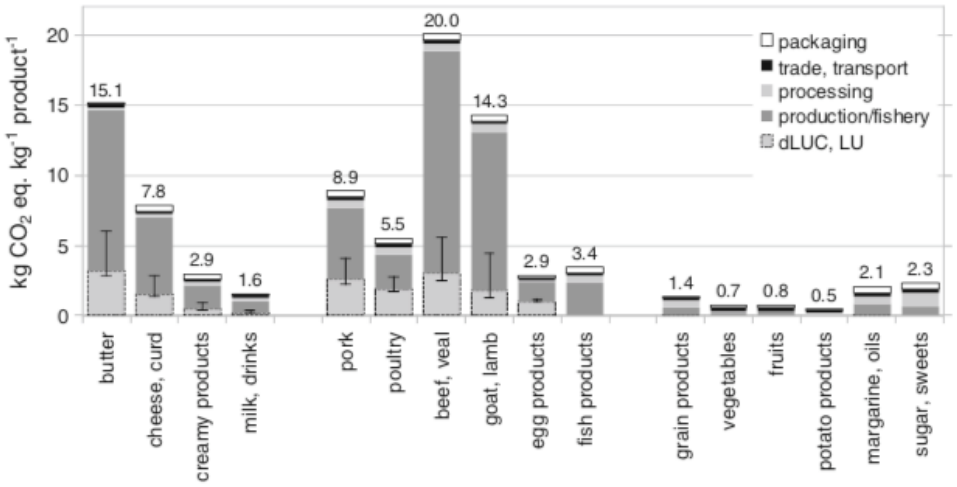

Figure 9: CO_2 eq. emissions in kg per kg consumed product[195]

Minimising food waste is a key focus within the climate change policy[196] [197] [198] [199]. Methods for minimising food waste employed in the Nordic region include:

- Legislation, including:
  - Food labelling requirements
  - Temperature control
- Development of monitoring methods
- Collaboration between the various players in the food supply chain
- Changes in consumer behaviour
- Investigation, research, and innovation.

7.3.2 Gender mainstreaming in the agriculture and food related climate action plans

A 2020 study of women farmers in developed countries finds that gender mainstreaming has not been sufficiently implemented in EU agricultural policy to "*promote transformation in gender relations such as addressing gender equality in agricultural markets or land ownership.*"[200] Women still run smaller farms and make less farm income than their male counterparts. They also tend to produce different products and value profitability less than male farmers[201].

Gender considerations and gender mainstreaming are not a significant feature of the EU's strategy for the agriculture and food sector "the Farm to Fork Strategy", nor in the national plans to accelerate the green transition. The Danish proposal for

195. Meier, T., & Christen, O. (2012). Gender as a factor in environmental assessment of the consumption of animal and plant-based foods in Germany.
196. Iceland's Ministry for the Environment and Natural Resources (2018). Iceland's Climate Action Plan for 2018–2030 – Summary
197. The Finnish Government (2018). Food waste reduction by developing legislation
198. Danish Ministry of Climate, Energy and Utilities (2019). Denmark's Integrated National Energy and Climate Plan
199. Livsmedelverket, Jordbruksverket & Naturvårdsverket (2018). Action plan for food loss and food waste reduction by 2030 – SUMMARY
200. Ball, J. A. (2020). Women farmers in developed countries: a literature review.
201. Ball, J. A. (2020). Women farmers in developed countries: a literature review.

green transition of agriculture[202] and the chapter of "Denmark's Recovery and Resilience Plan – accelerating the green transition" that addresses the green transition of agriculture and environment in are silent regarding gender. However, the proposal for green transition of agriculture includes an illustration with both stereotypical male and stereotypical female farmers. (see figure 10)[203]: in this instance the difference is cosmetic – both images refer to a generic 'farmer'.

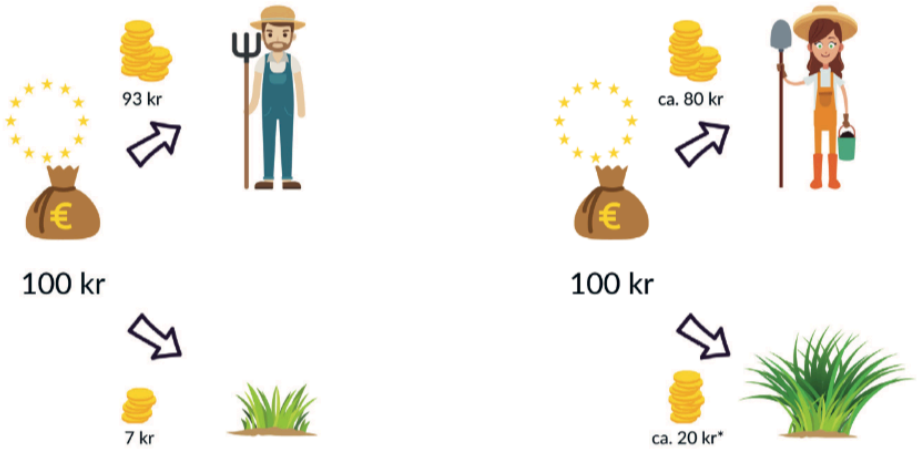

Figure 10: Farmers portrayed in the Danish government's proposal for green transition of agriculture[204]

The Farm to Fork Strategy mentions "gender" only once; in relation to how the EU will support the global transition to sustainable agri-food systems in "different parts of the world" e.g., countries in Africa. However, the Strategy aims to ensure that "*all citizens and operators across value chains, in the EU and elsewhere, should benefit from a* ***just transition*** *(…).*" The Commission will incorporate the Strategy's priorities in the programming guidance for with third world cooperation, based on transversal objectivities such as "human rights, gender, and peace and security"[205]. Thus, gender issues only seem to be of importance in third world countries. The strategy mentions a "fair" and "equitable" food-system where "everyone has access to sufficient food", but this only seems related to the consumption of food and not the production, processing, or distribution[206].

The "Farm to Fork Strategy" outlines the links between "healthy people, healthy societies and a healthy planet" and the fact that all citizens should benefit from a just transition[207], but the interlinkage between gender (equality) and the green transition of the agriculture and food sector is not present in the explored climate policies related to this sector.

202. The Danish Government (2021). Regeringen viser vejen til 7,1 mio. Tons CO_{2e}-reduktioner i 2030.
203. The Danish Government (2021). Regeringen viser vejen til 7,1 mio. Tons CO_{2e}-reduktioner i 2030.
204. The Danish Government (2021). Regeringen viser vejen til 7,1 mio. Tons CO_{2e}-reduktioner i 2030.
205. European Commission (2020). Farm to Fork Strategy – for a fair, healthy and environmentally-friendly food system.
206. European Commission (2020). Farm to Fork Strategy – for a fair, healthy and environmentally-friendly food system.
207. European Commission (2020). Farm to Fork Strategy – for a fair, healthy and environmentally-friendly food system.

7.3.3 Gendered culture and participation in the agriculture and food sector

As earlier stated, women and men are unequally represented in the agriculture sector, where only between 8–16% farmers in Denmark, Finland, Sweden, and Norway are women[208] [209] [210]. In Iceland, 27% of farmers are women[211].

In addition to the familial nature of agriculture in the Nordic countries, factors this gender disparity include (Interview 4):

- The gendered working conditions at the workspace (e.g., bathroom and showers that aren't suited for women workers),
- The gendered language and culture at workplaces in the agriculture and food sector, and
- The contemporary views on farming, where the occupation is seen and portrayed as first and foremost masculine in media, campaigns, everyday speech.

"*We have a large potential for recruiting more women for agriculture. What it will take is creating attractive workspaces for both genders. For there can be cultural things where conversations don't take care for what both women and men would like to talk about.*" (Benedicte Dahlberg, Agriculture & Food Agency in Denmark)

Women tend to be underrepresented in agricultural education due to gender stereotypes, notions about what constitutes an authentic farmer, and incorrect assumptions regarding what types of education are useful to women farmers[212]. Furthermore, one study indicates that the debates, content, and culture of recent rural policy reflect highly masculine values and the maintenance of traditional power relations[213]. These policies promote and value male styles of management and networks and devalues community participation[214].

The view of the agriculture sector as masculine has meant that women's role in agriculture is seen as more complementary[215]. Statistics on the participation of men and women in daily farm work have often been criticised for underestimating women's and overestimating men's farm work because they use 'masculine' definitions of farm work. Many tasks undertaken by women are understood in employment statistics as household labour and not 'farm work'. By defining women on farms as 'assistant', 'wife' and 'homemaker' renders their involvement in farm work invisible, even though women's farm work is often essential to the farm business[216]. For example, women often take on a variety of roles, including as a guide for tourists visiting the farms, cooking food for everyone at the farm, or taking care of the animals at the farm (Interview 1).

Arguments referring to the differences in physical ability in terms of body size and

208. Bock, B. B., & Shorthall, S. (2017). Gender and Rural Globalization: International Perspectives on Gender and Rural Development.
209. Bock, B. B., & Shorthall, S. (2006). Rural Gender Relations – Issues and Case Studies.
210. We have not been able to identify the proportion of female famers in Iceland.
211. Though, statistics and registrations of female farmers need to be improved.
212. Ball, J. A. (2020): Women farmers in developed countries: a literature review.
213. Little, J., & Jones, O. (2000). Masculinity, Gender, and Rural Policy.
214. Little, J., & Jones, O. (2000). Masculinity, Gender, and Rural Policy.
215. Bock, B. B., & Shorthall, S. (2017). Gender and Rural Globalization: International Perspectives on Gender and Rural Development.
216. Bock, B. B., & Shorthall, S. (2006). Rural Gender Relations – Issues and Case Studies.

strength has often been used to justify the exclusion of women in the category of 'the farmer'. This argument first of all is a simplistic approach that ignores the fact that the body in its materiality is not only shaped – and gendered – by biology. It is also shaped through various social and cultural practices, e.g. the way we eat and move. Therefore, the disqualifying of women in physically demanding jobs is problematic. Secondly, it should be noted that the demand for muscle power in traditionally masculine jobs, in many cases is more of a prestige-maintaining cultural idea than an actual criterion. Furthermore, with increasing mechanisation, physical strength is less of a hindrance for women's involvement in farming (Interview 4). However, rather than supporting women participation in agriculture, mechanisation and technologies are predominantly designed by and for men[217], and as a result, the mechanisation of the agriculture sector often presents a further obstacle to women's entry into the sector.

Raising children within these gendered norms can reinforce barriers for women (and men) in farming. Lone Vitus, a Danish farmer, points to this factor during the focus group meeting with stakeholders from the agriculture and food sector:

"*In Denmark, there is a strong tradition of transferring a farm from father to son – even now in 2021. Agriculture is no longer physically hard and demanding since there is mechanisation to a degree that makes it possible to be a farmer regardless of gender. So why are boys still taking over the farms? Maybe these expectations are in the upbringing of children.*" (Lone Vitus, Danish organic farmer)

Madeleine Gustavsson, researcher at Ruralis in Norway, also points to the gendering of children at an early age as a factor in the underrepresentation of women in agriculture:

"*There is still this belief that boys grow up with a 'tractor-gene' – that they have a natural ability to deal with machines and things like this, whereas girls are more brought up to be around animals. Obviously, this is a cultural construction. It's definitely something that could help to explain why we see that women run fewer farms and own less land than men do.*" (Madeleine Gustavsson, Ruralis).

BOX 11: Female barriers in farming

Since agricultural land is most often transferred from men to other men (sons) in the family, and women (daughters) are not seen as potential future heirs of the farm, women face different barriers in farming e.g.:

- They have limited access to land, capital and credit and are therefore, on average, operating smaller enterprises with fewer resources.
- Women who grew up on farms rarely have had the same training in mechanical skills and production as their brothers or male relatives.
- Many women lack agricultural management experience (since they are not raised as future farmers).
- Agricultural networks and learning environments have been male-dominated and women often have trouble entering these spaces.

217. Sachs, C. E. et al. (2016). The Rise of Women Farmers and Sustainable Agriculture.

7.3.3.1 Attitudes, behaviour, and consumption patterns

Studies show that both food consumption and food waste differ across genders. Men generally have a larger intake of food and a larger intake of processed meat products (see Figure 11)[218]. This means that male diet-related GHG emissions are on average 44% higher than female diet-related GHG emissions.

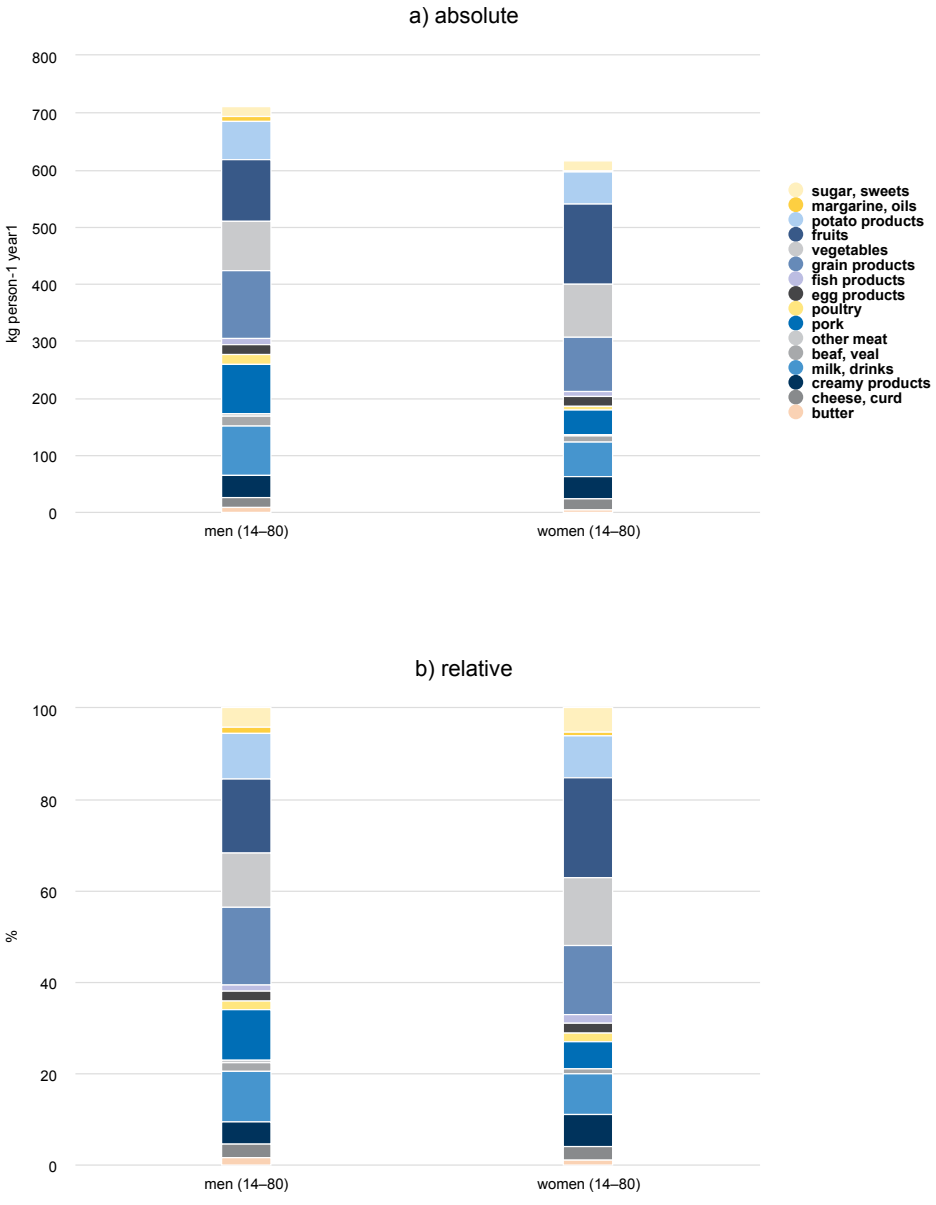

Figure 11: Consumption profiles according to gender: a) absolute, b) relative[219]

218. Meier, T., & Christen, O. (2012). Gender as a factor in environmental assessment of the consumption of animal and plant-based foods in Germany.
219. Meier, T., & Christen, O. (2012). Gender as a factor in environmental assessment of the consumption of animal and plant-based foods in Germany.

Older studies tend to find that women waste more food than men[220] [221] although Barr (2007) found that women are more likely to reduce food waste than men[222]. However, a newer study on the EU-27 countries from 2015 found that women waste less food than men[223], and a 2016 German study on the motivators and barriers of self-reported amounts of food waste also found that being a woman was significantly associated with less food waste[224]. According to one study, the main reasons that women give for avoiding food waste are environmentally friendly nutrition and that they want to be role-models in handling food. Neither reason has any significance for men, who were more concerned with the financial impacts of wasting food[225].

7.3.4 How gender impacts the decarbonisation of the agriculture and food sector

Studies find that women farmers are more highly represented in fast-growing agricultural markets such as organic, local and direct-to-market and less in conventional agricultural production[226] [227]. Further, women farmers are more likely than male farmers to use sustainable agricultural practices, and less likely than men farmers to use pesticides, chemical fertilizers, genetically modified seeds, and animal growth hormones[228].

But why are women farming differently? One explanation is that women are more concerned about the environmental quality on their farms and the quality and safety of the food they produce, and that women are more into nurturing work and "softer" forms of farming. Some researchers are concerned that making a positive connection between women and nature leads down the path of essentialism, where women's biology is their destiny, and where all women are seen as one homogenous group[229].

Another explanation of why women are farming differently is that economic and social struggles push them to be more environmentally sustainable in their farming practices. Agriculture, especially conventional large-scale agriculture, is a very capital-intensive sector to enter if you don't inherit the land and equipment. As they rarely inherit the family farm, women farmers must often start from scratch, with limited access to land, labour and capital, and they are thus less likely to be involved in large-scale industrial farming[230].

Small-scale farming is typically less mechanised that large-scale industrial farming. Nevertheless, women tend to be small scale farmers, which is typically requires a higher degree of physical labour. So despite the essentialist claims that women cannot manage hard physical work, women farmers are choosing this type of farming because it allows them to enter the farming industry without the large cost

220. Gallo, A. E. (1980). Consumer Food Waste in the U.S. Consumer Research
221. Buzby, J. C., & Guthrie, J. F. (2002). Plate Waste in School Nutrition Programs
222. Secondi, L., Principato, L., & Laureti, T. (2015). Household food waste behaviour in EU-27 countries: A multilevel analysis
223. Secondi, L., Principato, L., & Laureti, T. (2015). Household food waste behaviour in EU-27 countries: A multilevel analysis
224. Visschers, V. H. M., Wickli, N., & Siegrist, M. (2016). Sorting out food waste behaviour: A survey on the motivators and barriers of self-reported amounts of food waste in households
225. Richter, B. & Bokelmann, W. (2018). Waste Management
226. Ball, J. A. (2020). Women farmers in developed countries: a literature review
227. Bock, B. B., & Shorthall, S. (2006). Rural Gender Relations – Issues and Case Studies.
228. Bock, B. B., & Shorthall, S. (2006). Rural Gender Relations – Issues and Case Studies.
229. Bock, B. B., & Shorthall, S. (2006). Rural Gender Relations – Issues and Case Studies.
230. Bock, B. B., & Shorthall, S. (2006). Rural Gender Relations – Issues and Case Studies.

of land and machinery[231]. This is supported by international studies and observations of the Nordic countries, which indicate that organic, sustainable, and local agri-food is an opening for women into farming, since it requires less economic capital and less industrial machinery and production.[232]

Studies in Sweden show that farms managed by women have much less access to arable land than farms managed by men, and the land value of men's land holdings are more than 2.5 times higher than the value of women's land holdings. This unequal distribution of land also shapes women's farm engagement and has impact on their ability to provide income for the household through their farming activities[233]. Often women farmers must have an additional income to support the household, as a study shows that the value of women farmers production is about 33% less than men farmers in relation to their labour input[234].

Women's engagement and willingness to participate in more sustainable forms of agriculture is a positive step in the decarbonisation of the agriculture and food sector. The general lack of representation of women in agriculture is, however, an obstacle.

"*If we are thinking about advancing sustainability in agriculture, we need more women. Equal participation of men and women in agriculture is definitely a pillar in a more sustainable advancement. However, that women are more interested in green policies and taught to be well suited for green jobs doesn't mean that we can put the responsibility of fixing this on the shoulders of women. Although women are change makers and are empowered to participate in this solution work, women should not be made the responsible party.*"
(Alma Dorá Ríkarðóttir, Gender Equality Specialist in Iceland's ministries)

7.3.5 How decarbonisation of the agriculture and food sector impacts gender

Research and information on the gender impacts of decarbonisation in the agriculture and food sector in the Nordic countries is scarce and disperse. The decarbonisation of the agriculture and food sector in the Nordic countries is likely to have differentiated positive and negative impacts for both women and men.

7.3.5.1 Organic farming and funding

The EU goal of having 25% of agricultural land under organic cultivation, has led to stronger support for organic farming.[235] This is a positive development for female farmers since women farmers are more highly represented in organic, local, and direct-to-market farming and less in conventional agricultural production where men are overrepresented.

"*If women are more interested in climate change and there is a tendency to choose small-scale farming, then focusing on climate change objectives in national policies,*

231. Sachs, C. E. et al. (2016). The Rise of Women Farmers and Sustainable Agriculture.
232. Ball, J. A. (2020). Women farmers in developed countries: a literature review
233. Andersson, E. (2014). Doing Gender (in) Equality in Swedish Family Farming – Gendered labour and resources in agrarian change.
234. Andersson, E. (2014). Doing Gender (in) Equality in Swedish Family Farming – Gendered labour and resources in agrarian change
235. The Danish Government (2021). Regeringen viser vejen til 7,1 mio. Tons CO_{2e}-reduktioner i 2030.

could maybe enable a larger portion of women to more often enter agriculture."
(Benedicte Dahlberg, Agriculture & Food Agency in Denmark)

In the past, it has primarily been large-scale, conventional farming that has received agricultural support from the EU and Member States and women have therefore received significantly less funding for their farms from government programs[236].

"*Women are less likely to get bank loans and large-scale funding. For example, in the Nordics, women only get 1% of the funding from the European Venture Capital Fund.*"
(Alma Dorá Ríkarðóttir, Gender Equality Specialist in Iceland's ministries)

When women do receive funds, they are more likely than men to use the funds for environmental and sustainability projects. One study suggests that this could be because they may be more focused on maintaining their farms for future generations[237].

With the move towards more sustainable agriculture, opportunities are opening for women in agriculture. More women are operating farms on their own and have increased their involvement in managing operations jointly with other family members[238] [239].

7.3.5.2 Plant-based food

Research has found that men are more likely to choose to eat meat, particularly red meat, when compared to fruits and vegetables[240] [241]. Studies on the interlinkage between food patterns and gendered patterns find that eating meat is associated with allowing one to be seen as masculine, and the avoidance of meat permits one to be viewed as feminine. Thus, the consumption of meat is closely tied to the production of a masculine identity[242].

The increasing focus on eating more plant-based food can be seen as a positive change for women since they are already moving towards eating less meat and more plant-based food, and since women farmers are often focusing more on plant-based food. Even though food-production is male-dominated, the closer food moves from farm to table, women have more responsibility for food in both acquiring, processing, cooking, and serving food[243]. This shift can also be a positive change for men who are 'stuck in' eating meat because of norms and ideals of masculinity related to the consumption of meat.

Food expectations and choices are constantly shifting and evolving over time. Recent shifts in the middle and upper-middle class have resulted in seeing 'good eating' as choosing local, organic, and eco-conscious foods[244]. This might also affect the relation between eating meat and masculinity ideals.

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236. Ball, J. A. (2020). Women farmers in developed countries: a literature review.
237. Ball, J. A. (2020). Women farmers in developed countries: a literature review.
238. Bock, B. B., & Shorthall, S. (2006). Rural Gender Relations – Issues and Case Studies.
239. Ball, J. A. (2020). Women farmers in developed countries: a literature review.
240. Sumpter, K. C. (2015). Masculinity and Meat Consumption: An Analysis Through the Theoretical Lens of Hegemonic Masculinity and Alternative Masculinity Theories
241. Meier, T., & Christen, O. (2012). Gender as a factor in environmental assessment of the consumption of animal and plant-based foods in Germany.
242. Sumpter, K. C. (2015). Masculinity and Meat Consumption: An Analysis Through the Theoretical Lens of Hegemonic Masculinity and Alternative Masculinity Theories
243. Sachs, C. E., Barbercheck, M. E., Brasier, K. J., Kiernan, N. E. & Terman, A. R. (2016). The Rise of Women Farmers and Sustainable Agriculture.
244. Mycek, M. K. (2018). Meatless meals and masculinity: How veg* men explain their plant-based diets.

7.3.6 Conclusions: What do we know, what can we measure, and where do we lack information?

In terms of the interlinkage between gender (equality) and climate change in the agriculture and food sector, there is only a very limited amount of data available.

What we do know/what exists:

- Gender disaggregated data on the representation of female and male farmers in the agricultural sector
- GHG emissions from different food products
- (Some) studies and quantitative sex-disaggregated data on food consumption patterns

Areas where lack of data was identified in the literature review and consultation with experts:

All data should ideally be intersectionally disaggregated, including categories such as: gender minorities, sexuality, race, ethnicity, age, social class, disabilities etc.

- Disaggregated data on access to/distribution of arable land (*gender disaggregated data is available in Sweden but this needs to be routine in all Nordic countries*)
- Disaggregated data on the income level among farmers in relation to labour input (*gender disaggregated data is available in Sweden but this needs to be routine in all Nordic countries*)
- Disaggregated data on the ownership of agricultural land
- Reasons for low enrolment of women in agriculture
- Institutionalised and cultural norms in the agriculture and food sector (*Who can participate? Who is the sector available for?*)
- Knowledge and information on how decarbonisation of the agriculture and food sector impacts gender
- Studies on the interlinkage between gender (equality) and food provision in a Nordic context
- Studies on the interlinkage between gender (equality) and food transportation in a Nordic context
- (New) studies on the interlinkage between gender (equality) and food consumption in a Nordic context
- Studies of the effect of demography, infrastructure, and living in rural areas
- The distribution of funding in relation to ways of farming (sustainable/ conventional) and intersectional categories
- Gendered working conditions (bathroom/showers, language-use etc.)
- The portrayal of farming in media, campaigns etc.
- The availability of financing for people who want to enter the agricultural sector (*e.g., do women (and gender minorities) have the same access to financing as men? Is this more expensive for women (and gender minorities) than men?*).

7.4 Construction and the built environment

The value chain of the building and construction sector ranges from the extraction, processing, and manufacturing of raw materials, architectural- and engineering services that design the buildings and the built environment, to on-site construction, maintenance, renovation, and demolition[245]. The built environment forms the framework of everyday life, how it is designed can thus have a significant impact on gender performance, as well as climate friendly behaviour.

In EU, the construction sector is dominated by small – and micro companies with a high level of self-employment. The construction sector is expected to lack employment in the future, currently being highly reliant of migrant workers. The green transition is expected to result in an additional demand for employment due to an increased demand of renovation, renewable energy plants and sustainable infrastructure[246].

7.4.1 Towards decarbonisation of the construction sector

The construction sector emits approximately one third of the total carbon emissions[247] and uses 40% of the total energy consumption About one quarter of these emissions come from production of building materials, like concrete and steel, and from the construction process itself[248]. The majority of emissions from buildings, however, come during the use phase for heating, cooling, hot water and power. A transition to a more sustainable and climate-neutral construction and buildings sector is thus crucial in achieving the ambitious climate mitigation targets of the Nordic countries. The construction sector is emphasised as a key sector in Nordic climate action plans and in the EU. Denmark, Finland, and Sweden are preparing CO_2 reduction requirements for construction[249], and EU has launched a "renovation wave" action plan, which will contribute to the decarbonisation of buildings[250]. Overall approaches to minimising emissions from the sector include making the built environment more energy efficient, using materials with lower climate footprints, and consuming less and greener energy at construction sites.

7.4.2 Gender mainstreaming in the sectoral climate action plans

EU's green construction policy has earlier been identified as gender blind as it did not address gender and being expressed in a neutral and scientific way, with little reflection upon social context. However, the Renovation Wave aims to reduce energy poverty by mobilising funding towards energy renovations of existing buildings. Renovations are expected to reduce energy bills and reduce GHG-emissions, as well as to deliver more resilient, assessable, digital, and social connected buildings.

245. Ecorys on behalf of the EC (2016). The European construction value chain: performance, challenges and role in the global value chain.Ecorys on behalf of the EC (2016). The European construction value chain: performance, challenges and role in the gloval value chain.
246. Clarke, L. and Sahin-Dikmen, M. (2021). Why radical transformation is necessary for gender equality and a zero carbon European construction sector.
247. Nordisk Samarbejde (2019). Boligminidre vil have billigere boliger – og klimatiltag
248. Clarke, L. and Sahin-Dikmen, M. (2021). Why radical transformation is necessary for gender equality and a zero carbon European construction sector.
249. The Danish Ministry of Interior and Housing (2021).
250. European Commission (2021). Renovation wave.

Gender is not mentioned explicitly, but as seen in the section 7.1.2.3 on energy poverty, young single mothers are more vulnerable to energy poverty.

The Nordic action plans to mitigate carbon emissions in the construction sectors tend to be rather technical. Some do address affordability and social sustainability of housing more broadly, although none explicitly addressing gender equality. In Sweden, the shortage of 700,000 houses in 2015–2025 implies that new constructions will be needed, and these must take the climate goal into account. Finland focuses on consumption in relation to energy use of housing, recommending adjusting heating at home; renovating to improve energy efficiency and exploiting renewable energy (through e.g., switching to geothermal heating). More sustainable energy consumption is supported through guidance and education.

7.4.3 Gendered culture and participation in the construction sector

The construction sector is and has been male dominated throughout history. Today, women on average make up 10% of the construction workforce in the EU, with some variation across occupations. The average share of women on construction sites is 3%, which has remained unchanged for the last century (apart from during the world wars), while the representation of women is higher among architects and civil engineers. Female representation is highest within administration, for example, 73% of construction administration workforce in Denmark are women[251]. Looking to the future, 22 –27% of graduates from engineering, manufacturing and construction in the Nordic countries are women[252].

This low representation of women is due to structural, cultural, and organisational barriers including:

- Traditional gendered views on educational choice and lack of formalised recruitment procedures including difficulties to get access to vocational training especially for women and migrant workers;
- Traditional stereotypes of gender based on their sex, including that women are less competent as craft workers and managers. Dispelling this myth, one study shows that female craft workers tend to organise and carry out their work in a more innovative[253];
- Sexist attitudes towards women;
- Poor working conditions, such as long and inflexible working hours, health- and safety concerns (such as accidents) and lack of sanitary facilities for women[254] [255]. The latter is increasingly being addressed in law. For example in Denmark, where all construction sites must provide private and lockable showering facilities.

As well as the unequal gender representation in employment, there also is a gender gap in housing ownership and housing returns: in Sweden, female home ownership is

251. Foreningen for Byggeriet Samfundsansvar & Analyse & Tal (2021). Kvinder i bygge- og anlægsbranchen.
252. Clarke, L. & Sahin-Dikmen, M. (2021). Why radical transformation is necessary for gender equality and a zero carbon European construction sector.
253. Ebsen, M. (2021). Køn, kroppe og kontorverser i håndværksfagene.
254. Clarke, L., & Sahin-Dikmen, M. (2015). No more softly, softly: Review of women in the construction workforce.
255. Arditi, D., & Gluch, P. (2013). Managerial competencies of female and male managers in the Swedish construction sector.

estimated at 34%[256]. A similar gap exists within investments, where only 2 out 10 investors are women. On the other hand, it is often women that make the final decision on which house to purchase or rent[257].

BOX 12: BOSS LADIES – an initiative to attract more girls to the construction sector in Denmark

The initiative "Boss Ladies" aims to promote girls and young women's interest and engagement in the construction sector through:

- Ambassadors being craftswomen who share their experiences and facilitate workshops that challenge the traditional choices of education at primary and vocational schools;
- Talent development: The ambassadors are trained in communication and network exchange and offered a career mentor;
- Learning labs – free training courses that motivate and maintain women in construction education;
- Workshops where young girls try craftwork at a vocational school, so the female primary school pupils can experience this type of work is a positive environment;
- Reverse recruiting: Support companies in recruiting women as interns;
- New narrative: Craftswomen are given a voice and positive stories are shared through social media and news.

Boss Ladies is initiated and driven by the private company Divérs and owned by a collaboration of business- and interest associations and funded by several Danish funds.

The gendered culture and participation in the construction sector is increasingly being addressed by industry organisations and other stakeholder initiatives (such as the initiative "Boss Ladies, presented in box 4). A greater diversity in the construction sector is expected to improve the working environment, foster innovation, and contribute to economic sustainability.

"Men on average have a higher income, but when it comes to consumer decisions, women are the ones making them. This is something the construction sector has not always realised."
(Elin Kebert, Swedish Construction Federation).

256. Sundåker, C. et al (2020). Why isn't ownership equal between men and women yet?
257. Interview 5

7.4.4 How gender aspects impact the green transition of the sector

Even though the construction sector is characterised by a masculine culture and a low female representation, there is little evidence of if (and how) this impacts the built environment. Is low carbon construction equally important for men and women? (How) does the higher representation of men in the construction sector affects the climate solutions in the sector?

Sustainable construction – understood as lowering the climate footprint, increasing social responsibility and supporting biodiversity – attracts women to the construction sector, which indicates that women prioritise sustainability more than men. Men and women prioritise different themes within sustainability, where men tend to prioritise more technical advanced solutions and women tend to prioritise a sustainability in a more holistic way[258].

A field study of female craftworkers indicates that women are more innovative in the way they work. The women tend to organise their work to avoid unnecessary physical wear on their bodies. Women in construction sites further seem to have a better understanding of materials, work to reduce material use, pays attention to waste sorting and in general work towards more environmentally friendly procedures[259].

"At the construction sites, there is a lot of silence and a tendency not to verbalise the work and not to provide instructions. You are not allowed to ask questions, because it is considered an interference to the work. That was the gendered divide, because the female workers, I studied, they were more inclined to verbalise their work, to ask questions, and reflect verbally of the task given and how the work was organised also in relation to how waste was organised".
(Maia Ebsen, anthropologist and PhD student at the University of Copenhagen)

Female craftworkers tend to reflect more upon the organisation of their work. This could be because female craftworkers tend to have a longer educational background than their male counterparts, and they are often a more reflective about the reasons for entering the construction sector[260]. Other studies show that women tend to be more risk averse, more concerned with climate change and therefore more environmentally conscious, which does support the claim that women are more proactive in implementing more climate friendly behaviour at construction sites[261].

A higher representation of females is, however, not enough to ensure that the gendered impact of construction is considered in the climate solutions. The underlying power dynamics and gendered norms are still defining how the built environment is designed and constructed. These norms will likely be challenged with a critical mass of women in the industry: it is crucial that stakeholders within the industry are critical, and a critical approach is best obtained through a general increase of diversity in the sector.

"I do not think one woman can change the planning of construction. There need to be several women, and also men thinking more holistically"[262]
(Elin Kebert, Swedish Construction Federation)

258. Interview 5
259. Ebsen, M. (2021). Køn, kroppe og kontorverser i håndværksfagene.
260. Women in construction tend to have a longer educational background, as the choice of going into construction requires some maturity and is not the traditional choice.
261. Ebsen, M. (2021). Køn, kroppe og kontorverser i håndværksfagene.
262. Interview 5

7.4.5 How (green) construction impacts gender

If climate mitigation tools only focus on technical solutions that do not take the social context into account, these tools risk negatively impacting gender equality. The more technical approach towards climate mitigation tends to be masculine. The green transition will require a more integrated planning of construction, where architects' engineers, craft workers and users collaborate. A more holistic approach can also attract women to the sector[263].

The most prevalent sustainable building certification schemes include criteria that limit carbon emissions and strive to promote social sustainability (understood as equity, inclusion, and participation). These certification schemes, however, tend to focus on functionalities and technical features, rather than softer aspects such as democracy and communities[264]. Gender equality is not included in any sustainable building certification scheme. It is also important to note that not all construction solutions suit all, and a holistic and context-sensitive approach should be applied when planning and designing construction[265].

Trade-offs between social inclusion and decarbonisation of constructions can occur:

- Costs of housing can increase as a result of sustainable construction approaches in new-build homes, and due to energy renovations. This may hinder access to housing for lower income groups (EU addresses energy poverty in the Renovation Wave in relation to income groups, but not in relation to gender). There are, however, examples of low-carbon construction of social housing such as 'Circle house' in Århus[266].
- Renovations can lead to 'renovictions', where rent increases mean that low-income tenants cannot afford to stay in their homes due to rent increases.[267]
- Investments in greening urban areas can lead to gentrification, which also tends to increase housing and living costs.

These trade-offs must be understood in the light of the wage gap between men and women, ranging from 7.0% in Norway to 18.7% in Finland[268].

Citizens producing their own electricity through rooftop solar systems, the installation of which has been supported through national subsidies in the Nordic countries, contributes to renewable energy generation. Both men and women are motivated by the climate impact and the cost reduction, but men are also motivated by technology. Men with technological skills and environmental interest and aged over 40 are thus typically the driving force for installing household renewable energy systems. Women, on the other hand, either lack interest or expertise in the technology and therefor do not take the initiative, but not because they do not have the capacity to do so. These gendered practices are founded in the historical division of labour, where new technologies are perceived as a masculine domain, whereas few established technologies such as laundry are seen as feminine domains, thereby reproducing the gendered division of labour[269].

New types of housings, such as cohousing, combine both environmental and social

263. Interview 5
264. Juel, T. (2021). Social bæredygtighed og DGNB.
265. Interview 5
266. https://www.lejerbo.dk/om-lejerbo/byggeri/circle-house
267. Rambøll (2021). Social Equity in the Decarbonisation of the European Built Environment.
268. Aaberge, R. et al. (2018). Increasing income inequality – Nordic Economic Policy Review.
269. Standal, K. et al. (2020). Engaging men and women in energy production in Norway and United Kingdom: The significance of social practices and social relations.

sustainability, with communal spaces and shared facilities enabling collaboration on household work, and where the sharing of facilities often result in lower climate footprints[270].

The green transition of the construction sector offers an opportunity to include gender by addressing some of the structural and cultural barriers that currently prevent women from entering and staying in the sector, while at the same time lowering the carbon emissions of the sector[271]. The green transition requires new competencies from the construction sector work force, and females can provide these competencies[272] and an innovative take on tasks. A greater inclusion of women can also help alleviate the anticipated lack of skilled labourers that sector is foreseen to face from the increased demand stemming from the green transition. Unskilled workers employed in the construction sector, which tend to be men, should also be trained to enable renovations and low carbon construction[273].

7.4.6 Conclusion: What do we know, what can we measure and where do we lack information?

In the construction sector, awareness of the lack of diversity and the masculine norms and hierarchical culture is rising. Several initiatives aim to increase diversity, and it is expected that a greater gender diversity will contribute to the green transition, as women tend to come with a more innovative approach and with competencies and interest of sustainability. However, the knowledge about the interlinkage between gender equality and the green transition in construction is very limited. To support work in this area, the following would be beneficial:

- Continuous monitoring of female representation across vocations and level of leadership;
- Support research in the intersection between gender and climate change, in particular how low-carbon constructions impact gender, and how specific climate mitigation policies in the construction sector impact gender;
- Include the gender and diversity perspective in the planning phase and include stakeholders across the value chain.

270. Vestbro, D. U., & Horelli, L. (2012). Design for gender equality - the history of cohousing ideas and realities.
271. Clarke, L., Michielsens, E., Snijders, S., & Wall, C. (2015). No more softly, softly: Review of women in the construction workforce
272. Clarke, L., Gleeson, C. & Wall, C. (2017). Women and low energy construction in Europe: a new opportunity?
273. Interview 5

8 SUGGESTED INDICATORS AND DATA DISAGGREGATION

Knowledge and data on gender and climate change is available, but not uniformly across the economy. Typically, for any given focus area, one of the following three categories apply:

- The gender gap is known, indicators are identified, and data is available. Some improvements are needed in terms of consistency, completeness, and availability.
- The gender gap is known or suspected, indicators are identified but disaggregated data is not currently systematically collected and reported.
- The gender gaps and impacts are not fully understood. Impact assessment and further research is needed to identify relevant indicators and collect data.

8.1 Indicators identified, data available, improvements needed

The following indicators and disaggregated data are currently available with varying detail.

Representation and participation

- Sex-disaggregated data on female representation among ministers and parliamentarians;
- Proportion of women in top-ministerial position in environment-related sectors;
- Sex-disaggregated data on representation in STEM;
- Sex-disaggregated representation in relevant sector (with varying detail and completeness depending on country and sector);
- Proportion of women on company boards;
- Women's leadership in energy companies;
- Gender balance in research groups relevant to climate policies and relevant sectors;
- Sex-disaggregated data on civil servants across levels of position in agencies working with climate policies (not collected systematically);

Use and consumption patterns

- Sex-disaggregated data on mobility patterns and gender-sensitive mobility analyses;
- Sex-disaggregated data and gender-sensitive analyses on food consumption (not collected routinely and systematically);

Sector participation

- Sex-disaggregated data on participation in the agricultural and food production and activities, per type and size of activities/production (with varying detail depending on country and type of activities);

It should be noticed that, even when the data is available, it is seldom clearly aggregated, analysed, and communicated.

In the case of representation and leadership, all or most of the data could be systematically and annually generated, reported and made publicly available with a minimum effort by the organisations. The use of consistent indicators for employment rates and women's leadership among sectors and countries, such as Full Time Equivalents and Women's Leadership Score used in the recent report of Gender equality in the Energy Sector for the Nordic Countries, could allow measurement and comparison of progress within and between sectors.

Disaggregated data on gender representation and leadership in the organisations involved in policy making and implementation is mostly available for national government institutions and private sector within the relevant sectors. The data is more consistently collected and reported for top-ministerial positions and parliamentarians and less so at other levels of decision making within ministries and at sub-national levels. One additional challenge is that authorities responsible for climate change and its related sectors, and responsibilities for ensuring gender is mainstreamed in climate policies, are organised in very different ways among the Nordic countries.

With some exceptions, it is apparent that different indicators are used across sectors and countries, making aggregation and comparison difficult and time consuming. The completeness of data also varies from country to country and sector to sector. For example, while data from energy companies in Iceland represent most of the energy companies, only a small fraction of Danish companies responded and therefore the data can only be interpreted as trends, rather than status.

8.2 Indicators are identified or suggested, disaggregated data is not available

There is a broad understanding of the following aspects of gender and climate change, but better data is required to construct useful indicators that can inform the interface between climate policies and gender equality.

Representation

- Sex-disaggregated data on the support of specific climate policies, in combination with other factors like age, income, household status and location;
- Sex-disaggregated data on the stakeholders consulted in making of climate policies.

Monitoring gender mainstreaming in climate policy making:

- Targets and indicators on gender equality in climate action plan e.g., in terms of resources allocated, number of initiatives being gender sensitive;
- Qualitative assessments of whether dynamics that enable gender equality outcomes are reflected in climate action plans – preferable by a third party;

- Qualitative analyses and assessments of gendered norms and patterns influencing and being influenced by policy;
- Number and percentage of climate policy measures that have been assessed in terms of gendered impacts and benefits;
- Number and percentage of policy measures where gender participation and gender impacts and benefits are identified and monitored.

Use and consumption patterns

- Sex-disaggregated data on energy consumption and behaviour, and the intersection of gender, income, demography, age and how these may affect energy choices.
- Sex-disaggregated data and gender-sensitive analyses on the unformal and unpaid work within the green transition in everyday life.

Sector specific indicators:

- The gendered distribution of funding, loans and investments in all sectors (mobility, energy, agriculture and construction), differentiated between intersectional categories as well as sustainable/conventional production;
- Gender-sensitive analyses of gendered patterns and norms affecting green transition of specific sectors (mobility, energy, agriculture and construction), as well as gendered effects of the sector-specific climate policies.
- Sex-disaggregated data on the **accessibility** to agricultural land, access to credit, low carbon housing, non-fossil driven mobility, and energy options.
- Sex-disaggregated data on adoption of **green technology and innovation** in productive sectors and households (by dwelling and enterprise ownership, in combination with sector, size, location, age.)
- Sex-disaggregated data and gender-sensitive analysis of **energy** poverty, including comprehensive sex-disaggregated data (drivers, causes and effects of energy poverty).
- Sex-disaggregated data on energy **consumption and behaviour**, and the intersection of gender, income, location, and age, among others, and how these may affect energy choices and possibilities.

8.3 Areas where gender gaps and impacts are not fully understood.

The study has identified several areas and topics where gender gaps and impacts are not known or poorly understood. Impact assessment and further research is needed in order to identify relevant indicators. An intersectional and holistic approach to research and data collection are recommended as way to bridge the knowledge gap.

Energy poverty

Information on gendered aspects of energy poverty is lacking, especially in light of increasing energy prices, unequal access to thermal and electrical efficiency

solutions, the pre-existing vulnerabilities of the affected groups and the severity of the consequences.

For households and persons not necessarily classified as energy poor, more information is needed regarding gendered impacts of increased electricity and heating tariffs, in combination with other relevant categories like age, income, urban density (rural vs urban), type of dwelling.

Gendered impacts of electrification and energy utilities

How electrification, construction and operation of energy plants impact gender and social sustainability[274] is in general poorly understood. This is a major area of attention considering the extend and pace of electrification expected in the coming years. Experts form most countries pointed to a lack of impact assessments that look at social sustainability in the short and long term of these projects, including gender aspects.

Health Impacts and benefits of energy policies

Limited information has been identified regarding the health impacts and benefits of climate policies and green technologies. This should include mental health, and more specifically anxiety around climate change and changes in the labour market. An intersectional and holistic approach to examine such effects and the gender implications is needed to inform, among others, the scope of gender assessments and indicators for data collection.

Impacts of climate policies in Sámi people

The study has identified at least three significant knowledge gaps with regards to the impacts of climate policies on Sámi people. One is the limited research on the gender dimensions of the impacts of green energy infrastructure in the different aspects of life of Sámi people. The other regards the cumulative impacts of both climate change and green energy infrastructure and the gender and generational aspects thereof.

The third aspect is the acknowledgement of the asymmetries between the perception of authorities that Sámi men and women are effectively involved in policy making, while the are having limited say in the decisions related to climate projects in their traditional territory.

8.4 Sex-disaggregated data and gender analyses available – and lacking

To inform gender mainstreaming, more sex-disaggregated data and gender-sensitive analyses in the Nordic countries is needed. The table below shows where data is:

- **Available**, meaning that the gender gap is known, indicators are identified, but

274. Nordisk Samarbejde (2019). Boligminidre vil have billigere boliger – og klimatiltag

some improvements are needed in terms of consistency, completeness, and availability.

- **Not systematically collected:** The gender gap is known or suspected and indicators are identified**.**

Table 4: Sex-disaggregated data and gender analyses available and lacking

	Data is available:	**Disaggregated is not systematically collected**
Representation and participation (of gender climate policies)	Sex-disaggregated data on female representation among ministers and parliamentarians Proportion of women in top-ministerial position in environment-related sectors	Sex-disaggregated data on civil servants across levels of position in agencies working with climate policies Sex-disaggregated data on the support of specific climate policies, combined with age, income, household status and location. Sex-disaggregated data on the stakeholders consulted in development of climate policies.
Monitoring gender mainstreaming in climate policy making		Targets and indicators on gender equality in climate action plans e.g., in terms of resources allocated, number of initiatives being gender sensitive Qualitative assessments of whether dynamics that enable gender equality outcomes are reflected in climate action plans. Qualitative analyses and assessments of gendered norms and patterns influencing and being influenced by the policy. Number and percentage of climate policies measures that have been assessed in terms of gendered impacts and benefits. Number and percentage of policy measures where gender participation and gender impacts and benefits are identified and monitored.
Use and consumption patterns	Sex-disaggregated data on mobility patterns and gender-sensitive mobility analyses Sex-disaggregated data and gender-sensitive analyses on food consumption (this data might not be collected routinely)	Sex-disaggregated data on energy consumption and behaviour, and the intersection of gender, income, demography, age and how these may affect energy choices. Sex-disaggregated data and gender-sensitive analyses on the unformal and unpaid work of the green transition in everyday life.
Sector specific data	Sex-disaggregated data on representation in STEM Sex-disaggregated representation in relevant sector (with varying detail and completeness depending on country and sector) Proportion of women on boards Women's leadership in energy companies Gender balance in research groups relevant to climate policies and relevant sectors Sex-disaggregated data on participation in agriculture activities, per type and size of activities/production (with varying detail depending on country and type of activities)	The gendered **distribution of funding, loans and investments** in all sectors (mobility, energy, agriculture and construction), differentiated between intersectional categories as well as sustainable/conventional production Gender-sensitive analyses of gendered **patterns and norms** affecting green transition of specific sectors (mobility, energy, agriculture and construction), as well as gendered effects of the sector-specific climate policies. Sex-disaggregated data on the **accessibility** to agriculture land, access to credit, low carbon housing, non-fossil driven mobility, and energy options. Sex-disaggregated data on adoption of **green technology and innovation** in productive sectors and households (by dwelling and enterprise ownership in combination with sector, size, location, age.) Sex-disaggregated data and gender-sensitive analysis of **energy** poverty, including comprehensive sex-disaggregated data (drivers, causes and effects of energy poverty). Sex-disaggregated data on energy **consumption and behaviour**, and the intersection of gender, income, location, and age, among others, and how these may affect energy choices and possibilities.

9 CONCLUSIONS

All of the Nordic countries have set-out ambitious climate mitigation targets that require structural changes to how we move, live, eat, and consume in a low carbon manner. Climate action plans describe the paths that the Nordic countries will take to realise these climate mitigation goals. While all the Nordic countries acknowledge that climate policies impact gender through the Lima Work Programme and the Gender Action Plan, the actual gender mainstreaming of the climate action plans is limited.

A gender equality ratio of 40:60 is observed across all parliaments and ministers in the Nordic countries except for the Danish government. In the civil service, gender equality or an over representation of women can be found (with few exceptions). The gender representation among the civil society and the private sector stakeholders consulted for climate action plans is not continuously reported. Only Sweden and Finland have consulted organisations working with women's rights. The findings of this study confirms that equal gender representation within policy making does not necessarily result in gender mainstreaming of climate action plans. As the debate of how climate actions impact gender has been limited, in particular in Denmark, Norway and Iceland, awareness-raising initiatives can provide a first step towards gender-balanced national climate policies. Policy makers and civil society must be educated on the link between gender and climate policies *and* sufficient resources for gender mainstreaming must be allocated. The focus should thus move beyond formal representativity to *critical acts* – acts leading to policy changes and institutional changes.

When it comes to the state of gender mainstreaming of the national climate action plans, only Finland has conducted a gender impact assessment focusing on employment and consumption. As of 2021, Iceland is conducting a gender impact assessment and Sweden has drafted a strategy to gender mainstream the implementation of the Paris agreement. The Danish and the Norwegian climate actions plans are largely gender blind. Norway calls for additional knowledge to carry out gender mainstreaming, and Denmark has procedures for gender assessment of bill proposals, but not for non-legislative policies. All countries call for additional knowledge about the links between gender and climate policies in a Nordic context. Despite the gender assessments conducted, examples of targets and indicators for gender mainstreaming have not been seen, nor have any steps been taken towards addressing gendered norms or aspects of intersectionality.

Institutionalised gendered norms not only influence the extent of the aforementioned *critical acts* of policy change. Gendered norms and patterns are at play across the domains of decision-making, employment and work culture, planning, production, consumption, and everyday life in general. To put it shortly, historically gendered processes have shaped the differences in cultural patterns of behaviour of men and women. This is, for instance, reflected in men having a larger carbon footprint, as they tend to drive more and eat more meat. At the same time men tend to take up new technology such as solar panels while making more use of

sharing platforms. Women, on the other hand, tend to travel with public transport and eat a more vegetarian diet. When these-structurally informed gender differences are not taken into consideration, the preferences and solutions of specific climate policies will be gender blind. Gender-blind climate policies may reinforce existing gender inequalities, such as the gender segregated labour market and the gender pay gap. For instance, climate policies that put emphasis on the responsibility of the consumer and the household risk placing more unpaid work on the shoulders of women. Moreover, despite the higher carbon footprint of men implying that they will be more affected by meat and fuel taxes, a gender-blind climate tax may risk impacting women and low-income groups more broadly, due to the gendered pay gap. Knowledge on gendered norms and patterns, as well as on intersectional perspectives, gender and climate policies, is currently insufficient to fully inform and support gender mainstreaming.

The most carbon heavy sectors – energy, transport, agriculture/food, and construction – are all male-dominated. This imbalance reflects both the general framing of the climate change response as a profoundly technological matter, as well as the low share of women completing a STEM education. As these carbon-heavy sectors undertake green transitions, the new jobs within the green economy tend to be created within male-dominated fields. However, the focus on low carbon solutions also provides an opportunity for women contribute, particularly with their drive for and more holistic understanding of sustainability. Policymakers must be attentive towards how the transition to a low carbon society impacts not only the amount and nature of unpaid work in households, but employment more broadly. This can be supported by asking and answering the question of *who*; *Who* will do the job, *who* are the new jobs for, *who* gets the most well-paid jobs, and *who* are losing their job?

There is a general lack of awareness among policy makers and authorities covering sectors with large carbon footprints of the importance of gender mainstreaming of climate policies and how they are implemented in practice. Even the notion of how the impacts of climate policies can affect and benefit groups differently is absent or downplayed. Lack of information on the links between gender and climate actions results in a lack of narratives that foster awareness and mobilise actions towards more gender transformative policies. By delivering insights into the links between gender and climate policy in a Nordic context and formulating the recommendations below, this study can inform and inspire further research, debate, awareness raising and gender mainstreaming activities within the development and implementation of national climate policy.

10 RECOMMENDATIONS

10.1 RECOMMENDATIONS TARGETING THE NORDIC COUNCIL OF MINISTERS

1. Common guidelines for Gender Impact Assessment for the Nordic Countries

The Nordic countries should develop common guidelines and procedures for Gender Impact Assessment (GIA) of climate policies, programs, and projects. This will allow synergies in data collection and assessment, shared learning, and the possibility to compare and benchmark the gendered impacts and benefits of policies and interventions.

The common GIA guidelines should:

- Be implemented in all the Nordic countries, if possible, within the next two to three years;
- Be applied to climate action plans, policies, programs, and projects, including relevant sector-specific action plans;
- Be informed by and implemented with the participation of gender experts;
- Include the participation of women (and when applicable diverse genders) and gender associations committed with climate policy;
- Apply an intersectional approach addressing the social, institutional, and symbolical mechanisms and norms that (re)produce gender disparities and power imbalances, and enquire into the intersectional vulnerability of men, women, and other genders when relevant;
- Incorporate targets and indicators of social sustainability and gender equality to monitor gender mainstreaming. Accountability frameworks, such as mechanisms of monitoring and evaluation should be developed in each country and financial resources and professional expertise allocated accordingly.

For inspiration see the Canadian GIA+ and the German Climate GIA tool.

2. Common Nordic platform for information and resources on climate and gender equality for the Nordic Countries

The Nordic Council of Ministers should support the development and maintenance of a free access platform for updated information, data, resources and tracking of indicators of climate and gender equality for the Nordic countries. The scope, governance and sustainability of the platform needs to be further discussed and defined.

The information available on this platform could include, among others:

- Gender mandates and commitments related to climate policies of the Nordic countries, i.e., all relevant UNFCCC decisions, including the Enhanced Lima Work

Programme on gender and its Gender Action Plan;
- Updated lists of key roles within gender mainstreaming of climate policy, such as the National Climate Change and Gender Focal Point and other Gender Focal Points in the relevant national ministries;
- Climate measures and gendered impacts such as discussion on the gender dimensions of climate policies and estimated or evaluated impact of initiatives;
- Monitoring and dissemination of social and gendered climate conflicts and best practices on gender;
- Gender equality and climate tracker, reporting the progress on integrating aspects of gender equality into climate policy at a Nordic/national level, including tools for how to include gender in National Determined Contributions (NDCs);
- Routinely reported national sex-disaggregated and gender-sensitive data, from climate relevant institutions and companies;
- Introduction to links between climate relevant sectors and gender, including qualitative and quantitative information and data on climate sectors and gender;
- Directory of gender and climate networks, research groups and initiatives;
- Resources and events relevant to gender and climate;
- Videos, tutorials, and online courses.

For inspiration see *The Gender Climate Tracker,* launched by the Women's Environment & Development Organization (WEDO) in partnership with the Global Gender and Climate Alliance (GGCA). The app and online platform provide on-the-go access to regularly updated information on policies, research, and actions related to gender and climate change. Link: https://genderclimatetracker.org/

3. Promote networking and collaboration with focus on gender and climate within and across the Nordic Countries

There are Nordic research groups as well as formal and informal networks and international alliances with focus on gender and climate. When such networks extend to the Nordics, mutual learning and inspiration influence national agendas and raise regional performance levels. The Nordic Council of Ministers should actively promote and facilitate formal and informal networking and alliances with focus on gender and climate mitigation in relevant sectors and within specific topics across Nordic countries. Special attention should be given to promote and support organisation and exchange across gender, generations, ethnicity, and socioeconomic position, e.g., by supporting youth organisations.

Some of the opportunities with potential for transformation and mobilisations towards gender equality that can be considered include:

- Support and promote initiatives where networking and collaboration across the Nordic Countries is an objective (e.g., Nordic Equality in Energy Network, NEEN) and where networking and collaboration is the approach to achieve common goals.
- Organise events and initiatives to facilitate mutual learning and inspiration

among decision makers, department leaders and technical staff in government agencies involved in climate-relevant sectors.
- Identify opportunities to boost exposure, exchange and networking between students, academics and professionals within STEM and students, researchers and professionals from social science, humanities working with sustainability and/or gender.

10.2 RECOMMENDATION TARGETING THE NORDIC GOVERNMENTS

4. Identify and address institutionalised gendered norms and patterns in climate policy making and implementation

Government agencies and institutions involved in climate policy making and implementation should map and critically review institutionalised gendered norms and patterns to address barriers and gaps to gender mainstreaming.

Measures to operationalise this may include:

- Critically review institutionalised gendered norms and patterns across relevant policy making organisations and processes as well as relevant parliamentary commissions;
- Include this review as part of GIA or as a stand-alone procedure. The critical review of institutionalised gender norms and patterns can be done in parallel in the different agencies and institutions or piloted in a single or few institutions to gain insights and experience before applying more widely.
- Organise an event or a series of events where findings, lessons learned and challenges identified in relation to institutionalised gendered norms can be shared, discussed, and reflected upon;
- Raise awareness and knowledge in institutions by sharing and exchanging lessons learned, best practices, identify case studies and pitfalls to avoid among Nordic agencies;
- Consider the development of guidance/procedures and tools on how to operationalise the mapping and critical review gender norms and patterns;
- Monitor gendered citizen support (or lack thereof) of specific climate policies, programs, and projects;
- Monitor the progress towards gender mainstreaming targets;
- Consider other intersectional aspects, such as age, income, and location.

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Referencing to focus group interviews:

Interview 1: National focal points under UNFCC, working with the intersection between climate mitigation policies and gender in the national civil service

Interview 2: NGO's and civil society organisations working with the intersection between climate change and gender and/or gender equality

Interview 3: Mobility sector

Interview 4: Agriculture and food sector

Interview 5: Construction sector

Interview 6: Energy sector

Interview 7: Sounding board

List of people consulted and participants in focus groups

Name	Organization	Country
Sounding board		
Karina Standal	CICERO	Norway
Malin Gustavsson	Gender Equality and Diversity Issues Consultant	Finland
Martin Hultman	Chalmers University	Sweden
Mette Hoé	Rambøll	Denmark
Thomas Brorsen Smidt	GEST (Gender Equality Studies and Training Pro-gramme)	Iceland
Tonje Johansen		
Interview 1: Civil servants engaged in the intersection between gender and climate change		
Ane Rostrup Gabrielsen	Norwegian Ministry of Climate and Environment	Norway
Jennifer Unelius	Swedish Environmental Protection Agency	Sweden
Natalie Winger	Norwegian Ministry of Climate and Environment	Norway
Auður Ævarr Sveinsdóttir	Ministry for the Environment and Natural Resources	Iceland
Interview 2: NGO's and CSO's		
Henriette Laursen	KVINFO	Denmark
Ewa Larsson	Grönna Kvinnor	Sweden
Hildur Knútsdóttir	Climate Fond	Iceland
Julie Rødje	Spire	Norway
Niina Ratilainen	Plan International Finland	Finland
Interview 6: Energy sector		
Birthe Holst Jørgensen	DTU	Denmark
Petra Berg	University of Vaasa	Finland
Sofia Elamson	Nordic Energy Research	Norway
Aditi Bhasin	IVL – Swedish Environmental Research Institute	Sweden
Karina Klepper	Norwegian Defense Research Establishment	Norway
Heta-Elena Heiskanen	Ministry of the Environment	Finland
Annamari Asikainen	Ministry of Social Affairs and Health	Finland

Name	Organization	Country
Interview 4: Agriculture and food sector		
Alma Dora Rikardsdottir	Gender equality specialist	Iceland
Benedicte Dahlberg	Danish Agriculture & Food Agency	Denmark
Lone Vitus	Farmer	Denmark
Madeleine Fogde	Stockholm Environment Institute (SEI)	Sweden
Madeleine Gustavsson	Ruralis	Norway
Maja Farstad	Ruralis	Norway
Interview 5: Construction sector		
Christina Schultz	Association for Responsible Construction (ARC)	Denmark
Elin Kebert	Swedish Construction Federation	Sweden
Linda Clarke	Westminister University	UK
Maia Ebsen	The University of Copenhagen	Denmark
Ida Sofia Carolin Bergström	OPLAND	Sweden
Interview 3: Mobility sector		
Annika Kronsell	The University of Gothenburg	Sweden
Michala Hvidt Breengaard	The University of Copenhagen	Denmark
Petter Næss	The Norwegian University of Life Sciences	Norway
Tanu Priya Uteng	The Norwegian Centre for Transport Research	Norway
Tiina Funk	Chalmers University of Technology	Finland

12 APPENDIX A – METHODOLOGY

This project has been conducted through a literature study, a survey and six focus group interviews, each of which are shortly described below.

12.1 Literature study

A systematic literature review of the correlation between climate change policies and gender equality has been conducted. The literature study includes both academic articles and reports from agenda-setting actors such as UNFCC, UN women, OECD and EBRD, as well as best practices of integrating gender considerations into climate policies and sector-specific literature.

Relevant literature was identified using a string of search words at both academic search engines and Google. Abstracts and summaries were screened to identify the most relevant literature, with relevance for developed countries and the Nordic region in particular. A focused list of relevant literature was then made. The sounding board and the NMR steering group was invited to qualify the list of literature to ensure that the most relevant studies and reports were included.

The literature study identified:

- Sex-disaggregated data applied in the literature (and lack of knowledge and data)
- Gendered impacts of climate mitigation policies in the sectors prioritised in the climate action plans of the Nordic countries
- Gender equality impacts related to climate change policies in relevant sectors
- Gendered interests, concerns, and expectations related to climate change and climate change policy
- Best practices of integrating gender considerations into climate policies
- Analyses of how climate change affects gender equality
- Analyses of participation of women in climate policies

A reporting framework structured as a matrix with the literature references listed vertically and the points of information listed horizontally, was prepared. The relevant findings of the articles were reported in this framework enabling filtering, which eased the identification of patterns and disagreements across articles, thereby structuring the analysis.

12.2 Assessing gender perspectives in the climate action plans

To gather information about how the Nordic governmental authorities, have mainstreamed gender in the making of climate policies, a brief content assessment of the climate action plans was conducted, followed up with a survey.

12.3 Content assessment

The content assessment consisted of a screening of the following words: Gender, women, men, social, justice, equality, equity, sex, intersectionality, minorities, marginalised, young, generation, ethnicities, income (translated into national Nordic languages). This screening illustrated whether the overall climate action plans communicated and applied social sustainability concerns such as gender and intersectionality more broadly.

12.4 Survey

Additionally, a survey was sent out to the governmental authorities to understand which actions they have taken towards mainstreaming gender in climate action policies, acknowledging that actions could be taken without addressing these in the climate action plans. The questionnaire included questions about descriptive representation (involvement of civil society and organisations working with gender) and gender mainstreaming (operational goals on gender equality in climate policies; systematic and substantive integration of gender perspectives in climate policy documents; time and budget allocation to integrate gender equality; access and use of sex-disaggregated data).

12.5 Focus group interviews

Six focus group interviews have been conducted in order to validate and complement the findings of the desktop research, the survey, and the analyses of the climate action plans, and to identify perspectives and information that may be less prominent in academic and institutional research.

The choice of focus group interviews in this study is based on several reasons. First of all, it has been a general experience among representatives, stakeholders, and experts in the interlinkage between gender equality and climate change policy in the Nordic countries, that few actually felt like experts, and they doubted whether they had enough relevant knowledge to contribute with. In this connection, focus group interviews are a good tool for creating a less performance-oriented space, and where it is easier for the participants to "trash out" the knowledge that they each possess. Furthermore, the resource effectiveness of focus groups where it is possible to get both extensive and detailed material with relatively few resources has been a factor as well due to the scope of this project.

Each of these focus group interviews was centred around a theme/target group including:

1. National gender focal points under UNFCC, working with the intersection between climate mitigation policies and gender in the national civil service
2. NGO's and civil society organisations working with the intersection between

climate change and gender and/or gender equality. This focus group studied the actual participation of the gender perspective in climate policy making.

The following four focus groups were sector-focused, inviting researchers, representatives from interest groups and practitioners with knowledge about the interlinkage between gender and climate mitigation in the respective sector:

1. Mobility
2. Agriculture and food
3. Construction
4. Energy

The focus group interviews were based on semi-structured interview guides that was structured after the overall themes:

- Representation of women (and gender minorities)
- Gendered norms and patterns
- How climate policies impact gender
- Lack of knowledge and future needs and recommendations

The interviews were conducted through Teams and recorded.

13 APPENDIX B – SURVEY

A survey was sent out through mail to the Nordic governmental authorities and asked to be distributed to the right person.

Commissioned by the Nordic Council of Ministers, we are currently conducting a study of how gender impact climate change and vice versa, including how gender has been represented in the policy process of the climate action plans. We would appreciate receiving your help, by answering some questions regarding the development of the climate action plans in your country, and if/how gender has been included in the development.

The questions we would like you to answer include:

- Have you conducted, commissioned or are aware of any analysis of how climate change affect gender in Sweden?
    - If yes, please forward this
    - If no: Why not? Are you aware of other national studies of how climate change impact gender in Sweden?
- Did you conduct, commission or are aware of a consequence analysis of how mitigation initiatives set out in the national climate action plan impacts gender equality?
    - If yes, please forward this
    - If no: Why not? Are you aware of other national studies of how climate mitigation impact gender?
- Were operational goals set on how gender equality can be reached in climate policies?
    - If yes: Which?
    - If no: Why not?
- Do you integrate gender perspectives in all climate policy documents and tools in a systemic way?
    - If yes: How?
    - If no: Why not?
- Did you, or others in your organization ensure time and budget in resource planning that enabled integration of gender equality?
    - If yes: How?
    - If no: Why not?
- Do you explicitly work to attain diversity and even distribution of men and women in policy making?
    - If yes: How?
    - If no: Why not?
- Do you use any sex-disaggregated data?
    - If yes: Which?
    - If no: Why not?
- Which measures have you taken to consult the civil society in policy process?
    - Have proposals, demands or initiatives of civil society organizations or

NGOs been requested or provided for consideration in climate policy development? Which initiatives and which CSOs/NGOs)

- Have any representatives from gender minorities (e.g., women's rights organizations, LGBTQIA+ etc.) been consulted in the policy development? If yes: Who?
- Have you taken any steps to include other minorities? If yes: Which?

If you have knowledge of any documents, analyses, reports etc. dealing with climate policy and gender (mainstreaming), please let us know.

14 APPENDIX C – FOCAL POINTS FOCUS GROUP – INTERVIEW GUIDE

15 min	**Introduction**
	1. Introduction to the project and the focus group 2.Oral presentation round: Name, ministry, title and main work area - How and where do you work with aspects of gender mainstreaming? / How would you describe the role as UNFCCC National Gender & Climate Change Focal Point (GCCFP)?
	3. Voting exercise: To what degree are gender perspectives being integrated into climate change policies and plans? (On a scale of 1–5, 5 indicates the highest level of gender mainstreaming)
20 min	**Gender mainstreaming and the role of the Gender & Climate Change Focal Point**
	1. How does the role of the GCCFP work in practice in the context of national policy making?
	2. VOTING: Are you aware of any of these gender mainstreaming activities being implemented in climate change policy making? - gender-informed project identifications, - gender analysis, - gender assessments, - gender budgeting and - planning of gendered solution - evaluations in relation to gender goals
	3. WRITING: Can you provide an example of documents or initiatives or mention organizations that are implementing some of the aspects above? (Ministries, universities, other organization) (write on a virtual post it)
	4. WRITING: Have the climate change policies – and specifically the climate action plans – been evaluated in relation to the goal of gender mainstreaming? Select one out of two boxes: "Yes. And the conclusions were… (finish the sentence)" OR "No and this was because… (finish the sentence)"
	5. Who do you as a GCCFP report to, with which ministries do you work or coordinate, is any report produced to UN or for the country?
15 min	**Group discussion: Sectorial gender mainstreaming**
	1. Have gender mainstreaming been equally addressed across policy areas? Where has gender mainstreaming gained the largest and smallest footing respectively?
	2. Do you have examples of gender mainstreaming of sector specific climate change policies? (The respective sectors include all aspects of the value chain, e.g., material sourcing, production, retail, consumption/use, disposal/recycle etc) Gender mainstreaming of associated sector-specific policies? a. Agriculture and Food? b. Construction and Building? c. Energy? d. Transport and Mobility?
5 min	**Writing exercise: Intersectionality and a non-binary gender approach**

	1. Have there been considerations or discussions on incorporating a non-binary gender approach? (If yes; can you provide examples? If no: why hasn't this been addressed?)
	2. Does any of the gender mainstreaming initiatives also consider aspects of intersectionality? (How some groups in society can be marginalized in multiple ways, e.g., women with low income or racialized women facing more disadvantages and discrimination)
20 min	**Group discussion: Gender aspects impacting climate change policy**
	1. What is your impression of the gender balance among decision-makers and civil servants within climate change policy making? How about representation of social minority groups? Do you know about any data on this?
	2. How and where do you see aspects of gender currently or potentially affecting the climate change policies? This could both be in terms of the representation of gender identities and in terms of gendered cultural norms and ideals at play in the decision-making organs.
15 min	**Pursuing the potentials of gender mainstreaming in national climate change policies**
	3. Which are in your opinion the areas with biggest potential or need in your country for working on gender and climate change?
	4. What would it take to effectively mainstream gender in climate change policies in your countries?
5 min	**Wrapping up**
	Please send us examples you think we should look into as a good example of gender mainstreamed climate change policies? A best practice/case. E.g., a good example of gender mainstreaming of sector specific climate change policy.

15 APPENDIX D – SECTOR FOCUS GROUPS – INTERVIEW GUIDE

Time	Activity/theme	Questions
	Presentation: Project and the aim of the focal group interview + ok to record? **Scope:** developed countries, we know of the important theme of gender in climate change in developing countries.	
	Presentation round + answer: Why talk about gender in relation to a carbon-neutral society?	
	Representation / participation	How does the unequal representation impact the transition to a carbon-neutral sector? What are the gendered norms and ideals in the [production of/services]? What are the gendered norms and ideals in the [consumption/use of]?
	How climate change policies impact gender:	Is it your impression that climate change policies benefit gender equality? - How? - Example: organic farming in Denmark Who enjoys the benefits of the climate policies? Which concerns do you have regarding how climate change policies impact gender? Who pays the price of carbon reductions?
	What specific policy tools impact gender	How does [policy] affect gender? Policy mobility = decarbonisation of private cars; more public transportation;
	Rounding off Which knowledge are you missing to contribute to gender main-streaming of future climate policies? Which three recommendations would you give the governments in the Nordic countries prior to conducting gender main-streaming of their climate action plans?	

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Nina Lander Svendsen, Katrine Weber, Gabriela Factor, Laura Winther Engelsbak and Rikke Fischer-Bogason

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The Nordic Council of Ministers
Nordens Hus
Ved Stranden 18
DK-1061 Copenhagen
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