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ADDENDUM TO NOTE

from :	Council General Secretariat
to :	Permanent Representatives Committee (Part I)
Subject :	Gender equality and the environment: enhanced decision-making, qualifications and competitiveness in the field of climate change mitigation policy in the EU - Draft Council Conclusions

Delegations will find attached the report produced by the European Institute for Gender Equality on the Review of the Implementation in the EU of area K of the Beijing Platform for Action: Women and the Environment: Gender Equality and Climate Change.

ANNEX

EUROPEAN INSTITUTE FOR GENDER EQUALITY

Review of the Implementation in the EU of area K of the Beijing Platform for Action: Women and the Environment

Gender Equality and Climate Change

Report

This Report is based on a study prepared by Milieu Ltd and Life e.V. for the use of the European Institute for Gender Equality.

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ABBREVIATIONS

COUNTRY ABBREVIATIONS

AT	Austria	IT	Italy
BE	Belgium	LT	Lithuania
BG	Bulgaria	LU	Luxembourg
CY	Cyprus	LV	Latvia
CZ	Czech Republic	MT	Malta
DE	Germany	NL	Netherlands
DK	Denmark	PL	Poland
EE	Estonia	PT	Portugal
EL	Greece	RO	Romania
ES	Spain	SE	Sweden
FI	Finland	SI	Slovenia
FR	France	SK	Slovakia
HU	Hungary	UK	United Kingdom
IE	Ireland	EU 27	27 EU Member States

FREQUENTLY USED ABBREVIATIONS

CO_2	Carbon Dioxide
COP	Conference of the Parties (in this report: of the Parties to the United Nations Framework Convention on Climate Change)
EC	European Commission
EP	European Parliament
EPHFS	European Parliament Committee on Environment, Public Health and Food Safety
ERC	European Research Council
EU	European Union
EU ETS	European Emission Trading System
FP5 and FP6	EU Fifth and Sixth Framework Programmes
GHG	Greenhouse gas emissions
HoD	Head of Delegation
IPCC	Intergovernmental Panel on Climate Change

ISCED	International Standard Classification of Education, designed by UNESCO to present statistics of education within countries and internationally
IRE	European Parliament Committee on Industry, Research and Energy
MEP	Member of the European Parliament
OECD	Organisation for Economic Co-operation and Development
SB	Subsidiary Body (in this report: of the United Nations Framework Convention on Climate Change)
SBI	Subsidiary Body for Implementation (in this report: of the UNFCCC)
SBSTA	Subsidiary Body for Scientific and Technological Advice (in this report: of the UNFCCC)
S&T	Science and Technology
TT	European Parliament Committee on Transport and Tourism
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
US	United States of America
WHO	World Health Organisation

KEY TERMS AND CONCEPTS

KEY CONCEPTS

Gender and Climate Change

Climate change is a complex environmental and social issue, affecting a world that is characterised by and based upon deeply-rooted unequal gender relations. This is not just a question of women's vulnerability and the fact that they generally hold less power and are therefore less able to mitigate and cope with climate change, but of understanding how women and men relate to one another and how these relationships influence the ways that households, communities, countries and the global community are affected by and respond to climate change. Uncovering these power relations helps to understand why it is that some groups are contributing differently to greenhouse gases and are affected differently by climate change than others. It also enables us to analyse the ways in which climate change mitigation and adaptation may lead to different roles and responsibilities in the future, which need to be taken into account in order to find solutions that draw on the skills, knowledge, resources and experiences of both sexes.

Yet it is important to acknowledge that gender is not just a binary concept ("women and men"), but entails a whole range of factors such as age, marital status, affluence or poverty, ethnicity, sexuality, caste, culture and so on. For this reason, it is essential to recognise that women and men are not homogenous groups, but represent a vast range of different identities, needs, capacities and experiences. While the contributions of women and men to climate change and their attitudes towards its impacts and possible solutions may differ, it is not simply a case of men being involved in one way and women another. Instead, complex interactions between identity and impact take place, in which gender plays an important role. Considering gender and climate change, therefore, creates an awareness not just of the status of women and men, but of the intersecting of different identities and the way in which these affect the relationships between women and men as well as their roles, responsibilities, vulnerabilities and capacity to cope with and to mitigate climate change.

KEY TERMS

Gender	The range of 'socially constructed' roles, behaviours, attributes, aptitudes and relative power associated with being female or male in a given society at a particular point in time. 'Socially constructed' means that these are not 'given' or 'natural' but are constructed or produced by society. As such they can also be modified or changed (Esplen 2009b cited in Brody, Alyson, 2009, Gender and Care. Overview report).
Gender Equality	Gender equality refers to a state of affairs where all humans - women and men - are free to develop their personal abilities and make choices without the limitations imposed by stereotypes, rigid gender roles or prejudices. Gender equality means that the different behaviours, aspirations and needs of women and men are considered, valued and favoured equally (Aguilar, L., Blanco, M. and Dankelman, I., 2006. "The Absence of Gender Equity in the Discussions on the International Regime on Access and Benefit Sharing." Discussion document for the Eighth Meeting of the Conference of the Parties to the Convention on Biological Diversity. Gland: International Union for Conservation and Nature).
Gender Mainstreaming	Gender mainstreaming is the (re)organisation, improvement, development and evaluation of policy processes, so that a gender equality perspective is incorporated in all policies at all levels and at all stages, by the actors normally involved in policy-making. (Council of Europe 1998. Conceptual framework, methodology and presentation of good practices: Final Report of Activities of the Group of Specialists on Mainstreaming [EG-S-MS (98) 2]. Strasbourg.)
Intersectionality	Intersectionality is an analytical tool for studying, understanding and responding to the ways in which gender intersects with other identities (race, class, disability, etc.) and how these intersections contribute to systematic oppression and privilege (AWID 2004. Intersectionality. A Tool for Gender and Economic Justice.)

Climate	Defined narrowly as 'average weather' or more rigorously as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years (IPCC).
Climate Change	A statistically significant variation in either the mean state of the climate or its variability, persisting for an extended period (typically decades or longer). Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use (IPCC).
Mitigation	In the context of climate change, a human intervention to reduce the sources or enhance the sinks of greenhouse gases (IPCC).
Low carbon development	A strategy that aims at stabilising levels of CO_2 and other greenhouse gases at a level that will avoid dangerous climate change, through deep cuts in global emissions, e.g. by high levels of energy efficiency, use of low-carbon energy sources and change in consumption patterns and life-styles.
Adaptation	Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (UNFCCC).
Market-based instruments	Market-based instruments are policy instruments influencing prices (e.g. taxes and financial or fiscal incentives) or quantities of emissions, by which a maximum quantity is set (in absolute terms or per unit of output). (For more details see: http://europa.eu/legislation_summaries/energy/european_energy_policy/l28191_en.htm)

Emissions trading	Emissions trading, as set out in Article 17 of the Kyoto Protocol, allows countries that have emission units to spare - emissions permitted them but not "used" - to sell this excess capacity to countries that are over their targets. Since carbon dioxide is the principal greenhouse gas, people speak simply of trading in carbon. Carbon is now tracked and traded like any other commodity. This is known as the "carbon market" (UNFCCC).

INTRODUCTION

In 1995, the Fourth World Conference on Women adopted the Beijing Declaration and the Beijing Platform for Action (BPfA). The BPfA is an agenda for action, seeking to promote and protect the full enjoyment of all human rights and fundamental freedoms by women throughout their lives.

By signing up to the document, the Member States of the EU officially acknowledged their responsibility for taking action to implement the BPfA and undertook to monitor and report on progress in each of the areas of concern. Although the primary responsibility for the advancement of women lies with the national governments, the EU was also involved in drawing up the Beijing Declaration and supports its Member States in taking action.

In December 1995, the European Council acknowledged the EU's commitment to the BPfA and stated its intention to review its implementation across the Member States on a yearly basis. Since 1999, quantitative and qualitative indicators have been developed by successive Presidencies of the Council of the EU for the purpose of monitoring progress towards achieving the BPfA goals. By 2010, the Council of the EU had adopted indicators in nine out of twelve critical areas. Indicators for three areas have yet to be developed. These areas are: Human Rights of Women; Women and the Media and Women and the Environment.

Since 2010 the European Institute for Gender Equality (EIGE) has been supporting the Presidencies of the Council of the EU in the follow-up of the BPfA. Denmark, which holds the Presidency of the Council of the EU during the first half of 2012, decided, in cooperation with the Commission, the High Level Group on Gender Mainstreaming and EIGE, to review the area entitled "Women and the Environment" focusing on gender equality and climate change and to propose indicators in this area.

Climate change is one of the greatest challenges of the modern era. It is an important area of policy intervention in the European Union. The EU has adopted an integrated approach to climate and energy policy and plays a leading role in strengthening global efforts to protect the climate. Moreover, the Union is bound to strive for equality between women and men in all its activities. EU commitment to gender mainstreaming calls for actions and concrete measures so that a gender equality perspective is incorporated in environmental policies and programmes at all levels and at all stages by the actors involved in policy-making. In line with the commitments of the EU to gender mainstreaming and gender equality, the Danish Presidency will focus on climate change from a gender equality perspective and develop indicators to measure progress in this area.

The critical area of "Women and the Environment" has three associated objectives:

- K.1. Involve women actively in environmental decision-making at all levels.

- K.2. Integrate gender concerns and perspectives in policies and programmes for sustainable development.

- K.3. Strengthen or establish mechanisms at the national, regional and international levels to assess the impact of development and environmental policies on women.

This report aims at proposing a set of indicators for objective K.1 with a focus on climate change. To do so, it investigates the theoretical linkages between gender issues and climate change, along with evidence from research undertaken in the EU and its Member States in this area. Based on the theoretical basis and on the available data, the report discusses two important dimensions of objective K.1: women's participation in climate change decision-making at the national, EU and international levels, and the proportion of women tertiary graduates among all graduates in scientific and technical fields related to climate change.

Women's participation in climate change decision-making is an important prerequisite for more gender-responsive and efficient climate change policies that best serve the needs of society. In most Member States, women continue to be under-represented in decision-making processes and positions. Gender equality in decision making is one of the priority areas of the Commission's Strategy for Equality between Women and Men 2010-2015. Education is another important area of intervention in the effort to achieve the Beijing objectives. BPfA states that one of the key actions to be taken by governments at all levels, including local and regional authorities, to achieve objective K.1 is to "facilitate and increase women's access to information and education, including in the areas of science, technology and economics, thus enhancing their knowledge, skills and opportunities for participation in environmental decisions"[1]. Women's higher enrolment in science- and technology-related fields that lead to careers in the energy and transport sectors is a prerequisite for obtaining access to the institutions and power structures which control and support climate change policy making. The analysis of women's participation in climate-change decision-making and segmentation of education by gender is based on data that is available and can be collected on a regular basis to measure progress towards objective K.1 in the EU Member States.

It should be noted that there has been a relatively large amount of research on gender dimensions of climate change for the developing world, but similar research is scarce for the EU. The existing research does not cover all Member States or provide comparable data on the EU level. Nevertheless, the issue is important and it requires not only further research to form a stronger evidence base, but also further consideration in policy-making. Climate change is a complex issue containing a number of over-lapping gender dimensions and their psychological, socio-economic, cultural, legal, political, and biological aspects.

[1] Beijing Platform for Action: http://www.un.org/womenwatch/daw/beijing/platform/index.html
The actions to be taken in the area of education are mentioned under objective K.2 as well. The governments should "promote the education of girls and women of all ages in science, technology, economics and other disciplines relating to the natural environment so that they can make informed choices and offer informed input in determining local economic, scientific and environmental priorities for the management and appropriate use of natural and local resources and ecosystems".

Chapter 1 provides an introduction to climate change, noting that it is a broad and complex issue, with wide-ranging socio-economic as well as environmental impacts. The chapter gives a basic overview of the issue, its causes, and a picture of how the changing climate is expected to affect the EU in the coming decades. This chapter also contains an overview of the policy initiatives taken at the EU level and within the international climate change negotiations.

Chapters 2 and 3 are based on an extensive review of existing research and literature on the links between climate change and gender, and present the argument for increased consideration of gender aspects in climate change policy-making and decision-making. The literature review presents the context and sets out the issues to be considered. Chapter 2 covers the gender dimensions of climate change impacts and contributions to greenhouse gas emissions from, for example, energy consumption and transport use. The chapter also discusses the extent to which women and men are willing and able to adapt their lifestyles to reduce their emissions, and reviews what public opinion indicates about perceptions and attitudes towards climate change in the EU. Chapter 3 examines research on the role of women in climate change decision-making and the extent to which education systems in the EU support education in scientific and technical fields which provide entry to climate change-related careers.

Chapters 4 and 5 present analysis of data on women's participation in climate change decision-making at the national, EU and international levels. Eurostat data on tertiary graduates in seven scientific and technological fields related to climate change - and the energy and transport sectors in particular - are also analysed in order to assess the proportion of women tertiary graduates among all graduates in natural sciences and technologies at the EU and Member States level. On the basis of the analysis, four indicators are proposed and defined in detail, along with the data available to measure them. Chapter 6 presents conclusions and recommendations for further work in this area.

1. CLIMATE CHANGE AND ITS POLICY CONTEXT

1.1. CLIMATE CHANGE

Climate change is a broad and complex issue. Its close connection to nearly every aspect of life is apparent when we consider its causes and impacts as well as the responses and measures necessary to avoid dangerous and irreversible consequences.

The underlying mechanism, the greenhouse effect, is based on the atmosphere's function as a heat trap for solar radiation, with incoming short-wave radiation being absorbed by the Earth's surface, which in turn emits long-wave radiation that cannot escape since it is absorbed by greenhouse gases, the ultimate result being an increase in air temperature. Without this effect, the planet would be some 18 degrees cooler. A number of gases released from human activities add to the heat trap and modify the energy balance of the climate system, in a process known as anthropogenic climate change. Climate change involves not only "global warming" but also lasting changes in average weather conditions and patterns, including humidity and precipitation, atmospheric pressure and wind.

According to the Intergovernmental Panel on Climate Change (IPCC)[2], there is no doubt that warming of the climate system is actually taking place, according with the evidence of global average air and ocean temperature increases, melting of snow and ice in the northern hemisphere and rising sea levels, affecting natural and human environments (Intergovernmental Panel on Climate Change 2007). The expected impacts of climate change in the EU include more frequent extreme weather events such as storms and heavy rains, high temperatures and drought (in particular in Southern Europe), and the retreat of glaciers and reduced snow cover. Consequences will include increased risk of flash floods and coastal flooding, increased erosion, more frequent wildfires, extensive species loss and reduced water availability and crop productivity. These in turn will adversely affect various sectors such as agriculture, forestry, infrastructure (energy, buildings and transport), environment (water, soil, biodiversity and natural resources) and marine and coastal zones, including fisheries, tourism, health and social aspects.

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[2] The IPCC is the leading international scientific body for the assessment of climate change, established by UNEP and WMO. It reviews and assesses the scientific, technical and socio-economic information produced worldwide to provide the world with a clear scientific view of the current state of knowledge on climate change and its potential environmental and socio-economic impacts.

Since pre-industrial times, global greenhouse gas (GHG) emissions have been growing, with an increase of more than 70% during the last 40 years (Intergovernmental Panel on Climate Change 2007). The main gas accumulating in the atmosphere and contributing almost 78% to climate change is carbon dioxide, resulting from the burning of fossil fuels and deforestation.
The contribution of other greenhouse gases such as methane, nitrous oxide and fluorinated gases (F-gases) is smaller, although their effect per ton of emissions is much stronger.

While deforestation is a substantial cause of climate change on a global scale, since it is responsible for around 20% of global GHG emissions, in Europe land use changes play a minor role. In contrast, the energy sector is responsible for the bulk of GHG emissions in Europe. According to the European Commission, in 2009, the shares of emissions of GHG by sector were: 32.4% from energy supply, 26.7% from energy use, 20.2% from transport, 7 % from industrial processes, 10.3% from agriculture, 3.2% from waste and 0.2% from solvents and other sources[3] (all EU-27 countries).

Consequently, the energy sector - power stations in particular -, transport, public and private buildings[4], and business operations are key to cutting GHG emissions. Emissions from transport in particular have increased by 16.8% since 1990 (only in EU-15 countries), as a consequence of the increase in transport demand, both for passengers and goods.

Even if countries succeed in reducing greenhouse gas emissions, the planet will take time to recover from the greenhouse gases already in the atmosphere. The global community will be facing the impacts of climate change and thus need to take measures to adapt. Enhancing resilience to the impacts of climate change also means the chance to invest in a low-carbon economy, for instance, by promoting energy efficiency and the uptake of green products.

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[3] Data from report from the Commission to the European Parliament and the Council: "Progress towards achieving the Kyoto objectives" (required under article 5 of Decision 280/2004/EC of the European Parliament and of the Council concerning a mechanism for monitoring Community greenhouse gas emissions and for the implementing the Kyoto Protocol).

[4] Transport and buildings are included in the energy sector in the GHG Inventory.

1.2. EU CLIMATE CHANGE POLICY

Climate change policy calls for a comprehensive, integrated and long-term approach, including the definition of global targets and actions at every scale. All public, industrial, and private consumers are contributing to the problem and thus need to be part of the solution.

Climate change, both in terms of its impacts and of mitigation strategies, is interlinked with many other issues.[5] It is closely connected to air pollution and health, and to natural resources such as energy, water, soil and land. Furthermore, it is related to economic and social issues, in particular equity issues on a global scale.

The first attempts to respond to climate change at the EU level date back to 20 years ago and include, for instance, the proposal to introduce a carbon tax. Eventually, in 2003, Directive 2003/96/EC on the taxation of energy products and electricity was adopted, which involves taxing carbon emitters. In 2000, the European Climate Change Programme (ECCP) was launched, leading to the adoption of a wide range of new policies and measures before entering into a new phase in 2005 (second European Climate Change Programme - ECCP II).[6]

An integrated approach to climate and energy policy was adopted in 2008 with the aim of transforming Europe into a highly energy-efficient, low-carbon economy with the adoption of the so called Climate and Energy Package. The mid-term targets, known commonly as the 20-20-20 targets, include a 20% GHG emissions reduction from 1990 levels, a 20% share of renewable energies and a 20% improvement in energy efficiency across the EU-27 by 2020. In the longer run, EU GHG emissions are to be reduced by 80 to 95% by mid-century from 1990 levels.

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5 The two main responses to climate change are mitigation (tackling its causes through the reduction of greenhouse gas emissions or sequestration of greenhouse gases) and adaptation to the impacts of climate change.

6 More information about EU climate change policies can be found on the website of the European Commission at http://ec.europa.eu/dgs/clima/mission/index_en.htm

Initiatives taken to cut EU-wide GHG emissions include the Emissions Trading System, the EU's key instrument for reducing GHG emissions from industry.[7] The EU ETS covers GHG emissions from more than 12.000 installations, accounting for around 40% of total EU emissions. Under Directive 2003/87/EC regulating the EU ETS, installations have to surrender every year as many allowances as emissions they report from the previous year. From 2012 on, aviation operators are also included in the scheme. Other overarching rules include effort sharing of the emissions reduction burden among Member States (Decision 406/2009/EC) and joint efforts to monitor GHG emissions based on Decision 280/2004/EC.

At the sectoral level, numerous other EU Directives aim at reducing GHG emissions, primarily in the energy and transport sectors. These are implemented at national levels in various ways. The following is a list of sectors covered and some of the relevant EU Directives:

Renewable energies: Directives mandate the increased use of renewable energy sources, such as wind, solar, hydro and biomass, and of renewable transport fuels, such as biofuels; and combined heat and power installations (most recent: Directive 2009/28/EC on the promotion of the use of renewable energy which establishes as mandatory target a 20% share of energy from renewable sources in the European Union's energy mix by 2020).

Energy efficiency: Areas regulated include the energy performance of buildings (Directive 2010/31/EC which establishes as a main objective increasing the energy efficiency of European buildings and Directive 2005/32/EC which establishes a framework for the ecological design of products which use energy); energy labelling of domestic appliances (Directive 2003/66/EC and a number of other related regulations which establish the requirements of energy labelling of household electric refrigerators, freezers and their combinations); end-use efficiency and energy services (Directive 2006/32/EC); and Directive 2009/125/EC which establishes a framework for eco-design requirements for energy-related products.

[7] Directive 2003/87/EC and a number of amendments and related Directives to update and expand the system. For more details see http://ec.europa.eu/dgs/clima/acquis/index_en.htm.

Transport/fuels: These include emission performance standards for new passenger cars (Regulation 443/2009 and related regulations which limit the average CO_2 emission level of new passenger cars to 130 gr CO_2/km by 2015 and 95 gr CO_2/ km by 2020), biofuels (Directive 2003/30/EC which promotes the use of biofuels or other renewable fuels for transport), and the inclusion of aviation in the EU Emissions Trading System through Directive 2008/101/EC which applies to all flights the origin or destination of which is a European airport.

Furthermore, the transport White Book establishes as its main goals a transfer of traffic from road to other more efficient means of transport, such as rail, of 30% by 2030 and 50% by 2050 and the establishment of a basic network of European strategic infrastructure (RTE – T).

Further legislation includes the development of carbon capture and storage (CCS) technologies to trap and store carbon dioxide emitted by power stations and other large installations though Directive 2009/29/EC which includes capture, transport and geological storage in the European Emissions Trading System.

Finally, a comprehensive EU Adaptation Strategy that strengthens Europe's resilience to climate change is currently being developed, based on a White Paper presenting a framework for adaptation measures and policies.[8] The EU Adaptation Strategy is expected to be adopted in 2013.

1.3. THE EU AND THE GLOBAL PERSPECTIVE

The European Union and its Member States have ratified the UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol to the UNFCCC. At the time when the Kyoto Protocol was signed, the Member States which were members of the EU before 2004, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden and the United Kingdom of Great Britain, and the European Community, committed to collectively reducing their greenhouse gas emissions by 8% between 2008 and 2012. Member States which joined the EU after that date undertook to reduce their emissions by 8%, with the exception of Poland and Hungary (6%). Malta and Cyprus do not have commitments under the Kyoto Protocol since they were not listed in Annex I to the Framework Convention at the time.

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[8] For more details, see the White Paper on adapting to climate change, COM(2009) 147 final, of 1 April 2009: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0147:FIN:EN:PDF.

The specific targets for the Member States as defined by the EU burden sharing agreement put in place to fulfil the commitment to reduce EU emissions by 8% between 2018-2012 (from 1990) are binding and vary considerably among the Member States, taking into account indicators such as emission levels per capita and countries' capabilities.

However, there is a broad consensus that commitments under the Kyoto Protocol, which cover around 16% of global emissions, are not enough, by themselves, to meet the objective of limiting the increase in global mean temperature to 2ºC as the Parties agreed in Cancún. In order to keep the 2ºC objective within reach the science is clear: global greenhouse gas emissions will need to be reduced by at least 50% by 2050 from the 1990 level and peak by 2020 at the latest. Also, the IPCC AR4 indicates that achieving the lowest stabilisation level assessed by the IPCC to date and its corresponding potential damage limitation would require Annex I Parties as a group to reduce emissions to a range of 25–40 per cent below 1990 levels by 2020, while developing countries as a group should achieve a substantial deviation below the current predicted emissions growth rate, in the order of 15-30% by 2020. In the context of the Cancún Agreements, the Parties put on the table a set of pledges to reduce their emissions that only account to around 60% of the reductions required. In Durban, the Parties recognised the existence of this significant gap between the aggregate effect of the Parties' mitigation pledges in terms of global annual emissions of greenhouse gases by 2020 and aggregate pathways consistent with the probability of holding the increase in global average temperature below 2ºC or 1,5ºC above pre-industrial levels. In this context, the Durban Platform for Enhanced Action was launched in order to develop a protocol, another legal instrument or an agreed outcome with legal force under the Convention applicable to all Parties. This process is to raise the level of ambition and identify and explore options for actions that can close the ambition gap with a view to ensuring the highest possible mitigation efforts by all Parties.

International negotiations have been taking place in a two-track approach. First, based on the Kyoto Protocol, the Ad Hoc Working Group (AWG-KP) has been looking at options for updating and strengthening the Protocol. In the recent Climate Change Summit in Durban (December 2011) the Parties agreed that the second commitment period will begin on 1 January 2013 and end on either 31 December 2017 or 31 December 2020, to be decided in 2012, and the COP took note of the quantified economy-wide emission reduction targets to be implemented by Parties included in an Annex to the decision. Parties will need to convert these targets to quantified emission limitation or reduction objectives (QELROs) for the second commitment period in 2012. In parallel to the discussions under the AWG- KP, Parties have been working on the basis of the Bali Action Plan agreed at COP 13 in 2007, in the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention (AWG-LCA). Major results were achieved in 2010 in Cancún, results that have been further developed and complemented in Durban in 2011 with the adoption of more than 30 decisions that take forward the implementation of the Cancún outcomes while at the same time major agreements have been made to put in place a new process to be developed in a new Ad Hoc Working Group on the Durban Platform for Enhanced Action which will start working immediately with the aim to develop a protocol, another legal instrument or an agreed outcome with legal force under the Convention applicable to all Parties by 2015 at the latest.

During most of the UNFCCC negotiations, in particular in the negotiations revolving around the Kyoto Protocol, the EU has played a pro-active role in devising far more ambitious targets and self-commitments than most other industrialised nations. In Durban, the Alliance between the European Union, the Alliance of Small Island Developing States and the Least Developed Countries has been key to agreeing on the Durban Platform and on the process to increase the level of ambition, reinforcing the 2ºC objective, as well as the roadmap towards a legally binding agreement by 2015 at the latest that includes all countries, by keeping the pressure on emerging countries like China, Brazil and India as well as the US, which are more reluctant to agree to this process.

1.4. SUMMARY AND CONCLUSIONS

Climate change, caused by the release of greenhouse gases from human activities, is already observable and is expected to lead to severe impacts affecting ecosystems and societies. Urgent action is required at all levels, in order to mitigate climate change and adapt to its impacts. Energy- and transport-related sectors are the main source of greenhouse gas emissions. The European Union has adopted an integrated approach to climate policy involving a large number of regulations. Moreover, the EU has an important role to play in advancing the international climate negotiations. The EU has the potential to continue to take the lead in strengthening global efforts for climate protection[9], including more sustainable energy and transport policies, and demonstrating that the transition to a low carbon society can be beneficial in social and economic terms.

2. GENDER AND CLIMATE CHANGE

From a gender perspective, what issues are important for climate policies?

When considering climate change from a gender equality perspective, there are various aspects to be taken into account. One relates to the question of power and participation in policy making: who plans and decides, and how the planning and decision-making are carried out. It addresses the issues of the share of women and men in decision-making positions, in climate change research and technology development, as well as in international negotiations or participatory processes in general. Additionally, account should be taken of how equal representation of women and men shapes debates and solutions.

[9] As stated 2007 in the Berlin Declaration: http://www.eu2007.de/de/News/download_docs/Maerz/0324-RAA/English.pdf

Secondly, climate policies should consider various gender-related aspects of climate change: the impact of climate change on women and men, their different contributions and perceptions of climate change and the solutions women and men prefer for mitigation and adaptation. These aspects are to be analysed by addressing the various gender dimensions:

a) how socio-economic factors such as income, class and age impact women's and men's mitigation strategies;

b) how the psycho-social dimension influences women's and men's perceptions and attitudes towards climate change;

c) how various dimensions affect gendered impacts of policies and measures.

The gender dimensions can be specified as follows, bearing in mind that they are not clear-cut and might overlap as they can reinforce or attenuate one another:

Dimensions	**Gender-specific aspects / approaches**
Socio-psychological	Keywords: Gender identity, gender roles, gender-specific behaviour, attitudes, risk perception, life expectancy (behaviour-related). Gender identities are rooted in cultural understandings of what it means to be masculine or feminine, whereas gender roles are based on societal expectations of being a man or a woman. Both can be translated into different consumption patterns, potentially resulting in more or less energy-intense lifestyles, and in differentiated attitudes and perceptions, based on different values, e.g. fairness and ethics vs. cost-performance-ratio.
Socio-economic	Keywords: Gender division of labour (horizontal, vertical), property ownership, access to resources, income, education, poverty. The gender division of labour, in paid and unpaid work, leads to differences in the effects of climate change and in requirements for low-carbon development. For instance, time-use studies show that even in the Nordic countries, and when both partners have full-time jobs, women spend more time on household and family work than men. Economic disparities lead to differences in the capacity to cope with and to mitigate climate change. On average, women's salaries and assets are lower. Thus, women (in particular single mothers and elderly women) are disadvantaged if expensive adaptation and mitigation measures are required.
Socio-cultural	Keywords: Religion, cultural patterns and norms. It is not only the household in which social roles play out – other areas of social life also exhibit and entrench cultural patterns, such as the use of public services (e.g. parks, transportation systems), or the radius within which women and men move.

Legal	Keywords: Land rights, inheritance, anti-discrimination, protection. Although legal rights in EU Member States are gender-neutral, this does not necessarily mean that gender equality is implemented and all forms of discrimination removed. Indices for inequality which might influence gendered impacts of climate change policies are, for example, gender income gaps and gendered access to loans.
Political	Keywords: Participation, power, empowerment, governance, instruments, policy mix. Several social sectors which have the greatest influence in climate-related decision-making – both mitigation and adaptation – are male-dominated. This is a detrimental shortcoming, as women and men show great differences in their perceptions of and attitudes towards climate change-related problems and display different risk perspectives.
Physical, biological	Key words: Physical differences between the sexes, e.g. affecting reactions to pollution, temperature; life expectancy (not behaviour related). There are indications that the health impacts of climate change can differ between women and men for biological reasons, in addition to the social reasons of health impacts such as being cared for by partners or suffering exposure to chemicals.

(Based on Hemmati and Roehr 2007a)

The link between gender equality and climate change has been increasingly acknowledged in developing countries in recent years, but research and publications focus almost exclusively on the impacts of climate change on 'vulnerable' women in the Global South (Brody, Demetriades, and Esplen 2008; Lambrou and Paina 2006; Roehr and Hemmati 2008a; Skinner 2011; Aguilar Revelo, Castañeda Camey, and Chao Rebolledo 2008). With regard to the EU Member States, there is a lack of awareness of the gendered impacts of climate change, the gender aspects of mechanisms to mitigate climate change and the impacts of climate policies and measures on women and men. In addition, there is a lack of research to inform debates on these issues.

Why is it important to address gender issues in climate policies at all levels and in all regions of the world?

The gender equality aspects in climate change policies are important as they represent a question of equality and equity: both women and men need to be equally and meaningfully involved in planning and decision-making. Furthermore, different implications for women and men of planned legislation, policies and programmes need to be assessed because climate change and climate policy might otherwise exacerbate existing inequalities (Alber 2010). Secondly, it is a question of effectiveness and efficiency. If climate change policies are not targeted at all relevant consumers, they are likely to be less effective. As Alber states, "only inclusive and gender-sensitive climate policies will be able to reach a majority of citizens" (ibid: 8).

Gender does not refer only to women.

"Gender" is often interpreted as referring to the requirement to take into account women's needs and vulnerabilities, and include women in decision-making. Because most data on gender focus on gender differentials, often the underlying "socially-constructed roles and opportunities associated with being a 'man' or a 'woman', the interactions and social relations between men and women" (Aguilar Revelo, Castañeda Camey, and Chao Rebolledo 2008, 24), are not adequately analysed. Furthermore, a generalisation of "women" and "men" is problematic; attention must be paid to differences within each gender. Therefore, it is important to take intersectionality into account, which means linking "gender" to other influencing factors, such as social class, income, education, living and working conditions, and cultural and ethnic background (Weller 2007).

Gender differences vs. gender dimensions of climate change policies.

Socially-constructed roles and identities of women and men and the underlying power dynamics affect the way women and men experience and respond to climate change (Skinner 2011). Often differences between women and men in their perceptions and attitudes, needs, vulnerabilities and use of resources are the main entry point for addressing gender issues in climate change – as in any other area of environmental policy. These gender differences are well explained by Schultz and Stiess (2009) as arising due to a variety of reasons:

On an individual level, they reflect personal attitudes, beliefs, values and expectations. On a structural level they are related to the different time-use and work duties of women and men and gendered biographical patterns. The differing life situations of women and men are predominantly explained by the gendered division of labour, assigning the responsibility for housework and caring activities to women rather than to men (Schultz and Stiess 2009, 23).

Gender differences relating to the impacts of climate change, as well as perceptions of and contributions to climate change, have been investigated in different countries and cultures (Carlsson-Kanyama and Räty 2008; European Commission 2008a; OECD 2008a; Roehr et al. 2004; Schultz and Stiess 2009). However, simply noting these differences without analysing the underlying societal dynamics that give rise to these differences runs the risk of reproducing traditional gender roles and stereotypes, instead of contributing to gender equality. Therefore, it is essential to shift away from a "gender difference" framework to one investigating the effects and implications of gender. The gender dimensions should be at the focus of such a framework, analysing the complexity, the tension and contradictions between different dimensions, thus making the gender and climate nexus more understandable and researchable (Henwood, Parkhill, and Pidgeon 2008).

Skinner (Skinner 2011, 19) points out that "there is a serious risk that by failing to take into account underlying gender inequalities, the very policies that aim to address the problem may magnify existing inequalities". Using current knowledge about the gender dimensions of climate change as a starting point to assess climate policy can avoid this risk and provide a good basis for further elaboration.

The present report is based on an extensive literature review from a gender perspective, organised under the following thematic headings:

- Impacts of climate change
- Contributions to climate change
- Differing capabilities to mitigate climate change at the individual level
- Perceptions of and attitudes towards climate change

- Impacts of policies and measures
- Gendered participation in decision-making
- Segmentation of education by gender

Each section starts with a short introduction to the subject area, followed by data and research to highlight gender dimensions in the particular area. Whenever possible or appropriate, conclusions are drawn. Although some aspects covered in the report may demonstrate lack of research-based evidence or limited availability of data, they point to the importance of mainstreaming gender into climate change policies and of achieving gender equality in the respective decision-making positions.

2.1. IMPACTS OF CLIMATE CHANGE

Gender-differentiated roles and responsibilities in families and households, as well as gender-segregated labour markets and income gaps, cause differentiated vulnerabilities[10] of women and men to the effects of climate change. In industrialised countries, research points to differential impacts on well-being and, in particular, on mental and physical health. Several researchers (Hansson 2007; Johnsson-Latham 2007; Roehr 2009a) looked at how different gender dimensions can be important for climate change adaptation approaches[11] in developed countries. They found that p*ower relations* play a major role for the consideration of the gender perspectives in the process of finding solutions to adapt to climate change, the appropriate adaptation strategies and national adaptation plans. This means not only taking into account and addressing the impacts of climate change on natural and technological infrastructures, but also considering the impact on the population, with particular attention to gendered roles and responsibilities.

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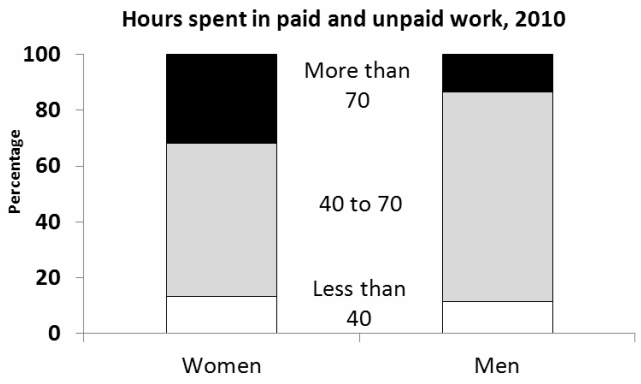
[10] According to the Intergovernmental Panel on Climate Change (Intergovernmental Panel on Climate Change 2007), vulnerability is the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability depends on exposure (the degree of climate stress), sensitivity (the degree to which a system will be affected by, or responsive to climate stimuli), and adaptive capacity (the potential or capability to adjust to climate change).

[11] Adaptation, according to the IPCC, means adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It requires changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change.

Furthermore, existing *economic disparities* lead to differences in adaptive capacity. On average, women's salaries and assets are lower than men's. This may place single mothers and elderly women in a disadvantaged position when expensive adaptation measures are required, as they may not have the means to address climate change and protect themselves.

The *gendered division of household labour* needs also to be considered, as it leads to different effects of climate change as well as to different requirements for climate change adaptation. Care work may increase due to health impacts of climate change, or due to natural disasters, putting additional burdens on those who are mainly responsible for caring.

Figure 2.1. Women work more in paid and unpaid work including caring for family members, housework etc.

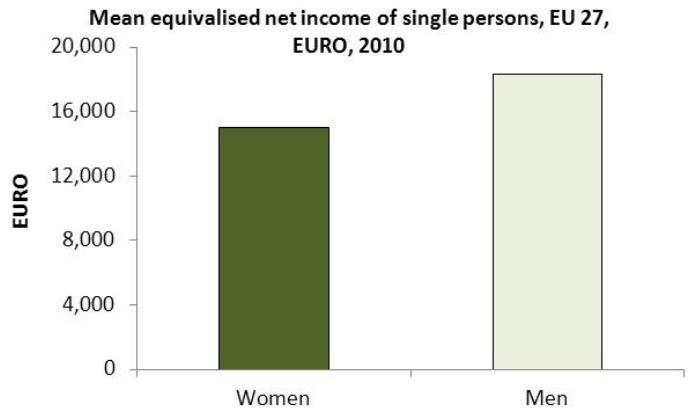


⇨ Care work may increase due to health impacts of climate change, or due to natural disasters, putting additional burdens on those who are mainly responsible for providing care

Source: EWCS

Research is scarce or non-existent on the impacts of climate change on wealth, paid and unpaid work, and consequently also on its possible impacts on gender relations. Nevertheless, evidence exists that the poorest in society are affected most by impacts such as climate change-induced natural disasters, because they live in areas most prone to such disasters, or because they have low incomes and assets, all of which limit their abilities to recover and to adapt.

Figure 2.2. Women have lower income, especially single mothers and elderly



⇨ Women are likely to be particularly disadvantaged when expensive adaptation measures are required, as they may not have the means to address climate change and protect themselves

Source: Eurostat, EU-SILC (ilc_di04)

Climate change has been observed in many regions of the globe and its different effects on various parts of society have been noticed (Intergovernmental Panel on Climate Change 2007). Higher temperatures and more frequent heat waves can have detrimental effects on particular sections of the population and are likely to affect women and men differently, as already observed during the 2002-2003 heat waves that hit Europe. The groups most affected were young children, the elderly, the sick and the poor. More women than men are elderly and poor, and women are the ones providing care for children, sick and elderly persons; they are therefore affected in multiple ways with regard to their own health as well as to care responsibilities imposed by the impact of climate change (World Health Organization 2011; Duncan 2007; European Environment Agency 2006; Filleul, Larrieu, and Lefranc 2011; Flechsig et al. 2000; Nogueira et al. 2005; Pirard et al. 2005). For example, in Portugal the estimated excess mortality rate for women resulting from the 2002-2003 heatwaves was more than twice the rate estimated for men (Nogueira et al. 2005). In France similar findings show a 70% increase in excess total fatalities for women (where elderly women 75 years and over are particularly affected) compared to a 40% increase for men (Pirard et al. 2005). An earlier study by the Potsdam Institute for Climate Impact Research (PIK) also discovered higher average mortality rates for women, particularly the elderly, during extreme heat in Germany.

Events like natural disasters, such as Hurricane Katrina in the U.S. in 2005 or the floods in Europe in 2010, provide further examples of the differing effects of climate change on women and men. Women – especially elderly women and single mothers – are likely to bear the greatest burden during these times of distress. The gender approach adopted in research into disaster risk management points to the significant role played by women in disaster management and the benefit of integrating them in all phases of preparation and implementation of disaster planning. "As Hurricane Katrina illustrated, the global North is not immune to extreme climate events either, and the degree of vulnerability people in New Orleans experienced was closely correlated with gender, poverty, race, age and class, and the intersections between them." (Enarson 2006; Hartmann 2006; Oswald Spring 2008; Dankelman 2010). Not only do women constitute the majority of victims of floods and experience the greatest difficulty in recovering from a disaster, but they are also more likely to be subjected to sexual violence in the aftermath of disasters (Dankelman 2010, 152; Roehr and Hemmati 2008a, 797).

Besides the social and health-related impacts of climate change, several economic factors can contribute to and amplify the influence of climate change. Research carried out in the Arctic has documented how climate change affected social structures within local communities. Due to serious and rapid changes in average temperatures and impacts on the environment, families are unable to sustain their livelihood with traditional ways of living and hunting. Increasing numbers of women are therefore leaving their communities to find work in new sectors, whereas men seem to have more difficulty in adapting to new circumstances, by changing their traditional employment and lifestyle to seek opportunities elsewhere. This economically-driven female flight leads to a structural change within society – fewer possibilities for marriage and reduced care for family, children and elders.

It is important to notice here that the impacts of climate change are felt and experienced differently in each community and region. It is therefore imperative to consider the importance of gender and of the place in which individuals or groups experience the changes, and the role of local strategies in adapting to climate change, which provide valuable lessons and insights for sustainable development.

The findings of research on the gendered impacts of climate change in the EU Member States suggest that there is a link between climate impacts and biological and social factors. Further analysis and data are needed in order to better understand this link and to be able to address it appropriately in adaptation policies. If this analysis is not undertaken, adaptation policies may have unequal effects and lead to different benefits for men and women. Currently, the Swedish research programme "Climatools"[12] is developing, inter alia, methods and guidelines to ensure that gender equality issues are integrated into adaptation efforts. The programme is also researching whether climate-related measures and adaptation work in Sweden is impacting women and men differently. The guide developed within this framework could provide necessary support for gender-sensitive adaptation policies, which help to avoid unequal effects and disparate benefits for men and women (Westlund 2011).

2.2. CONTRIBUTIONS TO CLIMATE CHANGE

Gender roles and identities are significant for analysing the causes of climate change. Women and men living in Europe contribute differently to greenhouse gases (GHG) - in terms of amounts, consumption fields and purposes (Clancy and Roehr 2003; Johnsson-Latham 2007; Nordell 2003; Nordic Council of Ministers 2009; OECD 2008a; OECD 2008b; Räty and Carlsson-Kanyama 2009; Räty and Carlsson-Kanyama 2010; Schultz and Stiess 2009). These differences are based on the existing, prevailing gender roles and identities expressed by the behaviour and consumption patterns. Regarding the latter, the OECD Report *Promoting sustainable consumption good practices in OECD countries* (2008) states that "gender has a huge influence on sustainable consumption [...]. In some OECD countries, women make over 80% of consumption decisions, although men may spend more than 80% of household funds" (OECD 2008b, 47).

[12] http://www.foi.se/FOI/Templates/ProjectPageDesign____7950.aspx

These gender differentials in the consumption of services and goods can be explained, inter alia, by gendered socialisation and the social roles assigned to and performed by women and men. Here are some examples from various studies: women are more likely to have a higher recognition of health issues and more highly-developed risk perceptions, often acting based on their internalised health and environment orientation; men tend to be more strongly oriented towards convenience and a "consumption-is-annoying" attitude (Schultz and Stiess 2009); women's decisions on consumption are to a larger extent based on aspects of ethics and fairness; women feel a stronger need to adhere to social norms (e.g. slenderness) and control their eating habits more strictly, while men are able to follow their personal tastes and preferences and not follow strict gender body ideals. Ideal images of masculinity or femininity are strongly associated with patterns of consumption and types of products consumed (eg. meat and fast cars are associated with masculinity and virility; mild, light, sweet products are associated with weakness and femininity).

Consumer surveys demonstrate gender-specific consumption patterns. However, one should not forget that this is not the only significant distinction in consumption patterns, in fact:

within each country, the divide between privileged and underprivileged people is as large as the international divide between developed and least developed countries. The size of the carbon footprints of different strata of citizens ranges from very large to virtually zero. Some poor people, though few, in rich countries, produce virtually no carbon emissions at all, e.g. the homeless, while in developing countries, small elites of rich people are responsible for greenhouse gas (GHG) emissions that may well be higher than those of average citizen's emissions in industrialised countries (Alber and Hemmati 2011).

Furthermore:

on the one hand, the higher the income, the higher the CO_2 emissions (because of the size of houses, the amount of electrical equipment and the cars used by higher income earners). On the other hand, low income leads to a situation where older, less energy-efficient appliances are used, housing is built in a non-energy-saving way and purchasing electricity and heat produced from renewables is seen as being too expensive - all of which can result in higher overall CO_2 emissions. Education should not be neglected in this discussion either, as it has an effect on changes in behaviour and corresponding consumer decisions, which cannot be made without knowledge of the options for reducing CO_2 emissions (Roehr and Hemmati 2008a, 796).

Food (production and selling of food) represents one of the most important aspects when considering consumption and emissions. Food chains around the world contribute significantly to the total emissions of greenhouse gases (GHGs). There are no studies presenting the share for the global food production system, but as an indication, Steinfeldt et al. (2006) reported that 18% of global GHG emissions could be attributed to animal products alone. For the EU, nearly a third of all consumption-derived GHG emissions are food-related (EIPRO, 2006, quoted in (Sonesson, Davis, and Ziegler 2009, 4).

Research on gender-related disparities in nutrition has led to the conclusion that body images, as well as social norms, play an underlying role in the development of nutrition behaviours. Studies of daily meat consumption, for example, identified gender differences. In Sweden, for example, men's food consumption, in terms of energy intake, is on average 14-21% higher than women's, partly explained by men's higher levels of meat consumption (Räty and Carlsson-Kanyama 2010). In Germany, research showed that men consume on average 103 grams of meat products per day compared to only 53 grams for women (Max-Rubner Institut and Bundesforschungsinstitut fürErnährung und Lebensmittel 2008). In Denmark, men eat on average 139 grams of meat a day, while women eat 81 grams (Nordic Council of Ministers 2009, 44). These patterns of consumption can be confirmed by data available from various countries throughout the world. Although these patterns of meat consumption might start changing – for example in Sweden, nearly half of women and 41% of men indicated that they had reduced their meat intake during the last two years (Naturvårdsverket 2009, 24), the gap between women's and men's meat consumption might also be widening, because more women are willing to reduce their already modest level of meat consumption.

Women seem to show a greater willingness to change their consumption behaviour for the benefit of the environment. 94% of the respondents in the Women's Environmental Network study stated that they had recently started to make changes (Women Environmental Network and National Federation of Women's Institutes 2007). In Sweden, women are more likely to feel guilt about their ecological footprint (61% of women compared to 43% of men) (Naturvårdsverket 2009, 23) and are therefore more willing to reduce their emissions and to buy products from companies and producers that support climate change initiatives or offer organic products. Additionally, women are more likely to accept higher prices for such products. Similar findings are presented in a Danish study where 62% of women and 54% of men stated that they would be willing to pay more for sustainable goods (Nordic Council of Ministers 2009, 25).

Women's willingness to change their everyday behaviour may be linked to their roles and responsibilities as carers that sensitise their environmental consciousness. Exercising this responsibility could explain why men who are involved in caring activities become more knowledgeable and aware of climate change impacts and effects (Nordic Council of Ministers 2009).

People who are changing their consumption patterns and switching to companies and products that are more environmentally friendly can be considered political consumers. According to Stolle and Micheletti (2005, quoted in Schultz and Stiess 2009), such consumers "choose particular producers or products because they want to change institutional or market practices. They make their choice based on considerations of justice or fairness or on an assessment of business and government practices."

In this connection, women demonstrate particular interest in political market activism – for instance, choosing products with organic or ecologically friendly labelling or buying fair trade clothing (Schultz and Stiess 2009, 20). This is in line with women showing willingness to make changes in their behaviour and to take issues of social justice and socially responsible consumption into consideration.

Analysing consumption patterns and their related emission levels in relation to gendered patterns does not call for privatisation or feminisation of environmental responsibilities, or the stigmatisation of a group of people for their higher emission levels. The aim is to explore the underlying causes for different emission levels, to suggest possible changes and to consider them in the design of strategies and measures. This applies to politics as well as to the companies that manufacture the products. In-depth knowledge of the underlying reasons for this gendered consumption behaviour patterns is a prerequisite, if demand-side policies and measures are to be successful. It can also help to avoid exacerbation of gender inequalities, by avoiding focusing on areas of consumption mainly dedicated to, or under the responsibility of, each gender.

Energy and transportation, analysed in more detail below, are the most relevant sectors in terms of the production and consumption of goods and the related carbon dioxide emissions.

2.2.1. ENERGY CONSUMPTION

Gender differentials in energy consumption have not yet been sufficiently investigated. No research or study has yet attempted to allocate the direct energy consumption of households to women and men. In her study *Gender, cities and climate change*, Alber (2010, 25) makes an assessment of women's and men's contributions to climate change and points out that

if, for instance, energy and fuel consumption data could be broken down to the individuals in a household, the question would remain unresolved whether this consumption could be attributed to care work for the other household members, to commuting trips to employed work to earn income for the family, to informal work in the house to earn income for the family, to transport of family members, or to personal consumption.

Räty and Carlsson-Kanyama (Räty and Carlsson-Kanyama 2010) collected data by analysing the expenditures of single-person households and average energy intensities of products and services in four European countries (Germany, Greece, Norway and Sweden). The direct and indirect energy consumption and carbon emissions were calculated for different purposes (transport, energy consumption in the home, food and beverages, etc.). On average, single men proved to consume more energy than single women in all four countries, independent of income and age. The most significant differences in energy consumption were in Greece and Sweden, with men consuming 39% and 22% more energy than women, respectively. At the moment, this is the *only study* that has systematically analysed gender differentials in energy consumption -- including transport.

Another study carried out in the Netherlands explored energy consumption in households. The results show that the specific energy consumption in a dual-income household was greater than the consumption in households where the female partner stayed at home (Clancy and Roehr 2003, 46). The researchers pointed out that gender roles might actually influence energy consumption, with traditional gender roles potentially contributing to lower energy consumption.

Various studies which looked at consumption of goods and services in general – related to energy consumption in terms of production and consumption cycles – support the insights that gender roles contribute to differences in energy consumption. The research of House, Laitner and Stolyarov (2007, 13) suggests that when women enter the labour market a "household's consumption is expected to rise roughly 8-10% to compensate for lost home production". This could mean a number of measures, including substituting time for fresh food preparation with buying packaged ready-made meals. The research of Machado (2003, 48) shows that the employment status of women in a two-person household has a significant effect on the demand for services in Portugal: "Households with an employed wife allocate a higher proportion of their budget to culture, travel, childcare, food away from home, and domestic services, when compared to households where the women do not participate in the labour force". Zamora (2005, 33), who carried out the research in Spain, analysed the effect of female labour participation on household consumption and concluded that an increase in women's participation in the labour force and the related increase in household income often causes an "increase in aggregated consumption, in particular, for the consumption of food, energy, water and domestic goods related to cleaning and furnishing, transport and communications, and alcohol and tobacco".

Other studies, analysing the factors which determine energy consumption from a gender perspective, deserve mention. In 2003, Clancy and Roehr in their study *Gender and energy* (2003) provided an overview of the key findings of relevant studies up to 2003, focusing on gender differentials in household behaviour, including energy consumption. Since then, not many new findings on the gender aspects of energy consumption have been published. A study commissioned by a German energy provider, which looked at certain purposes of energy use, was published (TNS emnid 2010) in 2010. The results confirm the findings of the earlier studies and surveys: men had higher electricity consumption due to higher intensity of use, in line with the explanation that women and men have different attitudes towards consumption and environment and women are more willing to make efforts to save energy.

Many purchasing decisions have a major influence on energy consumption, ranging from household appliances to larger investments such as the renovation or purchase of a house. As observed by Clancy and Roehr, men are mainly responsible for technical decisions and investments in the thermal insulation of homes, boilers, and hot water installations. In contrast to this, women have the responsibility for energy conservation by reducing their use of electrical appliances, such as washing machines and dishwashers, and encouraging the rest of the family to do likewise (Clancy and Roehr 2003, 3). The area of women's and men's involvement in the decision-making process for different aspects of their lives, including investments in renewable energy installations in the home, clearly needs further exploration.

2.2.2. GENDERED TRANSPORT USE

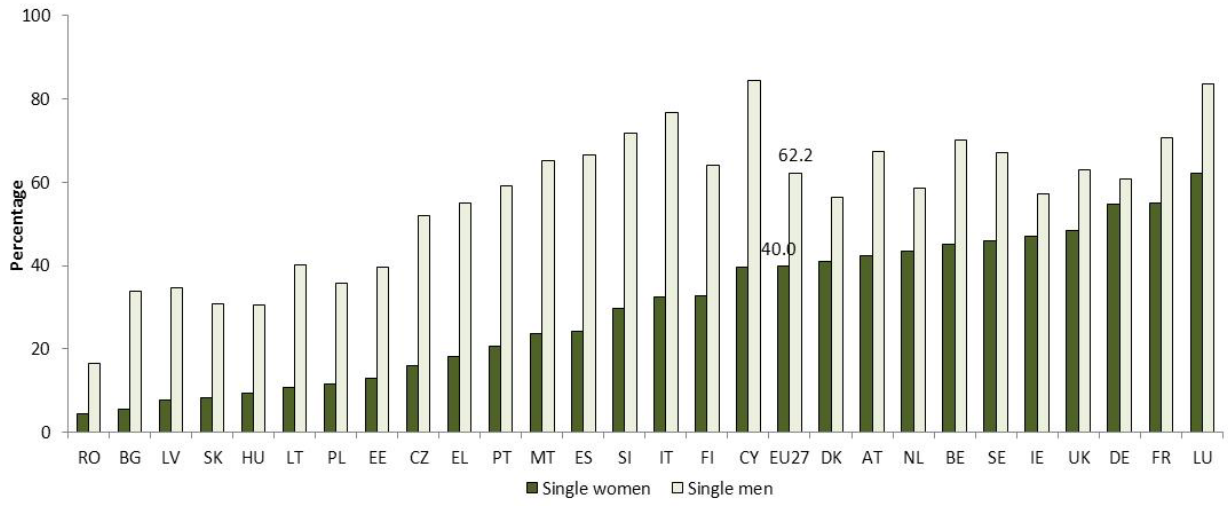
Transport provision is an important factor in securing equal access for, and mobility of, European citizens. Transport and mobility are essential for maintaining a high quality of life, while at the same time reducing welfare costs and increasing sustainable lifestyles at many levels. Yet the EU's current transport priorities and plans present serious challenges and dilemmas related to this ideal of accessibility and sustainability, particularly in a society marked by significant changes in terms of increased mobility, changing family structures and evolving conceptions of rights and duties. In a wide but so far scattered field of research, new challenges facing a transport system intended to promote both sustainability and gender equity have also been addressed (Hjorthol 2004; Næss 2008; Polk 2004; Root, Schintler, and Button 2000; Spitzner and Modlich 2006).

An increasing number of studies have made clear how differences between women and men in the transport sector are associated with sustainability. The TRANSGEN (2007) project and other significant studies have shown that men and women have different travel patterns (Cristaldi 2005; Hjorthol 2004; Houillon 2004; Næss 2008; Polk 2004; Hamilton, Spitzner, and Turner 2006) and that women tend to travel in a more sustainable way than men – for example, by using public transport more often than cars. Evidence shows that these differences influence opportunities to participate in important societal activities such as the labour market, leisure activities, and political and social life (Hjorthol 2004; Næss 2008; Polk 2004; Root, Schintler, and Button 2000; Spitzner and Modlich 2006). Other factors such as age, social class, ethnicity, position in the labour market, income and geographical settlement contribute to differences between women's and men's mobility.

All these factors contribute to and differentiate transport patterns. One may say that gendered transport patterns are neither monolithic, nor static, but are changing with broader societal structures in terms of increasing mobility, as well as with changing family forms and gender roles.

The above studies conclude that it is men who more often adopt an energy-intensive consumption style when it comes to transportation. The EU-SILC database (Eurostat EU-SILC 2009) shows that in all EU Member States more men living in single households own a car (62.2%) than women living in single households (40%). When looking at single-person households in, for example, Romania, slightly less than 5% of single female households own a car, as compared to 16.5% of single male households. The biggest difference is observed in Cyprus and Italy where approximately 45% more single male households than female single households own a car.

Figure 2.3. Single-person households owning a car for personal use by sex, 2009



Source: Eurostat, EU-SILC (data calculated by Eurostat on basis of EIGE's request)

Economic barriers are the most usual explanation for not owning a car, more frequently given by women. In single-parent households where there is at least one dependent child there are even less possibilities to afford or maintain a car. Across all the countries, more women than men mentioned "other reasons" for not owning a car, e.g. in Spain slightly more than one quarter of single male households compared to almost 70% of single female households.

Air transport is another and the fastest growing, sector in transportation that contributes increasingly to climate change. Between 1995 and 2004 the sector grew by 55% and is projected to grow further in a steep curve until 2020. In comparison, in the same period car use increased by 19% while train travel increased by only 9% (Romer Christensen 2011). There is little data available about gender-differentiated car and air travel. Still, one study by Johnson-Latham mentions that 'men fly to a greater extent than women, and are in a clear majority as regards business travel on regular flights, which consume more energy as they give more space to each traveller compared to charter flights. Women, on the other hand, use public transport – bus and rail travel – to a greater extent; they also travel by air, but then largely on charter trips for holidays' (Johnsson-Latham 2007, 54).

Marketing data shows that women make up about a fifth of business-class passengers. Data from Germany (1997) suggest that men use air travel three times more than women. However, given the recently increasing share of women in the labour market and their advance into decision-making positions that might require them to travel by air, the data might not yet reflect these developments accurately. The majority of research on gender and transport has been exploring the use of local transportation. The focus on air transport has been very limited, suggesting the need for further research and data collection in this area.

In the research carried out so far on gender-different patterns of transportation, the researchers conclude that women make shorter work trips, make greater use of public transport, make more trips for the purpose of serving another person's needs and drive far fewer miles per year than men (Turner et al. 2006, Wachs, 1987). These mobility patterns of women lead to less intensive energy use. As a recommendation, Räty and Carlsson-Kanyama state that differences observed in energy use based on transportation preferences by women and men must be taken into account in the development of EU transport policy, especially if the EU is to reach its ambitious emission reduction targets by 2020 (Räty and Carlsson-Kanyama 2010).

2.3. MITIGATING CLIMATE CHANGE AT THE INDIVIDUAL LEVEL

The portfolio of options women and men have for converting to a low-carbon lifestyle and investing in energy efficiency or renewable energy installations is shaped by their education, gender roles, division of labour in the household and income. Among other things, this presents a challenge as regards communication and advice on climate change and personal options to cut GHG emissions, which requires a gender sensitive approach. Communication and information is important because they form the basis for making informed decisions. Several *Eurobarometer* surveys show that women more frequently acknowledge their lack of knowledge and/or information about energy or climate change. Consequently, developing information tailor-made for women might be one way to fill the knowledge gaps.

Energy and transport are two of the main fields where action can be taken to mitigate climate change and reduce emissions. These two areas will be considered in detail below.

2.3.1. ENERGY NEEDS

Fundamentally both women and men have the same energy needs: for maintaining a comfortable temperature at home, for lighting and using domestic appliances, for communication and information etc. The differences in energy consumption of women and men are influenced, among other factors, by the amount of time spent at home and of responsibility. Time use surveys offer information on the different amounts of time spent at home by women and men and the type of activities/work they carry out. The data show that women and men spend between 10 to 20% of their time doing unpaid work, including household chores, repair work and caring for a child or another adult. The data demonstrate that women do more unpaid work than men. For example, in Italy and Portugal, women spend around 35 hours per week on unpaid work, compared to 10 hours for men. In Sweden and Denmark, women spend around 30 hours per week on unpaid work, while men spend around 20 (OECD 2011, 15).

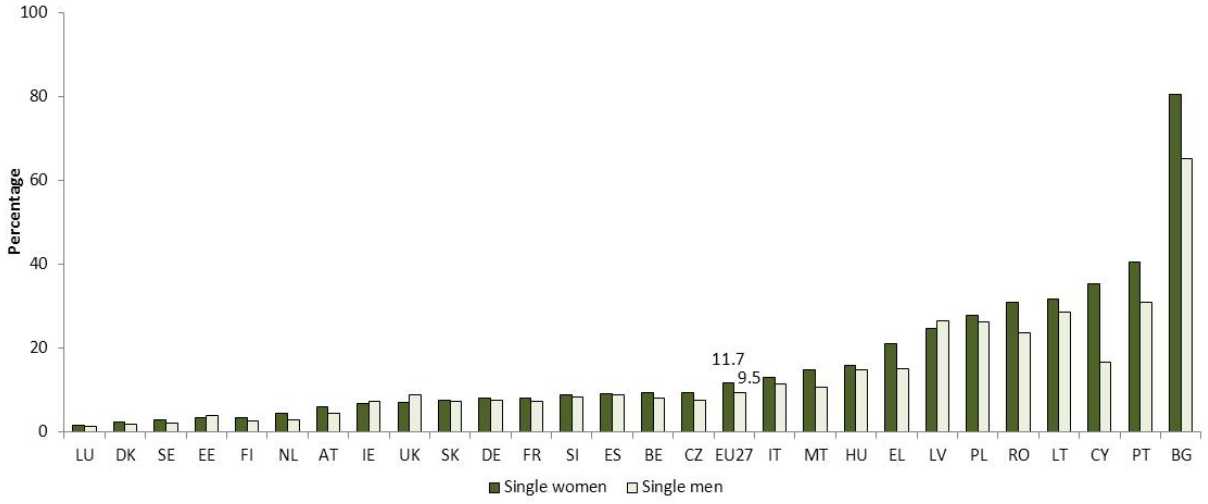
As women tend to spend more time in the home, they depend to a larger extent on the thermal comfort and on indoor air quality. These climatic needs impact on heating systems and energy consumption for heating. Women are also more dependent on energy use for household devices (Hashiguchi, Feng, and Tochihara 2010; Indraganti and Rao 2010; Karjalainen 2007; Parsons 2002; Pellerin and Candas 2003). What has still not been researched is how such comfort needs leading to higher energy consumption of women have an effect on a broader scale on climate change, on the one hand; and, how they are counterbalanced by women's willingness to change their behaviour in order to be more environmentally friendly, on the other hand.

People with low incomes are very vulnerable to changes in energy prices, especially in winter when energy is needed for heating. Increasing energy prices place even greater pressure on people with low incomes: not only do they spend a high proportion of their income on energy, but many live in poor housing and use less energy-efficient equipment and appliances. The term "fuel poverty" denotes a person's inability to afford sufficient heating fuel to maintain an adequate indoor temperature. According to the WHO (World Health Organization 2006), in some European countries, up to 30% of the population suffers from fuel poverty. Women tend to be the majority among those with lower incomes and assets, in particular single mothers and elderly women, and thus form a larger share of those at risk of poverty than men.

Healy carried out research on fuel poverty among pensioners (Healy 2004) and showed high levels of fuel poverty among this group, the majority of them being women. According to the study, more than a fifth of female lone pensioners suffer from fuel poverty across Europe, slightly more than male lone pensioners. The researcher also noted the considerable variations across countries in relation to the larger gender differences.

The EU-SILC database (Eurostat, variable: "Energy for Heating") provides recent sex-disaggregated data for all EU Member States – single male and female households - concerning the ability to keep the home warm. In average, within the EU27, there are more women than men who report that they cannot afford to pay for adequate heating (Eurostat EU-SILC 2009). There are also large variations among the EU Member States. The greatest difference between men and women is found in Cyprus – where 35.5% of single female and 16.6% of single male households cannot afford to adequately heat their homes. Comparing single-person households with single-parent households with at least one dependent child, more fuel poverty is reported by single adult households with children than without children, with the greatest differences existing in the Czech Republic and Greece (Eurostat EU-SILC 2009).

Figure 2.4. Single-person households which cannot adequately heat their homes by sex, 2009



Source: Eurostat, EU-SILC (data calculated by Eurostat at EIGE's request)

Note: A programme to supply Energy Assistance is being implemented in Bulgaria. It is a tool to support the most vulnerable social groups in the winter. The priority groups at risk that are encompassed by the programme comprise single old people, single parents raising children, and people with disabilities.[13]

The different energy needs of women and men should become the focus and concern of planning for energy policies, measures and instruments.

[13] According to the Bulgarian Ministry of Labour and Social Policy

2.3.2. TRANSPORT NEEDS

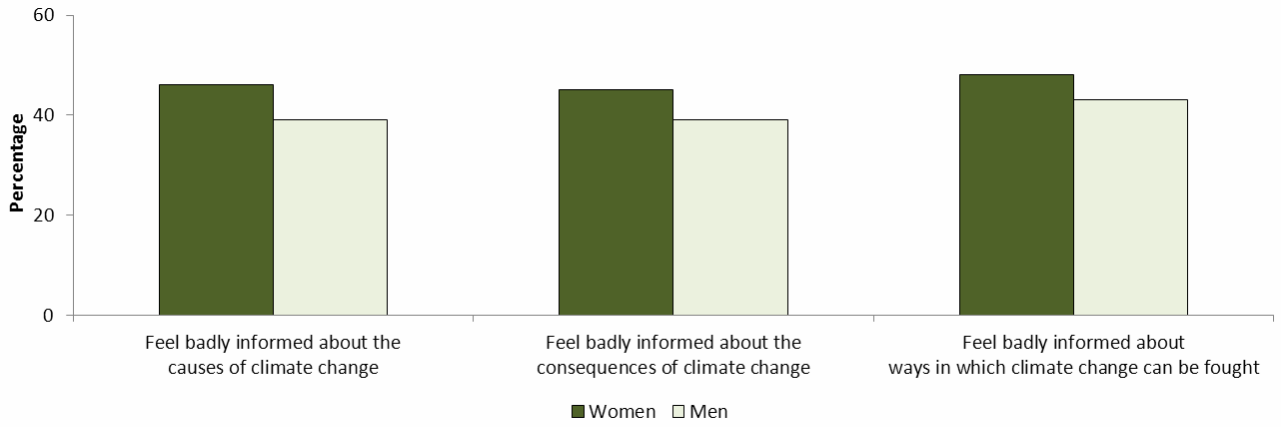
Available statistics show that gender differences in terms of transport and mobility seem to persist: even though more women aged between 26 and 74 now hold a driver's licence, they still make up a significantly smaller group of car drivers. Thus, there is a pressing need to develop public transport that is specially designed to meet the multiple goals of quality of life, welfare and equality, and to promote sustainable mobility and transport options in the future. The provision of gender-sensitive transport systems in the context of ageing societies could provide an important platform for future developments in the field of transport. There is a need for knowledge about the complexities of transport and mobility in this context, which would address the behaviours and needs of the population and explore how these behaviours and needs depend on significant variables such as gender and locality. Moreover, this could provide a platform for the launch of user-driven development methodologies that integrate a focus on gender with guidelines for the design of an accessible, sustainable and affordable public transport system.

2.3.3. COMMUNICATION AND INFORMATION AS A BASIS FOR MAKING INFORMED DECISIONS

Studies of environmental awareness undertaken in Europe (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit and Umweltbundesamt 2010; European Commission 2008a; Naturvårdsverket 2009; Women Environmental Network and National Federation of Women's Institutes 2007) indicate gender differences in knowledge and information about climate change. Women tend to show higher environmental awareness than men, but they also tend to feel less informed about the risks and impacts of climate change. Men, on the other hand, more often state that they have science-based knowledge about climate change.

The 2009 *Eurobarometer* survey (Special Eurobarometer 313) investigated Europeans' attitudes towards climate change. The results show that men state that they are more informed about the causes and consequences of climate change: only 39% of men compared to 46% of women state that they feel badly informed about the causes as well as the consequences of climate change; and also about ways to address climate change: only 43% of men compared to 48% of women state that they feel badly informed about how to combat climate change (European Commission 2009).

Figure 2.5. Level of information about climate change by sex, 2009



Source: Special Eurobarometer 313

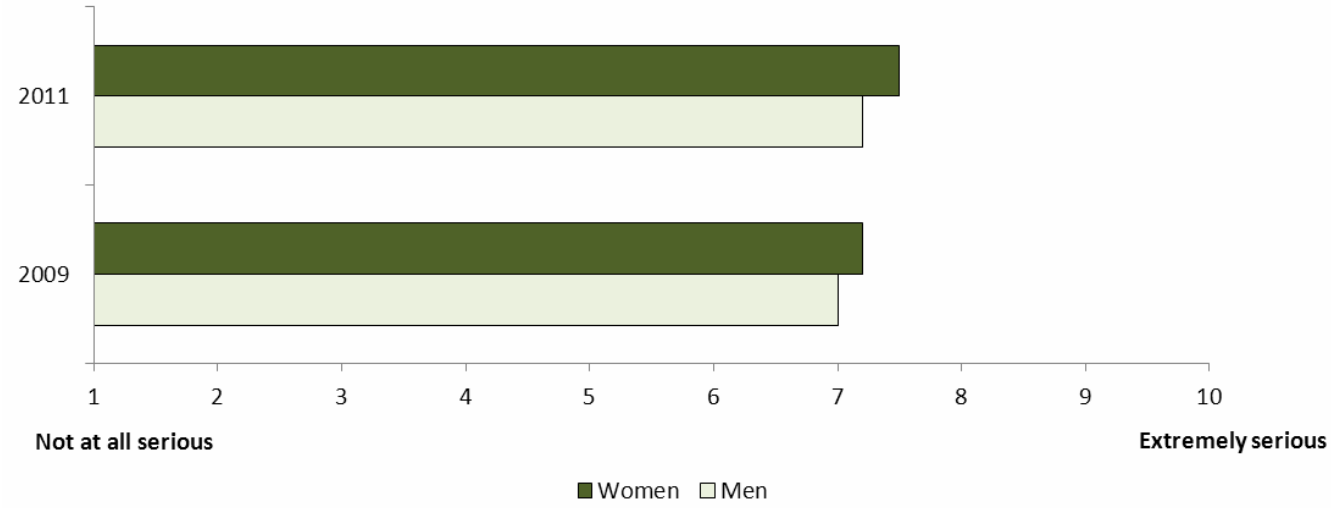
The level of knowledge and how it is perceived by women and men can have different explanations. One position argues that women tend to assess their knowledge very carefully, while men are more likely to overestimate their knowledge (Schultz and Stiess 2006, 21). Another possible explanation is that women might not have access to proper information as they are not considered as a target group when it comes to information distribution. Thus, language, images and unattractive design might hamper women from getting or seeking information (GenderCC 2009). An example comes from an Austrian study carried out in 2006 (Knoll and Szalai 2006) that assessed selected environmental journals based on factors such as imagery, author's sex and language used. The study noted the lack of female authors, the prevalence of stereotypical gender images, and also the less frequent portrayal of women in the images used. The more technical an issue, the greater the stereotyping was.

Real or perceived lack of knowledge might be a factor in gender differences in women's and men's attitudes towards product labels: women are more likely to trust in labels and use them to justify their purchasing decisions (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit and Umweltbundesamt 2010, 70; Naturvårdsverket 2009, 24; Schultz and Stiess 2009). Overall, labels and other communication instruments need to avoid gender stereotypes by addressing gender aspects (Schultz and Stiess 2009, 62).

2.4. PERCEPTIONS AND ATTITUDES TOWARDS CLIMATE CHANGE

Gender differences in perceptions and attitudes towards climate change are documented in several European countries. Numerous publications have presented European citizens' attitudes towards climate change, energy and transport. The sex-based differences noted in the surveys have their basis in gender roles and responsibilities, which may change in the future, but still differ by country and region. These polls, and the gender differences that they quite often demonstrate, may be useful for politicians and planners. However, they cannot replace substantiated gender analyses.

Figure 2.6. "How serious a problem is Climate change?" - by sex, 2009 and 2011



Soure: Eurobarometer Survey.

Report: Climate change, http://ec.europa.eu/public_opinion/archives/ebs/ebs_372_en.pdf

Note: the EU-wide average values are sex-disaggregated and may not show the sex-based differences, which can be substantial in some countries

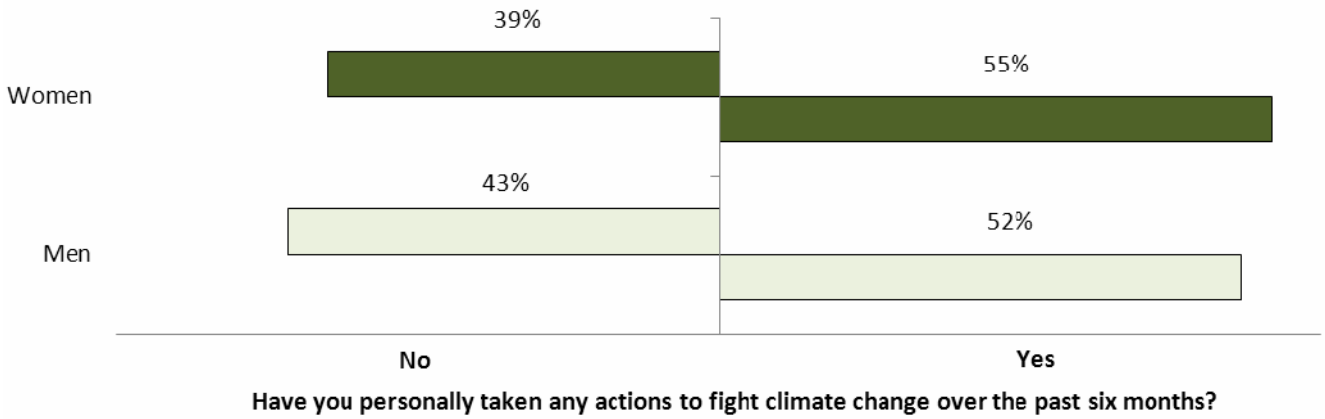
Concerns about climate change

In 2007, the Women's Environmental Network conducted a study of female perception of climate change in the UK (Women Environmental Network and National Federation of Women's Institutes 2007). It showed that up to 85% of women were very concerned about climate change, and especially about its possible impacts on future generations, on the poor, and the planet. These findings are supported by other population surveys, in which a higher proportion of women than of men expresses concern about climate change (ARS research AB 2007; Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit and Umweltbundesamt 2010; European Commission 2007a; European Commission 2009; Flechsig et al. 2000; Naturvårdsverket 2009).

Taking action

In Sweden, nearly 80% of women and 65% of men say it is important to take action against climate change (Naturvårdsverket 2009:11). As to the question of who should take action, men more often think that it is up to governments, industry and companies to change behaviour. Women predominantly believe in changing individual behaviour in order to help combat climate change, but often do not know how to do so (Naturvårdsverket 2009, 15).

Figure 2.7. Taking action by sex, 2009



Source: Eurobarometer Survey.

Report: Climate change, http://ec.europa.eu/public_opinion/archives/ebs/ebs_372_en.pdf

What action should be taken?

When it comes to taking action against climate change, women are more likely to choose low-carbon practices and make changes in their everyday practices, while men are more likely to choose green technologies such as an electric car (European Commission 2008b). The majority of these surveys on this subject show that women more often declare themselves willing to change environmentally harmful behaviour and to change their lifestyles and do not trust in science and technology to "solve" the problem (Naturvårdsverket 2009, 15). Thus, they place more importance on the individual and personal contributions to and efforts for climate change mitigation. For example, in Sweden, women indicated that they would apply basic household measures such as reduced or more efficient household appliance use (ARS research AB 2007; Roehr and Hemmati 2008a, 798).

Economic instruments such as increasing energy prices and introducing carbon taxes are less favoured by women than men. The fact that throughout the EU, women have on average 17% less disposable income than men, ranging from 30.9% less in Estonia to 3.9% less in Slovenia, also plays a role here. (Roehr and Hemmati 2008a,798). The perceptions by men and women of economic measures to address climate change are confirmed by Flechsig et al, showing that women feel less comfortable with mitigation measures that place a higher financial burden (Flechsig et al. 2000).

In conclusion, in many polls women state that they are willing to change their behaviour in order to mitigate climate change, while men are more in favour of technical solutions. Moreover, there is strong evidence that women reject technologies as solutions for climate change if they pose other risks. Some of these preferences might be connected to the gender income gap and the question of the affordability of a technology. There is evidence that women opt for a more far-reaching climate change policy than men do (European Commission 2008b; Naturvårdsverket 2009).

It is equally important to consider these gender differences in opinions and perceptions as many new ideas, visions and potential solutions can stem from, and can lead to the development of, better policies.

In what follows, several examples have been taken from the *Eurobarometer* survey in order to investigate perceptions and attitudes in the area of energy and transport.

2.4.1. ENERGY

Two Eurobarometer studies from 2006 (European Commission 2006) and 2007 (European Commission 2007a) examine the opinions and preferences of women and men on several issues: the role of energy in contributing to climate change, preferences in terms of technologies and policies, and personal behaviour.

Changing personal behaviour

The data support the conclusion presented so far: women want to have more information about energy efficiency to help them to implement changes in their behaviour and in their homes; men are more interested in the technological and financial measures and instruments that governments can provide. The same findings are shown by the data collected through national surveys,like the bi-annual German survey on environmental awareness (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit and Umweltbundesamt 2010).

Promotion of energy efficiency

As a measure for improving domestic energy efficiency, men would favour more financial assistance from governments, whereas a greater number of women would prefer to receive more information on the efficient use of energy (European Commission 2007a, 35).

Criteria for choosing an energy supplier

If regulations allow for customers to choose their electricity supplier, men attach higher importance to low prices, whereas women pay attention to both prices and a cleaner power supply portfolio (European Commission 2007a, 51, 53). A recent study in Germany, analysing the obstacles and possible interventions to motivate women to switch to green electricity, found that the higher price of green electricity was a more severe obstacle for men to choosing a green supplier than for women. Another finding of this survey was that women attach more importance to the corporate policy of suppliers than men (LIFE e.V. forthcoming).

Energy supply options

The gender differences exist also in preferences for energy supply options. Nuclear power is one of the most controversial topics in the energy and climate change debate. As shown by several *Eurobarometer* studies, it is also an issue where the opinions of women and men differ greatly. On average, in the EU, more women than men believe that nuclear energy should constitute a lower share of overall energy production (European Commission 2007a, 43). These findings are supported by other EU surveys, e.g.(European Commission 2007b) and national studies. For instance, a United Kingdom study on the level of support for building new nuclear power stations in Britain (opinions are post-Fukushima disaster) shows that there is a 40 percentage point difference in support, with more men wishing to see new power plants being built (Populus 2011a, 2,4). Data from Germany, Finland and Switzerland (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit and Umweltbundesamt 2010; Kiljunen 2008; Funk and Gathmann 2008) and from other parts of the world such as Japan, U.S., and South Korea show similar findings. In Canada, the gender difference was 17 percentage points in 2003. A massive campaign by the nuclear industry led to a higher level of acceptance among both men and women in 2005, yet the gender difference remained constant (Brissette 2006).

In terms of alternatives to nuclear energy, men would like to see more research into technologies such as hydrogen and clean coal, while women usually see a greater need for stronger efforts to promote energy use reduction (European Commission 2006, 40).

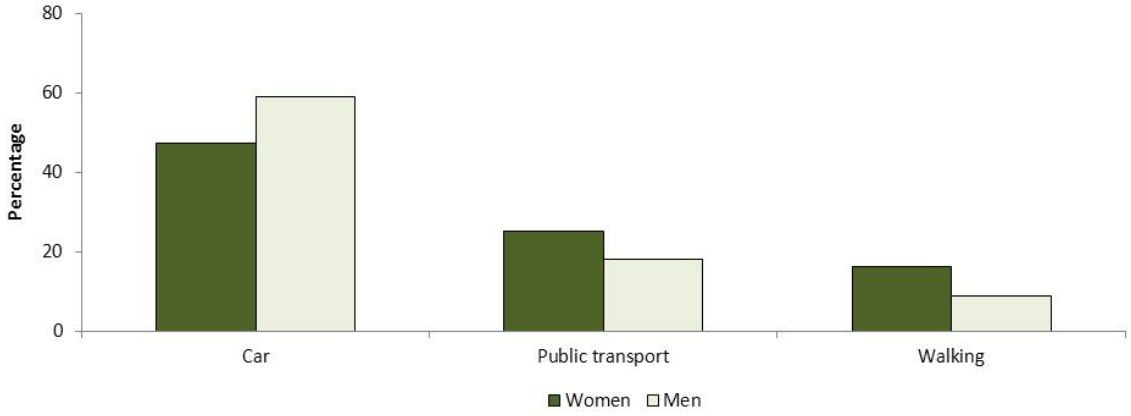
2.4.2. TRANSPORT

On average, Europeans, aged 20 to 74, travel for between 60 and 90 minutes a day. There are differences between countries. For example, Estonians and Hungarians spend the least amount of time travelling. (European Commission 2005, 5)

Modes of transport

Very recent data collected at EU level show that there are gender differences in the preferred mode of transport: 59% of men and 47% of women stated that they are more likely to use a car to get around on a daily basis; 16% of women said they usually walk, as opposed to 9% of men, and while a quarter of women responded that they usually use public transport, 18% of men did so . Safety issues prevent a number of both women and men from using public transport, with 43% of women and 38% of men citing security concerns as a *very* or *rather important* reason for not using public transport. (Ibid)

Figure 2.8. Preferred mode of transport by sex, 2010



Source: Flash Eurobarometer 312, Report: European Commission 2011, Future of Transport

Purposes of transport

Trips are often related to traditional gender roles. In particular, a much higher proportion of men's travel is study- or work-related, whereas women spend a much higher amount of time on trips related to domestic tasks (European Commission 2005, 6).

Purchase decisions and fuel prices

Energy efficiency is an increasingly important factor in purchase decisions. Men tend to be more conscious about purchasing a more energy-efficient car than women, but in the event of a rise in fuel prices, men are less likely to reduce their car use than women are (European Commission 2006, 31). This could be related to women's lower income rates. However, when asked whether they would pay more for less-polluting transport, more men than women responded negatively (European Commission 2007c).

Policy interventions

The Analytical Report on Attitudes on issues related to EU Transport Policy published in 2007 by the European Commission indicates that women consider reducing emissions from road transport to be the best approach when it comes to selling fuel-efficient or less-polluting cars. Respondents who did not drive were more inclined to think that this policy was the best way to reduce emissions from road transport compared to those who are the primary driver in their respective households. Women were also more likely than men to favour compulsory standards requiring manufacturers to produce cars that use bio fuel. The majority of men considered all the other incentives more efficient than that mentioned by the highest proportion of female respondents (European Commission 2007c).

2.5. IMPACTS OF POLICIES AND MEASURES

Men and women – largely owing to their gender roles, power relations, incomes and assets – have differing vulnerabilities to climate change and contribute in different ways to harmful global GHG emissions. They have differentiated capabilities to mitigate emissions as well as differing coping and adaptation strategies and distinct perceptions and preferences regarding policies and measures to reduce emissions. They are affected in differing ways by the socio-economic impacts of climate policy. These gender differences in mitigation and adaptation need to be taken into account in climate change policies, measures and instruments.

The existing climate policy in European countries has been largely gender-blind. Gender equality has not been considered as an important factor in ensuring low-carbon, climate-resilient development. This may be a reason for the diminished effectiveness and efficiency of existing climate policy (European Environment Agency 2006; Skutsch 2009; Bord and O'Connor 1997; Alber and Hemmati 2011; Druckman and Jackson 2008; Johnsson-Latham 2007; Roehr et al. 2004; Gustafson 1998; Henwood, Parkhill, and Pidgeon 2008).

Policy measures and instruments should not be discussed without gender analysis. It is important to uncover how embedded gender and power relations create a driving force behind climate change as well as related policies and mitigation strategies. These prevailing and traditionally masculine perspectives can be observed in the focus on science- and technology-based mitigation strategies by policy makers, and the corresponding marginalisation of climate-related instruments and measures which would be preferred by women, such as changing behaviour on the part of consumers. Spitzner (2008) believes that these findings should lead to rethinking the challenges of climate change and the current international approaches to the problem, arguing that the efficiency and effectiveness of climate policy instruments could be increased by introducing gender sensitivity in the methods used in climate research and assessment (Roehr et al. 2008, 19).

Nevertheless, little research has been undertaken on the socio-economic impacts of climate policies and measures with regard to their gender dimension. However, the available findings and conclusions highlight the importance of taking gender into consideration in order to develop gender-responsive policies.

One of the very few studies to assess the gender implications of climate change mitigation measures focused on the European Emissions Trading System (EU ETS), and identified possible monetary and non-monetary impacts of climate change instruments in general. Non-monetary impacts are those that lead to a change of daily routine and action patterns, such as increased efforts to obtain information and the comparison of products with different environmental characteristics (Schultz and Stiess 2006:22). Schultz and Stiess criticise several facets of the EU ETS, not only its potential impacts on energy prices and products - which will most likely affect poor households disproportionally; the authors also criticise the low proportion of women involved in the improving the development of EU ETS, a factor that has led to the marginalisation of issues linked to women's livelihoods (ibid: 19).

Policy measures and instruments influencing prices – such as taxes and fiscal regulation - impact women and men differently. There is a higher share of women among the poorest of the poor. Elderly women and single mothers in particular are more frequently at risk of poverty than other groups. Policy instruments leading to higher energy prices will hit them the hardest (Roehr and Hemmati 2008a, 798).

There is evidence that women might be better prepared to change their behaviour and lifestyles, given that, as research demonstrates, they have less trust than men in technical solutions and in the ability of societal institutions to solve problems (see 2.4.). Yet, climate change policy generally places much greater emphasis on technological advances than on social and behavioural aspects (Roehr and Hemmati 2008a, 798; Schultz and Stiess 2006, 21f).

Product labels can provide information in a compact and simple manner. Thus, they can support women in changing their consumption patterns, which is their preferred contribution to mitigating climate change. Women's and men's perspectives towards labels have already been addressed, but in addition to what was mentioned above, it is important to take into account whether consumers have confidence in labels. Although women do not know more about labelling systems than men, they have significantly more trust in them (Schultz and Stiess 2009:54). Based on this, emphasis should be placed on the definition of criteria for labels -- including social criteria -- as well as on the institutional and political process of making, implementing and controlling labels, and the participation of women as consumers in this process (ibid:55).

Financing climate change mitigation and adaptation is currently among the top priorities in the international climate change negotiations and a very important discussion framework from the point of view of the gender implications and recommendations that women's/gender organisations would like to include[14]. Although this topic mainly concerns developing countries, there might also be implications and conclusions to be drawn for national climate change financing programmes: who has access to the funds, which areas are funded, whether the proposals need to address gender impact, whether there are gender-sensitive criteria for the selection of projects to be funded, and more generally, whether a gender budget analysis of the funding has been undertaken (GenderCC - Women for Climate Justice et al. 2011).

14 See: www.gendercc.net/policy/topics/financing/gcf.html

2.5.1. ENERGY

Why should energy measures and instruments take account of gender differences? A broad overview on policy instruments to influence consumption patterns and their impacts on women, men and gender relations is provided in Schultz and Stiess (2009). In order to influence the behaviour of energy consumers most of the instruments discussed in this study, such as financial disincentives like taxation, or labelling of products are very relevant for the energy sector,. Furthermore, there is Europe-wide regulation on the taxation on energy products, and on the energy labelling of domestic appliances.

The gender dimension of planning for energy supply has not received attention yet, although the gendered preferences explained above suggest that they could also be applied to energy supply. Specific literature on energy policies and measures focussing on or including gender aspects concentrates on the gendered impact of pricing policy, and on gender differences in responses to various other interventions to change behaviour:

The German Environmental Agency (Umweltbundesamt 2004) released a study on the impact of the eco-tax reform in Germany. One half of consumers reacted to this tax reform by changing their behaviour in relation to heat, electricity and car use. A closer look at the annex of the study reveals that the majority of these were women, while the impact on men was somewhat lower: 49% of the women felt a strong impact of higher energy prices on their behaviour in terms of energy efficiency, compared to 36% of men. Several other authors have also looked at economic incentives such as taxation (Schultz and Stiess 2006; Umweltbundesamt 2004) and direct billing (Carlsson-Kanyma and Lindén 2007, 2167 –2168), concluding that the impact of price signals is higher on women, probably due to their lower income. However, it is crucial to consider whether consumers have realistic options at hand to actually reduce their consumption – for instance, tenants usually cannot influence the energy standard and efficiency of their dwelling. Unless specific actions are taken to either support consumers through measures such as purchasing more efficient equipment or to mandate that house owners retrofit dwellings[15], economically disadvantaged groups, among them a majority of women, might be subject to energy poverty.

[15] Retrofitting is done to improve the energy efficiency of homes, and includes, for example, replacing old heating systems or improving the thermal insulation of the building.

The Swedish study also examined interventions such as "Eco Teams", which focus on energy, recycling and buying organic food (Carlsson-Kanyma and Lindén 2007, 2167 –2168). Generally, women participated more actively in these teams, and it seems that a more emotional commitment is needed for this kind of campaign to be effective. Several other publications have investigated the question of gender and energy in terms of energy-saving behaviour from a more theoretical point of view (Offenberger and Nentwich 2009; Spitzner 2004), while others were based on empirical studies in which gender was one of several aspects investigated (Clamor 2010; Heinzle et al. 2010; Krömker and Dehmel 2010; Offenberger and Nentwich 2010). These studies concluded that for electricity and heat consumption at home, gender aspects are relevant. Such findings can also provide guidance on how to better address men's behaviour, given the increasing number of single-person households where purchasing decisions are not taken by a female family carer.

There are a variety of factors that influence the success of any intervention designed to change behaviour. More specifically, "on a general level, any intervention that changes behaviour will inevitably affect the workload of residents and the change will depend on a number of variables, such as the occupancy form, the age of the residents, the culture related to energy use and the gender roles that men and women in that particular household have adopted" (Carlsson-Kanyma and Lindén 2007, 2169). This appears to be an important issue for any intervention seeking to change behaviour. It can be argued that in relation to saving energy, responsibilities have shifted and women who perform the majority of household chores are in charge of reducing the energy use in private homes. For example, in Sweden women spend twice as much time completing household chores, and an even greater amount of time on laundry, compared to men (Carlsson-Kanyma and Lindén 2007, 2164). Thus, when introducing energy-saving campaigns, one needs to be aware that women are still the main responsible for household tasks.

With regards to subsidies to support investments in energy efficiency and renewable energy, it can be supposed that homeowner subsidies might favour well-off consumers, at least in those countries where the majority of the less well-off citizens live in rented apartments. However, there are no research findings available on the gendered distributional effects of subsidies in the energy sector. Moreover, no studies could be found on the gender aspects of energy standards, for instance of the implementation of the EU directive on the energy performance of buildings. This directive is considered to be effective (OECD 2008a, 107, 110), but needs to sufficiently take the retrofitting and refurbishment of existing buildings into account.

As for consumer choices and changes of behaviour, which are a crucial part of strategies to improve energy efficiency, it has been established that women's and men's behaviours differ, and should thus be taken into consideration in order to avoid inefficient and maladapted policies and measures. In addition, it is important not only to address those who are more inclined to adopt environmentally-friendly behaviour – mainly women, but also those who are much more resistant towards such changes – typically men.

2.5.2. TRANSPORT

Women and men have different patterns of transport usage. Overall, men are more likely to drive a car, while women are more likely to use public transport. Men also tend to travel more frequently and over longer distances. A Swedish report concludes that since women travel less than men, they may also cause less transportation-related carbon emissions than men (Johnsson-Latham 2007). This information points to the need to tailor prevention strategies by taking into account women's and men's different travel patterns (Nordic Council of Ministers 2009). The local government body responsible for London's transport system, Transport for London, provides an example of gender mainstreaming in the transport system. To make the transport system more effective and create a city with space for all inhabitants, Transport for London launched a range of projects to produce a transport system that offers its users better personal safety, greater flexibility and better accessibility, including affordability. The aims of the action plans are, among other things, to meet the divergent needs of users, guarantee gender equality and accommodate people of modest economic means. Therefore, Transport for London has introduced special low-price tickets for families and part-time workers, of whom women comprise the majority. These groups can better benefit from using public transport instead of a private car (Oldrup and Romer Christensen 2007). At the national level, a first but nonetheless crucial step towards gender-responsive transport is to include gender equality as one of the objectives of national transport policy, as done by Sweden in 2010 (Lindqvist 2011).

2.6. SUMMARY AND CONCLUSIONS

The gender analysis of climate change and climate policies undertaken in this review is based on the various gender dimensions which are the underlying causes of gender differentials. These are:

- psychological (e.g. gender identities and roles);
- socio-economic (e.g. gender division of labour and access to resources);
- socio-cultural (e.g. cultural patterns and norms);
- legal (e.g. land and inheritance rights);
- political (e.g. power and participation); and
- physical and biological dimensions.

Gender issues need to be addressed in climate policies to ensure that women and men are equally and meaningfully involved in the planning and decision-making. It is a matter of effectiveness and efficiency of climate policies. If climate change policies are not targeted at all relevant consumers, they are likely to be less effective.

Gender differences of the vulnerability to the impact of climate change are relatively well documented and acknowledged, in particular for developing countries, and to a lesser extent for industrialised countries. They include more casualties among women during extreme weather events, and increased burden of care work. Available research for Europe points mainly to biological gender differences relevant for impacts and vulnerability.

There is also evidence of gender-specific consumption patterns that affect contributions to GHG emissions, and thus to climate change. The few quantitative data which are available indicate that women, on average, generate less greenhouse gas emissions than men. In particular in the transport sector, significant studies have shown that men and women have different travel patterns, and that women tend to travel in a more sustainable way than men. Nutrition is another example, as women's daily meat consumption tends to be lower, and raising livestock contributes to agricultural GHG emissions. Women also tend to be more aware of environmental and health issues, and more willing to change their behaviour in response to environmental pressures.

Consumption patterns are connected with people's needs in respect of energy and transport services. Although basic needs are more or less the same for women and men, their specific characteristics and the way in which they are met depend on factors such as gender roles and income. For instance, women tend to spend more time indoors as they more often have care responsibilities in their families, and thus depend to a greater extent on space heating. For mobility, women depend on access to public transport to a larger degree, due to lower levels of car ownership. Owing to their lower incomes, women have a greater risk of energy poverty than men, and have fewer options for investing in low carbon options such as energy efficiency and renewable energies. Moreover, women feel less well informed about such options and express a greater need for adequate information.

There is evidence that perceptions and attitudes towards climate change and climate policy options vary substantially between women and men. Women are, on average, more concerned about climate change. They feel a greater need for action to tackle climate change, and are more likely to be willing to change their behaviour. Men generally have more trust in technological solutions. Women's and men's preferences in terms of energy supply options vary significantly. For example, women are more likely than men to reject nuclear power. Women are more in favour of policy measures to reduce car use than men.

The gendered socio-economic impact of climate change policies and measures have not been sufficiently researched. However, some conclusions can be drawn, such as the fact that women have lower incomes than men and are thus more vulnerable to higher prices, whether they are the result of taxation or other fiscal instruments. In addition, the effects of information tools such as labelling vary by gender, with women having more trust in product labels.

The challenge ahead

The literature review contained in this chapter reveals certain obstacles to addressing the link between climate change and gender equality:

First, the specific knowledge base is largely lacking. The participants in a symposium on gender and climate change research criticised the scarcity of studies and research on gender and climate change. They noted the need to identify the gaps within the existing body of research and pointed out the need for improved strategies which would make it possible to bring gender-related research into decision-making processes (GenderCC 2010a). They also requested mandatory inclusion of the gender impact of the various climate protection mechanisms in research, in order to reduce the current gender bias.

Second, there is resistance to the integration of a gender perspective in climate change mitigation policies, which is related to the lack of knowledge in terms of sex-disaggregated data, but also in terms of ideas about how to use the available knowledge and make it operational. It also reflects the low importance given to justice and equality issues when faced with the urgent need to mitigate climate change. And, owing to a low proportion of women participating, and also to a general lack of gender sensitivity, climate change policies continue to be categorised as “gender neutral” policies.

An institutional survey carried out by UNEP in 2006 (UNEP 2006, 14) on gender mainstreaming in environmental policies and programs, targeted at ministries responsible for the environment worldwide[16], found that even if gender equality laws and policies are in place and being applied to the environmental sector, a number of obstacles lead to the failure of measures, such as:

- lack of financial resources;

- lack of awareness concerning gender and the environment;

- lack of understanding and clarity about the relevance of gender to environmental work;

- lack of institutional capacity and expertise on the subject;

- limited gender-related institutional structures; and

- limited women's participation.

In terms of climate change, only Luxembourg included gender as part of its strategy in response to climate change, stating that the country "developed an action plan to reduce CO_2 emissions that builds on the national action plan for gender equality, including flexible mechanisms, empowerment of women in developing countries related to energy access and preventing indoor air pollution, and prevention of natural disasters". A poor response from the rest of the European countries is a clear indicator of the missing link between climate policy and gender policy at national level in EU countries. The obstacles identified in the UNEP survey for the environmental sector are generally more valid for the climate policy sector, as this is a relatively new field of environmental policy.

[16] 27 countries responded to the survey, among them 10 EU countries: Estonia, Sweden, Czech Republic, Slovak Republic, Germany, Netherlands, Belgium, Luxembourg, France, Spain.

In the lead-up to the UNFCCC COP15 in Copenhagen in 2009, the Nordic Council of Ministers recommended 15 measures – ranging from allocating financial resources and collecting sex-disaggregated data to supporting the participation of women in climate change decision-making – and described why they are important and should be implemented. These recommendations provide clear advice at the policy level on how to move forward with gender equality in climate change policies.

If more than simply the integration of gender wording into the text of programmes is to be achieved – and in the interest of effective and gender-just climate policy, ambitions should go beyond "gender language" – efforts should aim at a more profound system change and involve not only gender mainstreaming but also a transformation of gender relations and societal structures (Roehr 2009b).

Whether a larger number of women in decision-making positions would affect the nature of climate policies still remains to be seen. Kronsell concluded in a conference paper that equal participation in decision-making does not necessarily lead to more gender-sensitive policies and measures (Kronsell 2011). However, at least it "would lead to a more complete perspective, would better take into account the diversity of social groups (children, elderly, migrants etc.) and their life situations. This would consequently improve policies and measures and acceptance by citizens, an important aspect of climate change policy as one of humankind's biggest challenges." (Alber and Roehr 2006, 20).

The Nordic Council of Ministers (2009) concluded: "Investments in gender equality are the driving force for innovation and sustainable development. We need the talents and resources of everyone. Men and women think in different ways and contribute differently to solutions. In order to ensure this diversity, men and women must have equal opportunities to influence and benefit from the investments that are made to address climate change (adaptation/mitigation). This process will make men and women equal and full-fledged collaborative partners and citizens." (Nordic Council of Ministers 2009).

In view of the challenges – rising temperatures, food and water shortages, natural disasters - of climate change, efforts are needed to promote "the shift from ineffective governance and weak institutions to innovative leadership in government, the private sector and civil society." (Carlsson-Kanyama, Ripa Juliá, and Roehr 2010). Gender responsiveness and gender sensitivity are prerequisites for such efforts.

3. THEORETICAL BASIS FOR INDICATORS

Women's participation in climate change decision-making is an important democratic issue if policies are to be more gender-sensitive and gender-responsive. As discussed in Chapter 2, climate change is one of the most pressing global issues today, and it affects all sectors and lifestyles. It is important that women and men have equal opportunities to contribute to and benefit from the policy initiatives, investments and other actions that are developed in response to climate change.

This section explores the theoretical background for the development of indicators to measure women's participation in climate change decision-making. It also looks at the segmentation of education by gender in natural sciences and technologies.

3.1. GENDERED PARTICIPATION IN CLIMATE CHANGE DECISION-MAKING

Besides the various gender dimensions of climate change and its impact, presented in Chapter 2, it is important to address the question of who determines the processes of planning and decision-making, and how research informs and substantiates them. Accordingly, this section focuses on gender parity, participation and the underlying power relations.

The link between gender-sensitive climate change policies and gender equality in decision-making has not been sufficiently researched. Recent research from Sweden concludes that "governance tends to enhance gender differences by privileging men and masculinity, channelling resources to male actors and fields and thereby maintaining current power structures" (Kronsell 2011, 11). Kronsell's study is currently the only one that examines women's participation in climate change policy-making and links it to an analysis of gender aspects of the resulting policies.

Gender equality in decision-making is a question of democracy and justice, and thus is a goal in itself. Research analysing other policy fields supports the argument that approaches and policies tend to be better and more efficient if there is a more equal distribution of women and men in policy making. Following and analysing the international climate change negotiations leads to similar conclusions.

3.1.1. WOMEN'S PARTICIPATION IN DECISION-MAKING IN INTERNATIONAL CLIMATE CHANGE POLICY

The participation of women in the UNFCCC negotiations is quite well-documented, particularly with regard to the number of women in government delegations over time, and the representation and influence of women's organisations as observers (Hemmati and Roehr 2007b; Roehr and Hemmati 2008a; Roehr and Hemmati 2008b; Roehr et al. 2004; Schalatek 2011; Villagrasa 2008).

While women's participation in governmental delegations - comprising ministry officials, advisors and policy consultants - is slowly but constantly increasing, the proportion of women serving as heads of delegations - as leading negotiators during the annual Conference of the Parties (COP) - has remained more or less constant. Since delegations are usually headed by ministers or heads of state, this shows the extent of women's political representation in decision-making at national level.

Does it make a difference if more women are part of these delegations? Or is it more important to have women in leading positions in the UN Climate Change administration, such as the female Executive Secretary of the UNFCCC secretariat or a female COP Presidency? Positive answers are based not only on the democratic principle that women and men should be equally represented and present in decision-making bodies, but also on the fact that negotiations should address various gender needs and priorities and that women can play a significant role in bringing them into the discussions.

It was only after more women's organisations had entered the international climate arena and lobbied for women and gender issues that the gender aspects of climate change gained more attention. The history of women's participation in the negotiations provides a clear linkage to the prominence of gender in the negotiations. It was at COP13 in Bali in 2007 that gender emerged as an issue, because (1) more women's organisations had become interested in climate change and attended the conferences; and (2) the Bali Plan of Action provided an entry point for social and gender issues by putting the impact of climate change in developing countries on the agenda of the negotiations on future commitments.

Since COP 13, international NGO networks on gender and climate change have been established, and alliances between UN organisations and women's organisations have used their influence to ensure that greater attention is given to women's perspective. Moreover, the Ministry for Foreign Affairs of Finland has set up a fund to enable women from developing countries to join their national negotiating teams, thereby enhancing the scope and visibility of women's leadership at this level of decision-making. Consistency of participation in these meetings, as well as an emphasis on networking and capacity building, is essential for enhancing women's leadership in the UNFCCC process (GenderCC; Roehr 2009b; Schalatek 2010; WEDO 2010).

Subsequently, a growing number of gender references have appeared in the negotiation texts: the Cancun agreements (from COP16) include eight references to women and gender across seven sections of text, thus recognising women and gender equality as an integral part of effective actions to mitigate and adapt to climate change (GenderCC 2010b; WEDO 2010).

3.1.2. WOMEN'S PARTICIPATION IN DECISION MAKING AT NATIONAL AND LOCAL LEVEL

While commitments and mechanisms to cut emissions and provide support for developing countries' actions are negotiated at the international level, the national and subnational levels are crucial for the implementation of these provisions. Here, and in particular at the local level, gender aspects are more obvious and policy measures have the most direct impact on women's and men's lives. These levels are therefore important when designing gender-responsive policies.

The European project "Climate for Change - Gender Equality and Climate Policy," carried out from 2003-2005 in Finland, Germany, Italy and Sweden, aimed to promote the participation of women in decision-making in matters related to climate change (Granberg 2004; Climate Alliance 2004b; Climate Alliance 2004a; Alleanza per il Clima Italia 2004). Among others, the situation of women in decision-making positions in fields related to climate change was examined at the national level as well as in the 10 participating cities in Finland, Germany, Italy and Sweden.

In Finland, women and men were more or less equally represented within ministries, committees, agencies and institutions relevant to climate change, with the exception of the Ministry of Trade and Industry, the Ministry of Transport and Communications and the Transport and Communications Committee (Granberg 2004, 2). The situation in Sweden at the department level was very much the same; in most ministries there was equal or almost equal gender distribution. The biggest differences were found in the Swedish Environmental Protection Agency, where only 39% of women headed departments and units, and among the Swedish Nuclear Power Inspectors, where only a third of women led departments (Climate Alliance 2004a, 3). The situation was different in Germany. In the political sphere, women were generally under-represented, especially in decision-making positions, but a positive trend could be observed in female participation in the Federal Ministry for the Environment (BMU) and the Federal Ministry of Economics and Labour (BMWA) (Climate Alliance 2004b). In Federal Offices in Germany, the following picture emerged: women were greatly under-represented in decision-making positions. For example, there were no women involved in decision-making areas relevant to climate change within the German Federal Office for Building and Regional Planning. Moreover, while women occupied lower-level positions at the Federal Environmental Agency, the situation changed higher up in the hierarchy.

Nonetheless, gender mainstreaming is enshrined in law in all federal offices and there is legislation providing for gender equality at the federal level (Climate Alliance 2004b).

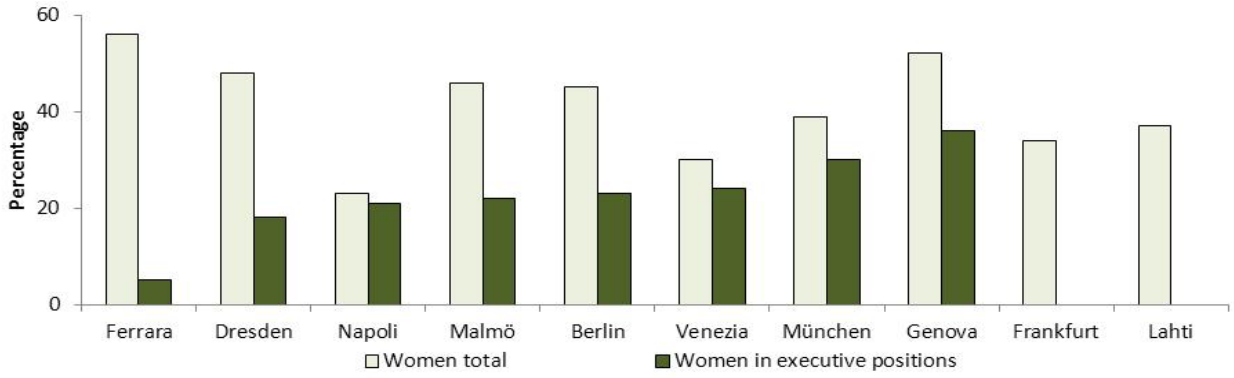
In Italy, women's political representation showed similar patterns. While the share of women in decision-making positions in the Ministry for the Environment is quite high at 34%, it is inversely proportionate to how technology-driven the issues are: the Ministry for Infrastructure and Transport has 22% and the national agencies dealing with energy issues have no or very few women in decision-making positions. The same picture can be seen at the regional level. In its conclusion, the Italian study criticises the complete lack of women in decision-making positions in areas associated with technology. As for equal opportunity legislation, equal opportunity offices are mandatory at the national level and in most regions. Progress in the representation of women in decision-making positions is evaluated regularly by the Commission for Equal Opportunities (Alleanza per il Clima Italia 2004).

Although there were expectations that the local level would be more democratic and women's political representation would be higher compared to the national level, this was not always the case. For example, not even in Finland was this assumption was confirmed, although Finland very often displays a relatively high share of women in decision-making.

The graph below indicates the share of women in fields relevant to climate change policies and decision-making in the 10 European cities involved in the "Climate for Change" project (2005)[17]. At the city level, women make up more than 30% of all staff in fields relevant to climate change policies (except in Naples and Venice, where this share is less), while in executive positions their share is lower, varying between 0 in Frankfurt (Germany) to 34% in Ferrara (Italy).

[17] Chapter 4 of this report focuses on women's representation in decision-making in fields related to climate change and presents the most recently collected data about women in climate change decision-making positions at the national level in the 27 EU Member States.

Figure 3.1. Share of women in fields relevant to climate change policies (in %)

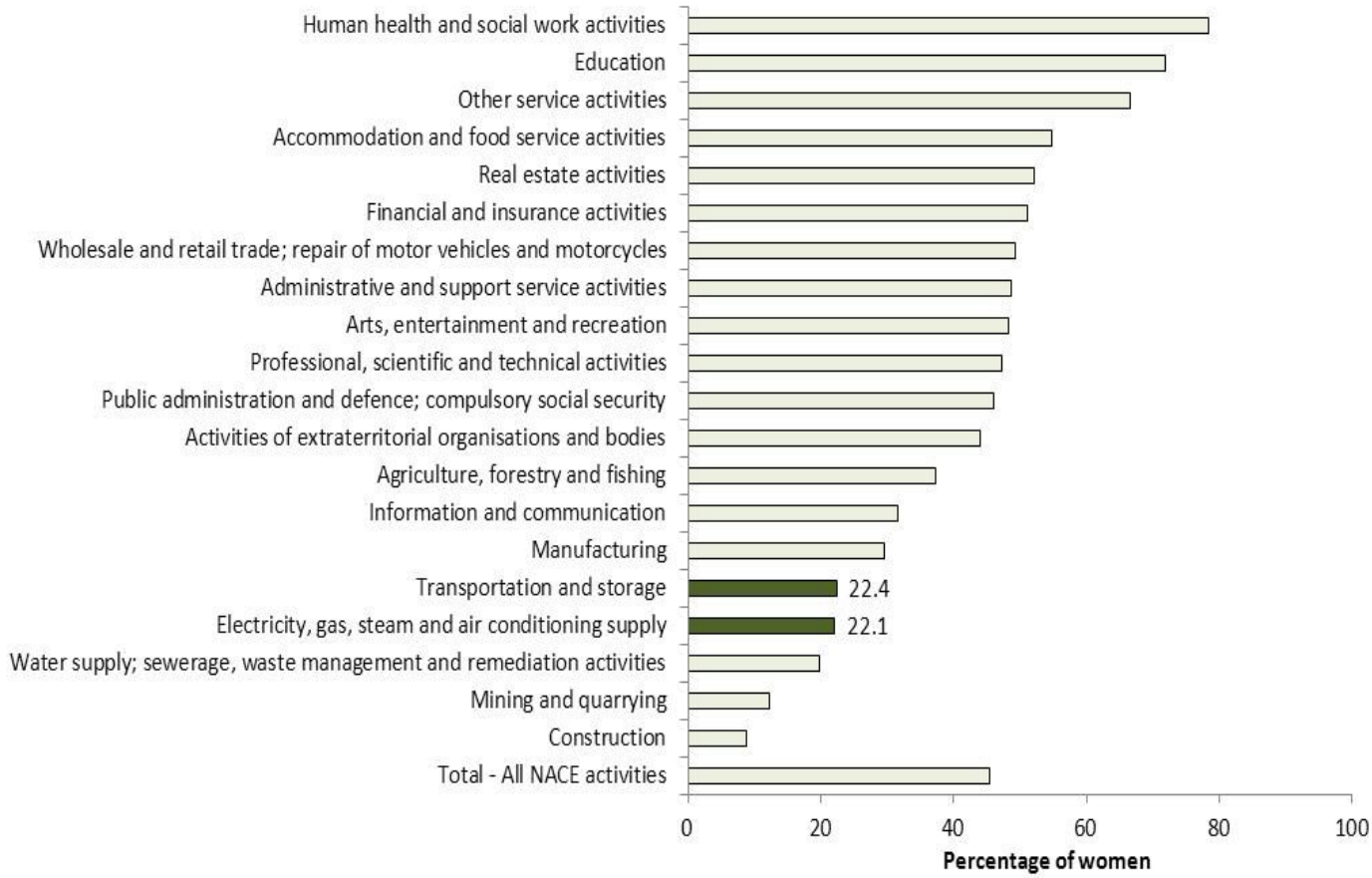


Source: (Climate Alliance of European Cities 2005)

3.1.3. WOMEN'S PARTICIPATION IN THE ENERGY SECTOR

In general, the topic of women's participation in climate change decision-making and its effects has been little researched. Still, the energy and transport sectors have been the focus of more researched which often describes both of them as the last two remaining professional sectors that are still heavily male-dominated.

Figure 3.2. Proportion of women in employment by sector, 2010

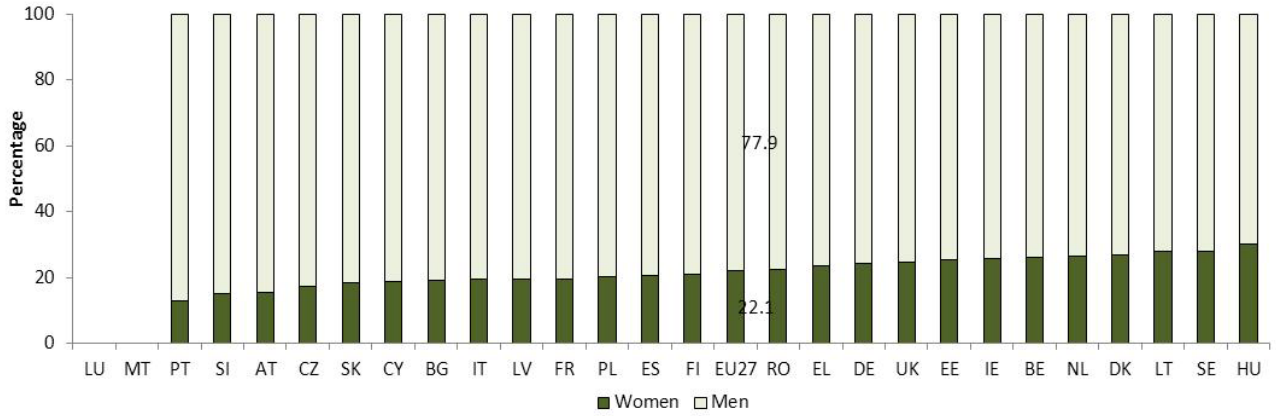


Source: Eurostat, LFS (lfsa_egan2)

Note: for the calculation, the sector's highest level of NACE ver.2 has been used; consequently "Postal and courier activities" has also been included under "Transportation and storage".

According to the latest available data published by Eurostat, female participation in the energy sector is quite low: only 22% of those employed in electricity, gas, steam and air conditioning supply activities in 2010 were women (Eurostat, LFS, table “Employment by sex, age groups and economic activity (from 2008, NACE rev.2) (1 000) (lfsa_egan2)”)

Figure 3.3. Employment in the energy sector (public and private) by sex, 2010



Source: Eurostat, LFS (lfsa_egan2)

Note: Data for the energy sector calculated according to NACE ver.2 "Electricity, gas, steam and air conditioning supply". Data are not available for LU and MT.

In 2002, a study of female participation in the energy sector carried out in Germany revealed that women represent only 20% of employees in this sector. This was in stark contrast to Germany's overall workforce, in which women make up 44% of employees. Additionally, in terms of decision-making, a mere 5 to 8% of women in the general workforce hold leadership positions while only 3% were among the top managers in the energy sector (Accenture 2002). The German Energy Agency was the only exception to this trend, where two out of three departments were headed by a woman (Climate Alliance 2004b).

A study in 2010 (Carlsson-Kanyama, Ripa Juliá, and Roehr 2010) carried out in three EU Member States (Sweden, Germany and Spain) analysed women's representation on the boards of the largest energy companies in each country (163, 149 and 152 companies respectively). Out of 464 companies surveyed in total in the three countries, 295 (64%) had no women at all in boards or management groups and only 22 (5%) had female representation of 40% or more. In Germany, only 2% of board and management group members were women, whereas in Spain the proportion was 8% and in Sweden 18%. In Sweden, nearly a third of companies had no women on the board or management group, "while the corresponding figures for Germany and Spain were 94% and 67% respectively. In Sweden and Spain, 7% of companies fulfilled the criterion of having 40% or more women on the board, while in Germany none did" (Carlsson-Kanyama, Ripa Juliá, and Roehr 2010).

The figures are no better in the oil industry, even though the situation is improving. By 2007, women comprised around 12% of ExxonMobil executives, compared to 9% in 2000. Women comprised 38% of the professional and management personnel hired by the company in 2007. The share of female executives at BP more than doubled between 2000 and 2007. At Shell, the numbers were similar, about one fifth of employees hired for technical positions being female. Between 2000 and 2007, the number of women holding management positions increased from 8.9% to 17.1% and the number of women in senior positions rose from 7.2 to 12.1% (Feltus 2010). This progress is the result of several measures: improved recruitment, making the workspace more hospitable for women, and fostering the professional development of women. Additionally, barriers were removed by diversity and inclusiveness training, and flexible work schedules helped women to balance the demands of work and family. The main motivation cited for the energy companies was "the labour shortage that is looming on the horizon." (ibid 74).

The renewable energy sector may represent a more attractive and women-friendly sector compared to the conventional energy sectors. It might be supposed that this is because of women's commitment to environmental protection, safety and low-risk approaches and their higher participation in education fields combining technology with environmental protection. However, this has proved not to be the case. A study in 2005 showed that in the renewable energy sector in Germany, only 10% of the members of associations promoting renewable energy and renewable energy companies were women, and the leadership of these organisations remained male-dominated. Only 8% of the board members of these organisations were female, and despite a modest presence of women on the advisory councils (12.5%), practically all managing directors were men (Thielmann, Müller, and Roehr 2005, 4).

In 2010, the European Professional Women's Network published the 4th edition of their Board Women Monitor (EuropeanPWN, 2010). The data, collected in June 2010, showed that less than 15% of the boards of companies in the area of renewable energy were women.

The most commonly cited reason for the lack of female participation in the energy sector is education: too few women are interested in engineering and mechanical studies – only 6.2% of mechanical engineering students are female, and fewer than 5% of electrical engineering students are women. Even though few women enter technical fields, there are many other opportunities to engage within the energy sector for academics, commercial and administrative employees or other skilled workers.

The perception of the energy sector as being a “male domain” is often cited as a second obstacle. The male working culture is characterised by a number of factors that may be discouraging for women. For instance:

The double burden of employed work and unpaid care work at home: success in one’s job is associated with long working hours. The lack of family-friendly working conditions makes it difficult for women to balance home and work life. 95% of men in the sector have partners, one third of whom do not work outside the home, whereas the majority of partners of the women in the sector are working;

Senior management positions involve high pressure, work-related travel owing to the high export potential in the sectors, and the expectation that one will fully commit to the responsibilities of the job and place work at the centre of one's life, which is difficult for women with younger children in particular (Accenture 2002);

Additionally, stereotypes and traditional gender roles still prevail in the workplace, contributing to the reduced presence of women in top management (Roehr and Ruggieri 2008, 10–11).

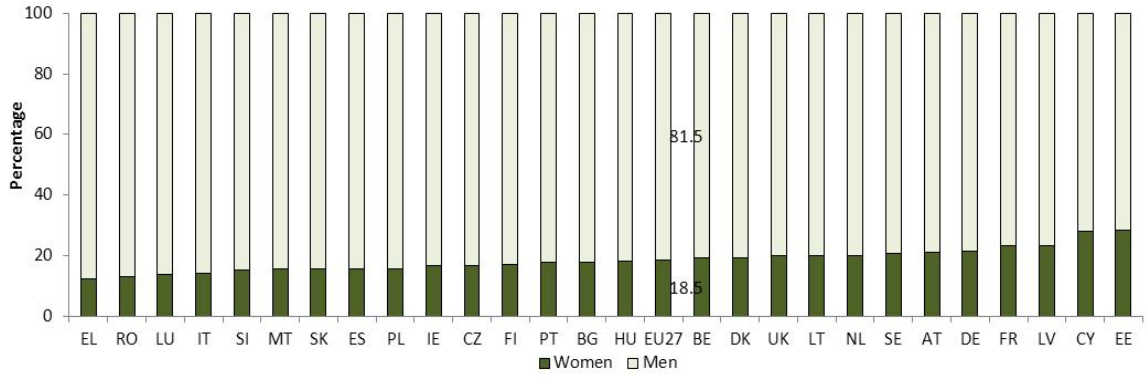
A third factor that contributes to the under-representation of women within the energy economy is insufficient promotion and mentoring programmes for women (Roehr and Ruggieri 2008).

The energy sector is highly important within the economy and will greatly influence the future development of society. Just energy development in the future, which seeks to provide clean, low-carbon and affordable energy for everybody, cannot be achieved without integrating both women's and men's perspectives in the process.

3.1.4. WOMEN'S PARTICIPATION IN THE TRANSPORT SECTOR

As in the energy sector, the representation of women in the transport sector is rather low. In 2010, women represented only 18.5% of the EU 27 transport workforce, compared to education and human health and social work activities where the share of women is highest (respectively 71.8% and 78.4% of women employees in those sectors)[18].

Figure 3.4. Employment in the transport sector (public and private) by sex, 2010



Source: Eurostat, LFS (lfsa_egan2, lfsa_egan22d)

Note: Data for the transport sector calculated according to NACE ver.2, "Transportation and storage", from which "Postal and courier activities" has been excluded. For EE and LU, "Postal and courier activities" has been included owing to availability of data.

[18] According to the most recent data from Eurostat, shown in the tables "Employment by sex, age groups and economic activity (from 2008, NACE rev.2) (1 000) (lfsa_egan2)" and Employment by sex, age groups and detailed economic activity (from 2008, NACE Rev.2 two digit level) (1 000) (lfsa_egan22d) http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database

In the transport sector, gender is a distinct factor in the division of labour: men are most strongly represented in technical and operational positions, whereas women work in service areas. When it comes to preventing women from entering or staying in the transport sector, research identified several factors (Oldrup und Romer Christensen 2007, SKILLRAIL forthcoming):

- The reluctance of employers to hire women;

- Poorer working conditions, e.g. in terms of wages, access to training, family-unfriendly working hours, male-centred ergonomic working conditions, and the risk of violence and harassment;

- Poor health and safety conditions, such as insufficient radio contact or lighting, or a lack of sanitary facilities;

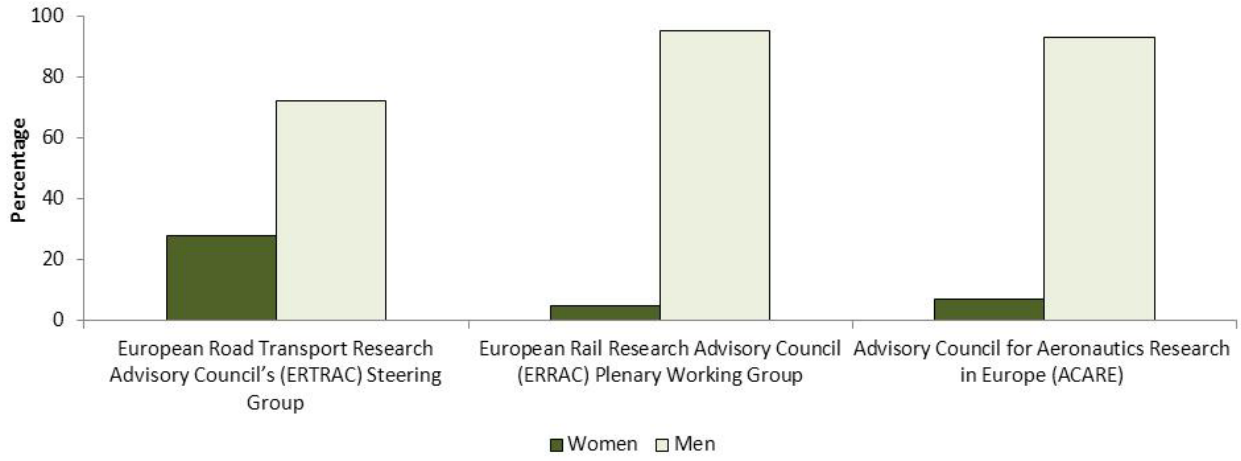
- Stereotypes that associate women and men with specific roles and tasks;

- Male-dominated sector with little experience and awareness on women's issues and rights, i.e. maternity leave, hours of work, part-time jobs and shift patterns.

This seems not to be the case in the European Parliament, where the two committees dealing with transport-related issues, the Parliamentary Committee on Transport and Tourism (TRAN) and the Parliamentary Committee on Industry, Research and Energy (ITRE), are fairly gender-balanced (see Chapter 5.2).

At the European level, there is a number of research and advisory councils for the area, which seek to influence European transport policy and research. A closer look at the gender balance in some of these councils reveals that the transport research advisory councils, like their political counterparts, are also mostly male-dominated. For example, the European Road Transport Research Advisory Council's (ERTRAC) Steering Group has 72% male membership, the European Rail Research Advisory Council (ERRAC) Plenary Working Group has 95% male membership and the Advisory Council for Aeronautics Research in Europe (ACARE) is 93% made up of men (Oldrup & Romer Christensen 2007, pp. 85-87).

Figure 3.5. Share of women and men in decision-making positions at the European level



Source: Oldrup & Romer Christensen 2007, pp. 85-87

3.2. SEGMENTATION OF EDUCATION BY GENDER

The findings presented so far support the argument that the energy and transport sectors, which determine the content of climate change policies to a great extent, are male-dominated, in both the public and the private sector, and in research. The gender patterns in educational choices are part of the explanation for the current segregation of the sectors. The gender patterns in scientific and technology tertiary education are presented below, together with some of the reasons why girls and women choose not to pursue higher education in these fields. This provides a theoretical background to the data analysis in Chapter 4 and the proposed Indicator 4 in Chapter 5.

3.2.1. UNDERSTANDING GENDER PATTERNS AMONG SCIENTIFIC AND TECHNOLOGICAL TERTIARY GRADUATES

Overall, women across the EU are less likely to study and obtain tertiary degrees (ISCED 5-6)[19] in fields related to natural sciences and technologies. This is particularly the case for engineering and technology-related fields (See section 5.5 of this report for details).

Gender differences in subject choice and performance during the upper-secondary years (ISCED 3-4) predetermine and cause the gender imbalance in the tertiary education. The enrolment of students in these fields of study is not simply a matter of choice; rather, it is a matter of performance during upper-secondary education: high grades in science subjects and/or completion of full programmes in scientific fields during upper-secondary education are frequently essential requirements for study in tertiary programmes related to science and technology.

Gender inequalities still remain in European education systems in terms of subject preferences and performance, which are related to qualitative aspects of the education and training experience. A number of recurrent themes are to be found in the literature on gender and education which deals primarily with educational practice (or what goes on in schools). These include the curriculum (official and hidden), school reading materials, subject preference and choice, motivational and psychological factors for students, school organisation and management, teacher attitudes, assessment, teaching as a profession, co-education and single-sex settings (European Commission 2010:26).

[19] *International Standard Classification of Education: ISCED 1997*, UNESCO, 1997 http://www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm

The IFAC project (Information for a Choice – Empowering Young Women through Learning for Technical Professions and Science Careers) identifies two significant reasons for lower female enrolment rates in science and technology (Arztmann and John 2008):

- Pre-existing societal gender stereotypes reflected within the educational system that prevent young women from taking up studies in these fields;

- Lack of accurate information on career options provided by sources such as the media and schools, which negatively influences the perception of options and choice.

The findings of several EU-funded research projects (*WOMENG*, *IFAC* and *PRAGES*) and the large-scale international research project *ROSE* suggest three sets of influential factors contributing to the gendered perception of subjects and careers which appear to be decisive in framing girls' choices (European Commission 2006; Arztmann and John 2008; Cacace 2009; Schreiner and Sjøberg 2004):

Gender stereotypes that operate at different levels (e.g. society, family, educational institutions at all levels, media) are sustained and reproduced (consciously or unconsciously) by different actors (e.g. parents, school, and peers). The consequences of gender stereotyping include low self-esteem and low confidence.

The absence of female scientist/engineer role models, professional counselling and guidance, and mentoring programmes during upper-secondary education.

An outdated teaching approach in terms of the way science is taught in schools and the irrelevance of the science curriculum to students' interests, in particular to girls' interests.

The OECD study *Evolution of Student Interest in Science and Technology Studies: Policy Report*, carried out in 2005, reaches similar conclusions. Over the past 15 years, student numbers in the science and technology fields have been increasing in absolute terms, but decreasing in relative terms in most OECD economies. Furthermore, women are still strongly under-represented in these fields, often owing to the pressure arising from stereotypes and external expectations (from parents, teachers, and society in general). Despite having marks at least as good as boys', young female students are usually not encouraged to pursue science and technology career paths by their families, teachers and career advisors (OECD 2006).

3.3. SUMMARY AND CONCLUSIONS

Existing research shows that women's participation in climate change decision-making at local, national or international level is not equal with men's. Reasons for women's low participation are rooted in organisational and cultural structures, in the traditional division of care responsibilities between women and men, and in educational choices. The arguments for increasing gender equality in decision-making stem from the ideas and ideals of democracy and justice and from the desire to have more efficient climate change policies that best serve the needs of society.

In international climate change policies, the number of women participants from EU Member States in UNFCCC delegations has been growing since the early 1990s. This has been encouraged by the presence of international NGO networks on gender and climate change. At the national level, women participate more often in environmental policy-making when the issues have a less technological character.

Women's participation in the energy and transport sectors is better researched than it is in climate change policy-making. Women's participation in the energy sector is generally low, as is the case in the oil industry. A main obstacle pointed to by the research is the male-dominated work culture in companies in this sector. In the public energy sector, quotas have had an effect, increasing the numbers of women within these institutions.

As in the energy sector, the representation of women in the transport sector also remains low. Research has identified a number of barriers to women entering this field, including the reluctance of employers to hire women; family-unfriendly working conditions; gender stereotypes; and poor health and safety conditions. As with the energy sector, there are few women holding top positions in transport, including boards and councils.

Climate change is a relatively new field of policy-making, and has entailed a career change for many people in high-level decision-making positions, particularly in environmental authorities. The area has employed graduates in the social sciences, economics and law, where there are much higher rates of female graduates. In the energy and transport sectors, however, scientific and technological degrees in the fields of engineering are more important for gaining high-level positions. There is a lack of data on the educational backgrounds of women and men currently occupying decision-making positions related to climate change. To enable more soundly-based conclusions about the link between education and women in decision-making positions in climate politics, energy and transport, further research is needed. In particular, an assessment of the educational degrees and backgrounds of people in climate change-related decision-making positions in the public and private sector would be very useful.

The link between gender-sensitive climate change policies and gender equality in decision-making has not been sufficiently researched; neither has the link between education and participation in decision-making in climate change policies. Since gender parity in decision-making is a question of equality and it is a goal in itself, all possible career barriers for women need to be removed, and indicators to measure improvements in women's participation need to be developed and implemented.

4. COLLECTION AND ANALYSIS OF DATA

4.1. INTRODUCTION TO THE DATA COLLECTION PROCESS

As early as 1995, *Women and the Environment* was recognised as one of the critical areas of concern of the BPfA, in which many obstacles to the full realisation of gender equality existed and where major challenges would arise in the future. Recently, the Council of the European Union highlighted a need for indicators to be developed for this area.[20] However, very little robust, sex-disaggregated data has been collected with the aim of measuring women's role in environmental matters, including climate change.

The lack of information makes it difficult to fully consider the gender dimension of climate change when developing EU policies aiming to tackle climate change. This chapter investigates the availability of data to measure this area and presents background information related to possible indicators for one of the three strategic objectives in area K of the BPfA, namely to involve women actively in environmental decision-making at all levels (objective K.1.) in the EU, with a focus on climate change.

The involvement of women in climate change decision-making has several dimensions. As mentioned in Chapter 3, there is limited research on the impact of larger numbers of women in decision-making positions on the nature of climate change policies themselves. In other words, it is not clear that the presence of women in policy-making positions necessarily leads to more gender-sensitive climate change policies. Measuring the extent of women's participation in climate change decision-making by the number of women and men in key institutions, as well as the number of women graduates in fields related to climate change provides useful information on the extent of women's involvement in this important and emerging policy area.

[20] In November 2009, the Council of the EU adopted conclusions on the report prepared by the Swedish Presidency of the EU called "Review of the implementation by the Member States and the EU institutions of the Beijing Platform for Action – Beijing +15: A Review of progress".

To be useful, indicators must be measurable. An essential part of this report is the investigation of data which are available and can be collected on a regular basis, and are also significant to measure progress towards objective K.1 across the 27 Member States of the EU. Initial datasets that can serve as the baseline for the proposed indicators have been collected and are presented in this report. The specific methodology used for the collection of these initial datasets and the challenges encountered during the data collection are presented in Annex I to the report.

The data collection substantiates the indicators for objective K.1 of the BPfA focused on the following areas:

Gender and decision-making processes related to climate change. The focus is on women's involvement in international climate change negotiations and decision-making in the sectors of environment, transport and energy in the Member States and at the EU level.[21] Sections 5.2 – 5.4 present the data results for these areas.

Segmentation of education by gender in the areas of natural sciences and technologies. As mentioned in Chapter 3, the right education, particularly in technical fields, can lead to careers in the energy and transport sectors and is a prerequisite in many cases to gain entry to the institutions and power structures that control and support climate change policy making. These areas of education – and corresponding sub-fields for which data are available - have been selected in this report for these reasons. Section 5.5 presents the data results for this area.

A number of important considerations shaped the data collection and analysis process. First, the data should yield well-supported conclusions about women's participation in climate change decision-making, in relation to the environment, energy and transport policy and about gender-based choices in education. The data collected also need to form a baseline against which to measure progress in the future. To the extent possible, this baseline should represent a trend covering the recent past, to account for short-term fluctuations.

[21] There are other institutions and types of positions relevant to climate change decision-making, particularly the private research and commercial sectors. However, gathering quantitative data on the participation of women in key roles in these sectors would be complex. Such an analysis is not part of this report.

Second, the data investigation and collection process should provide information about the availability and feasibility of collecting such data, at present and on a regular basis. The process of data collection itself therefore has a value, as its feasibility will determine the extent to which the proposed indicators are measurable, and will enable future collection of the same datasets for progress monitoring.

Finally, the data must be consistent and objective across the EU-27, so that they can be aggregated into a single figure for monitoring purposes, as well as enabling country comparison and analysis. This required a set of consistent criteria and limited subjectivity in assigning values, particularly where data were to be gathered directly.

4.2. WOMEN IN DECISION-MAKING POSITIONS ON CLIMATE CHANGE AT THE NATIONAL LEVEL

Data on the numbers of women in decision-making positions are published in the European Commission database Women & Men in Decision Making.[22] The database on Women & Men in Decision Making provides data on positions of power and influence in politics, public administration, the judiciary, and various other key areas of the economy. However this database could not be used in the current data collection exercise, due to the report's particular focus on the environment, transport and energy sectors, which are not separated in the database. The aim of the indicators is to provide an overview of women's participation in high-level decision-making positions in key sectors for climate change, namely the environment, transport and energy, to cover high-level political and administrative positions. A methodology for identifying the relevant institutions and positions in the Member States has therefore been developed and followed. Annex I of this report presents a detailed description of the methodology and the data collection process.

[22] European Commission database: Women & Men in Decision Making. http://ec.europa.eu/justice/gender-equality/gender-decision-making/database/index_en.htm

To address climate change decision-making in the Member States, data on the sex of high-level decision-makers were collected from institutions with responsibility for:

1) Environment (and climate change where specified);

2) Transport;

3) Energy.

Ministerial positions within 3 sectors across 27 Member States (81 institutions) were classified into three hierarchical levels of decision-making:

Level 1 covers the highest levels/positions in the Ministry (political level). These will usually be the Minister, the Vice or Deputy Minister and the high-level State Secretary.

Level 2 covers the top level of managerial or administrative decision-making in the Ministry, usually the civil servant who is the head of the Ministry, e.g. Sub-Secretary, Secretary-General, Director-General etc. with responsibility for the sector concerned.

Level 3 covers the heads of sectorial departments or divisions.

Sectors and departments most relevant for climate change, and those which have a policy focus, rather than a regulatory or administrative role, were taken into account. Detailed information about positions included in each decision-making level on the Member States level is presented in Annex I.

For analysis and to provide baseline data for the indicators, the data collected are summarised by sector and totalled for the three sectors. In the following sections, the data collected for this report are presented from various perspectives: for the EU as a whole as well as for each Member State, by sector, by level of decision-making, in percentages and in total numbers.

The data sets can be found in Annex II to the report.

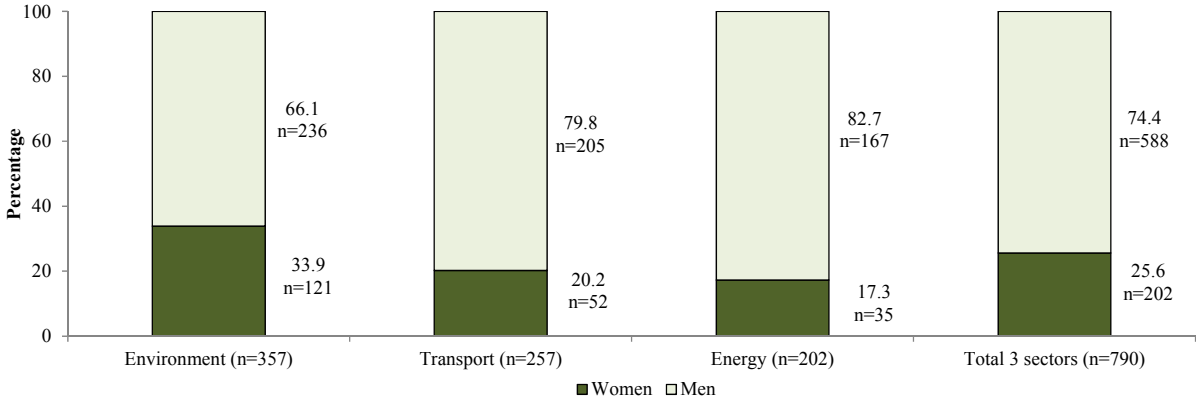
4.2.1. THE EU-27 PERSPECTIVE

Aggregated data at the EU-27 level provide an overview of the degree to which women hold high-level decision-making positions in key sectors for climate change – environment, transport and energy. These data, by sector, will also serve as a baseline for progress monitoring with the aid of the indicators proposed in Chapter 5.

The highest percentage of women in high-level decision-making on climate change-related issues was recorded in the environment ministries, where 121 out of 357 positions (33.9%) across the 27 Member States were occupied by women. Within the ministries responsible for transport, 52 out of 257 positions or 20.2% were held by women. The lowest proportion of women was found in ministries responsible for energy policies, where 35 out of the 202 positions (17.3%) were held by women.

On average, across the three sectors, 25.6% of high-level decision-making positions were occupied by women. Figure 4.1 below compares the total numbers across the three sectors for the EU 27.

Figure 4.1: Women in high-level positions related to climate change in national ministries competent for environment, transport and energy, by sector, EU-27

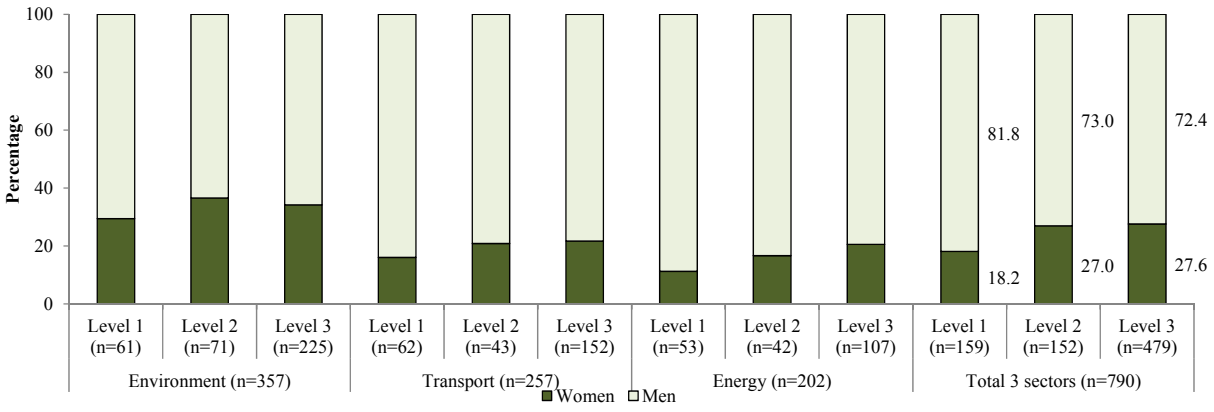


Source: Data collected from Member States in August - October 2011.

Note: Percentage of women in high-level decision-making positions related to climate change in ministries responsible for the sectors of environment, transport and energy. For Italy, the level 2 position in the energy authority was vacant at the time when the report was prepared. For the energy sector in Romania, level 2 data have not been confirmed and level 3 data were not available from the institution. "n" is the total number. According to the available data by sectors, in ten Member States (BE, EE, EL, FR, HU, LU, MT, NL, PT and SE) some ministries or institutions work in several sectors. Therefore, when information on the relevant individuals was collected, the individual concerned was included under all relevant sectors. When calculating the numbers by levels or total (all three sectors together), these individuals were taken into account only once. Summarising numbers by sectors and by levels or total can therefore give different results.

The extent to which women occupy positions within each level provides another view. Taken quite simply, this shows women's roles in political decision-making (level 1); operational positions (level 2); and in lower-level but more technically specific department head positions (level 3). The data for the EU-27 in Figure 5.2 show that women are slightly less likely to hold level 1 positions than level 2 or 3: only 18.2% of positions (or 29 from 159) on level 1 were held by women, while 27.0% of positions (or 41 from 152) on level 2 and 27.6% of positions (or 132 from 479) on level 3 were held by women.

Figure 4.2: Women in national ministries responsible for the environment, transport and energy, by level of authority, EU 27



Source: Data collected from Member States in August – October 2011.

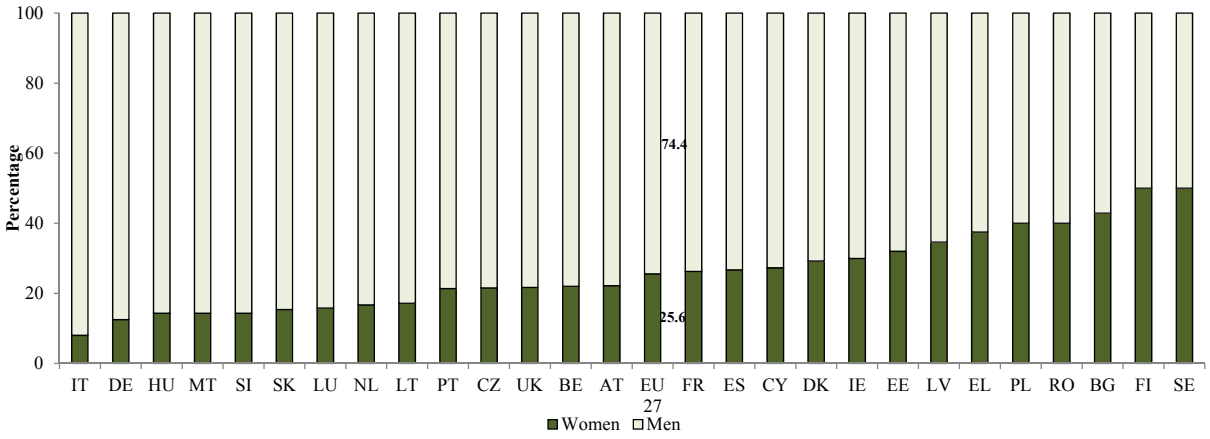
Note: Percentage of women in high-level decision-making positions related to climate change in ministries responsible for the sectors of the environment, transport and energy. For Italy, the level 2 position in the energy authority was vacant at the time when the report was prepared. For the energy sector in Romania, level 2 data have not been confirmed and level 3 data were not available from the institution. "n" is the total number. According to the available data by sectors, in ten Member States (BE, EE, EL, FR, HU, LU, MT, NL, PT and SE) some ministries or institutions work in several sectors. Therefore, when the information on the relevant individuals was collected, the individual was included under all relevant sectors. When calculating the numbers by levels or total (all three sectors together), these individuals were taken into account only once. Summarising numbers by sectors and by levels or total can therefore give different results.

On average, 25.6% of high-level decision-making positions in the sectors of the environment, transport and energy in the Member States were occupied by women. Women's participation in political decision-making (level 1) was lower than in operational or department head positions (level 2 and 3).

4.2.2. BREAKDOWN BY MEMBER STATES

Data are also broken down by Member States, revealing significant differences between the countries. Figure 4.3 provides an overview of the percentages of women in the three sectors, by Member States. It should be borne in mind when analysing these data that they reflect only the situation in 2011 at the time of data collection, and therefore are subject to circumstances existing at that time. The data do not reflect trends over time and therefore cannot provide substantive conclusions about gender balance in individual Member States. Nevertheless, they do give an interesting snapshot of the current situation.

Figure 4.3: Women in high-level positions related to climate change in ministries responsible for the environment, transport and energy, by Member State



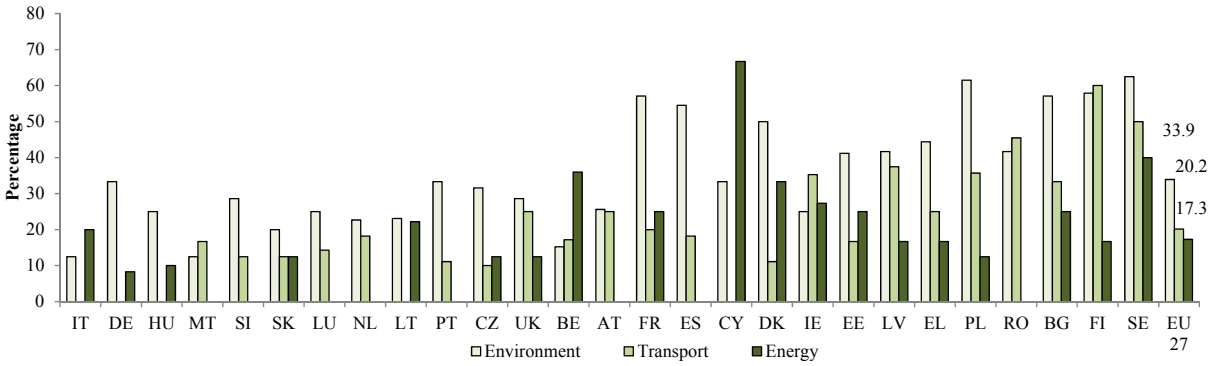
Source: Data collected from Member States in August - October 2011.

Note: Total percentage of women in high-level decision-making related to climate change in Ministries responsible for the sectors of the environment, transport and energy, by Member State. For Italy, the level 2 position in the energy authority was vacant at the time when the report was prepared. For the energy sector in Romania, level 2 data have not been confirmed and level 3 data were not available from the institution.

In thirteen Member States - Bulgaria, Cyprus, Denmark, Estonia, Finland, France, Greece, Ireland, Latvia, Poland, Romania, Spain and Sweden – women occupied at least one-quarter of positions in the three sectors. In five Member States – Italy, Germany, Hungary, Malta and Slovenia – the figure was less than 15%. Figures for the remaining nine Member States – Austria, Belgium, Czech Republic, Lithuania, Luxembourg, Netherlands, Portugal, Slovakia and the United Kingdom are between 15% and 25%. Overall, only Finland and Sweden had equal numbers of women and men (50%) occupying these positions in 2011.

Overall, it was the environment sector that was the most gender-balanced across the EU-27 (Figure 5.1). Figure 4.4 illustrates the situation for each of the Member States separately, showing that while the environment (the light green bar) was highest in most Member States, this was not true for all. In Ireland, Finland, Malta and Romania women occupied a majority of positions in the transport sector; in Belgium, Cyprus and Italy women's participation in the energy sector was the highest of the three sectors.

Figure 4.4: Percentage of women in high-level positions related to climate change in ministries responsible for the environment, transport and energy, by Member State



Source: Data collected from Member States in August - October 2011.

Note: Percentage of women in high-level decision-making related to climate change in Ministries responsible for the sectors of the environment, transport and energy by sector, by Member State and in total. For Italy, the level 2 position in the energy authority was vacant at the time when the report was prepared. For the energy sector in Romania, level 2 data have not been confirmed and level 3 data were not available from the institution.

The absolute numbers of men and women in high-level positions in each Member State are shown in Table 4.1; these provide a better idea of the relative size of the institutions in each sector.

Table 4.1: Numbers of men and women in high-level positions related to climate change for the EU-27 and the Member States

	Environment		Transport		Energy		Total 3 sectors	
	W	M	W	M	W	M	W	M
EU-27	121	236	52	205	35	167	202	588
Belgium	5	28	5	24	9	16	18	64
Bulgaria	8	6	2	4	2	6	12	16
Czech Republic	6	13	1	9	1	7	8	29
Denmark	3	3	1	8	3	6	7	17
Germany	3	6	0	11	1	11	4	28
Estonia	7	10	1	5	1	3	8	17
Ireland	3	9	6	11	3	8	12	28
Greece	4	5	1	3	1	5	6	10
Spain	6	5	2	9	0	8	8	22
France	4	3	2	8	1	3	5	14
Italy	1	7	0	12	1	4	2	23
Cyprus	1	2	0	5	2	1	3	8
Latvia	5	7	3	5	1	5	9	17
Lithuania	3	10	0	7	2	7	5	24
Luxembourg	2	6	1	6	0	6	3	16
Hungary	3	9	0	7	1	9	4	24
Malta	1	7	1	5	0	6	2	12
Netherlands	5	17	2	9	0	6	6	30
Austria	11	32	3	9	0	8	14	49
Poland	8	5	5	9	1	7	14	21
Portugal	5	10	1	8	0	5	6	22
Romania	5	7	5	6	0	2	10	15
Slovenia	2	5	1	7	0	6	3	18
Slovakia	2	8	1	7	1	7	4	22
Finland	11	8	3	2	1	5	15	15
Sweden	5	3	3	3	2	3	9	9
United Kingdom	2	5	2	6	1	7	5	18

Note: For the energy sector in Romania, level 2 data have not been confirmed and level 3 data were not available from the institution. According to the available data by sectors, in ten Member States (BE, EE, EL, FR, HU, LU, MT, NL, PT and SE) some ministries or institutions work in several sectors. Therefore, when the information on the relevant individuals was collected, the individual was included under all relevant sectors. When calculating the numbers by levels or total (all three sectors together), these individuals were taken into account only once. Summarising numbers by sectors and by levels or total can therefore give different results.

In seven Member States - Bulgaria, Denmark, Finland, France, Poland, Spain and Sweden – at least half of decision-making positions for the environment were held by women. In Sweden, only 37.5% of such positions were held by men.

For the transport sector, the picture is slightly different. Five Member States (CY, DE, HU, IT and LT) had no women in any of the high-level decision-making positions relevant to climate change policies in the transport sector, and in the majority – twenty Member States – women held 25% or less of the positions.

For the energy sector, where overall participation was slightly lower than in the transport sector, eight Member States (AT, ES, LU, MT, NL, PT, RO and SI) did not have women occupying any of the relevant high-level positions in the ministries. Only in Belgium, Cyprus, Denmark and Sweden did women occupy one-third or more of the relevant positions.

Data reveal some interesting observations, for instance, in Hungary, Latvia, Lithuania and Malta, women are absent from both levels 1 and 2, but they do hold level 3 positions. In the United Kingdom, remarkably, all positions in level 2 are occupied by women, but no women hold level 3 positions.

In ten Member States - Czech Republic, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Malta, Slovakia and Slovenia - all political decision-making positions (level 1) relating to climate change within the sectors of the environment, transport and energy were occupied by men. Sweden is the only Member State that had a balance of genders at all three levels, as at least 40% of all positions in each level were held by women.

So, in less than half of Member States (13 Member States) do women occupy at least one-quarter of high-level positions related to climate change, and Sweden is the only Member State that has a balanced gender representation at all three levels.

4.3. WOMEN IN DECISION-MAKING POSITIONS ON CLIMATE CHANGE AT THE EU LEVEL

The data about women in decision-making positions at European level have been published in the European Commission Database Women & Men in Decision Making.[23] However, to assess women's participation in climate change decision-making at the EU level, relevant institutions within the European Commission and the European Parliament, the institutions responsible for preparing, evaluating and approving EU policies and laws, were evaluated. Although the Council of the European Union (or Council of Ministers) also has a role in defining and deciding on EU laws and policies, the membership of the Council is comprised of national ministers (according to the policy area), and these individuals have already been tracked in the national-level data collection described above. The General Secretariat of the Council of the European Union has two Directorates-General (DGs) working on climate change, transport and energy issues. DG C – Competiveness, Innovation, Research, Industry and Information Society, Internal Market, Competition and Customs, Transport, Energy – works on transport and energy questions besides other areas, and climate change and environment issues are assigned to DG I – Climate Change, Environment, Health, Consumers, Foodstuffs, Education, Youth, Culture, Audio-visual and Sport. These two DGs of the General Secretariat of the Council of the European Union were not included in the analysis owing to the mainly administrative role of the General Secretariat.

4.3.1. EUROPEAN COMMISSION DATA

For the European Commission, four Directorates-General (DGs) were considered: DG Climate Action, DG Environment, DG Mobility and Transport, and DG Energy. A similar approach to the allocation of positions to a level was followed as for the national ministries. Consequently, it was decided to attribute the levels as follows:

[23] Database on Women & Men in Decision Making, available at http://ec.europa.eu/justice/gender-equality/gender-decision-making/database/index_en.htm

Level 1 covers the highest levels/positions in that sector within the EC: the Commissioner.

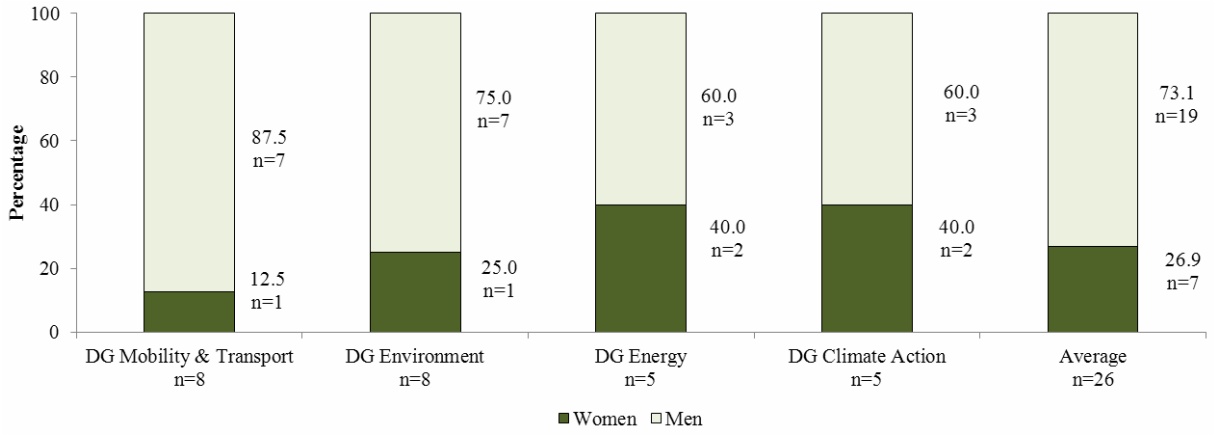
Level 2 covers the top level of managerial or administrative decision-making in the DG: Director-General of the DG.

Level 3 covers the heads of sectorial Directorates within the DG: Directors.

The organisational chart and information concerning the organisation of each DG, including the names of persons in high-level decision-making positions, were collected from the European Commission website: http://ec.europa.eu/contact/members_en.htm.

Figure 4.5 shows the baseline data for 2011- the percentage of women in the top three levels of decision-making within the Directorates-General covering environment, climate change, transport and energy.

Figure 4.5: Percentage of women in high-level positions in relevant Directorates-General of the European Commission Directorates-General, 2011



Sources: European Commission Directory and Who's Who of the EU Institutions (August 2011).

Note: The data show the percentage of women in high-level positions in the four Directorates-General dealing with the environment, climate change, transport and energy. The positions included are: Commissioner; Director General and the Directors of each sub-Directorate. “n” is the total number.

The largest percentage of high-level positions occupied by women was recorded for DG Climate Action and DG Energy, where there were 40% of women in these positions. In both of these DGs, women occupied two out of the five top positions at the time of data collection.

In DG Environment, women held 25% of the relevant high-level positions, with only two women among the eight positions. In DG Mobility and Transport, this percentage is even lower, as only 12.5% of the top decision-making positions were occupied by women, with one women occupying one of the eight positions.

On average, across these four DGs, 26.9% of the high-level positions were occupied by women. More specifically, at the Commissioner level (level 1), women held one of the four positions (DG Climate Action). Among the five positions identified as level 2 across the four DGs, none was occupied by a woman. Finally, among level three positions, out of 17 positions, 6 were occupied by women (35.3%).

4.3.2. EUROPEAN PARLIAMENT DATA

For the European Parliament, participation in the three committees most closely related to the environment, transport and energy sectors was considered:

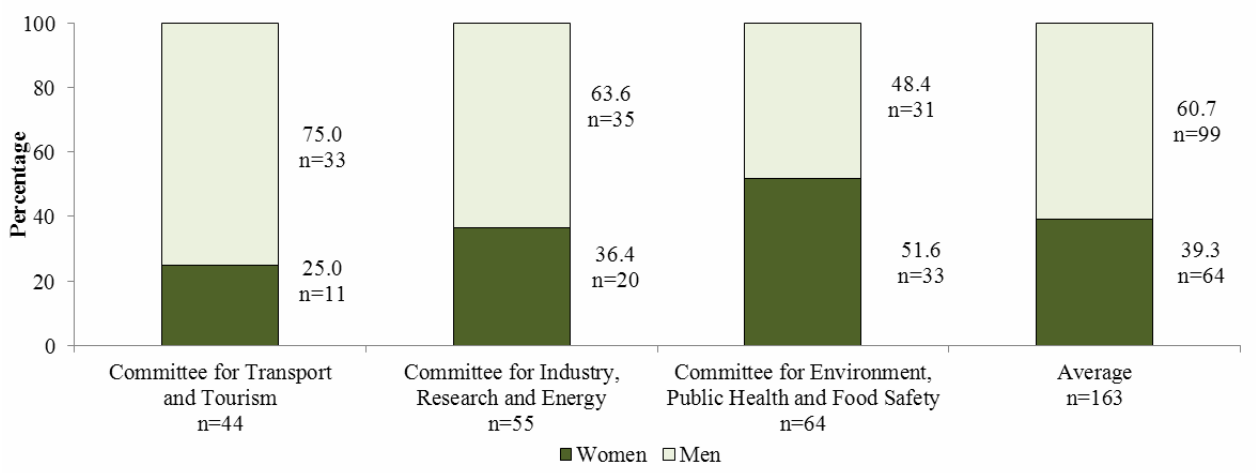
- Environment, Public Health and Food Safety (EPHFS; environment sector);

- Transport and Tourism (TT; transport sector);

- Industry, Research and Energy (IRE; energy sector).

As there is no hierarchical positioning in the Committees of the European Parliament, the total number of Members of the European Parliament (MEPs) was taken into account. Information was collected from lists of Parliamentary Committees, available at: http://www.europarl.europa.eu/activities/committees/committeesList.do. The data for the European Parliament are presented in Figure 4.6.

Figure 4.6: Percentage of women in key climate-related committees of the European Parliament, 2011



Sources: Parliamentary Committees (August 2011).

Note: "n" is the total number.

The data collection revealed that out of the 64 permanent members within the Environment, Public Health and Food Safety Committee 51.6% were women. For the Industry, Research and Energy Committee, the percentage of women was significantly lower: out of 55 members, 36.4% were women. Finally, the percentage of women recorded for the Transport and Tourism Committee was even lower, with only 25% of women occupying high-level positions out of a total of 44 members. The average women/men ratio across these three committees was 64 women to 163 men. Women therefore represented on average 39.3% of the members of these Committees. This is slightly more than the average of the European Parliament which, with 256 female Members of the European Parliament (MEPs) out of 736, had an average women/men ratio of 35%.[24]

These figures are similar to those for the national ministries, with the environment sector being more gender-balanced than the transport and energy sectors.

[24] Data for 1st quarter 2011, Database on Women & Men in Decision Making, available at http://ec.europa.eu/justice/gender-equality/gender-decision-making/database/index_en.htm

4.4. WOMEN IN DECISION-MAKING POSITIONS IN THE INTERNATIONAL CLIMATE CHANGE NEGOTIATIONS

The participation of women in the negotiations of the United Nations Framework Convention on Climate Change (UNFCCC), including representing ministries, advisors and policy consultants, has shown a slow but constant increase over the years. International climate policy and decision-making is mainly carried out through the UNFCCC process, including meetings of the Conference of the Parties and its supporting bodies:

- Annual meetings of the Conference of the Parties (COP). The COP delegations carry out the political negotiating and decision-making on international climate change policies, including agreeing targets for reduction of GHG emissions.

- Meetings of Subsidiary bodies (SBs). Subsidiary bodies meet twice per year: once simultaneously with the COP and at a second time during each year. The COP negotiations are supported by the work of SBs. There is one SB for Scientific and Technological Advice (SBSTA), which counsels the COP on matters of climate, the environment, technology and methods. Another SB for Implementation (SBI) helps review how the Convention is being applied, and deals with financial and administrative matters.

Typically, the COP meets annually and the SB meets twice per year; once simultaneously with the COP and at a second time during each year.

Data were collected to assess the extent of women's participation in the delegations from the 27 Member States and the EU to the various bodies of the UNFCCC.[25]

The data on the numbers of men and women on COP and SB delegations from the EU and the Member States are shown in table 4.2.

[25] Data on the sex of meeting delegates are available from participant lists, which can be found for each of the meetings on the UNFCCC website. Further details on the data collection process can be found in Annex I.

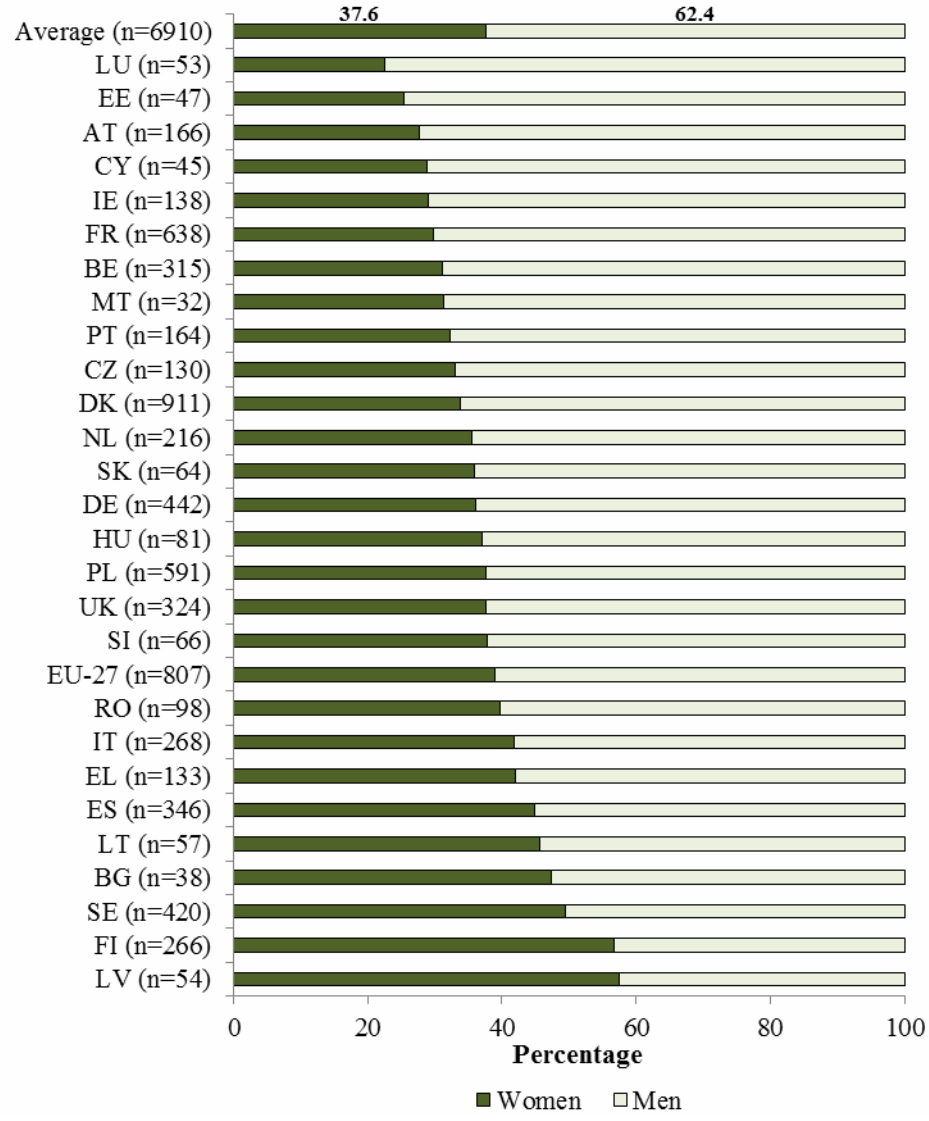
Table 4.2: Total numbers of men and women in COP and SB delegations from the EU and the Member States, averages of past five years.

	Conference of the Parties			Supporting Bodies		
	Women	Men	Women (%)	Women	Men	Women (%)
Total	2596	4314	37.6	1075	1350	44.3
EU-27	315	492	39.0	104	166	38.5
Belgium	98	217	31.1	44	94	31.9
Bulgaria	18	20	47.4	8	6	57.1
Czech Republic	43	87	33.1	32	33	49.2
Denmark	308	603	33.8	98	139	41.4
Germany	160	282	36.2	109	173	38.7
Estonia	12	35	25.5	5	0	100.0
Ireland	40	98	29.0	18	49	26.9
Greece	56	77	42.1	5	7	41.7
Spain	155	191	44.8	65	34	65.7
France	191	447	29.9	73	107	40.6
Italy	112	156	41.8	47	28	62.7
Cyprus	13	32	28.9	2	2	50.0
Latvia	31	23	57.4	15	0	100.0
Lithuania	26	31	45.6	6	2	75.0
Luxembourg	12	41	22.6	1	12	7.7
Hungary	30	51	37.0	25	16	61.0
Malta	10	22	31.3	5	10	33.3
Netherlands	77	139	35.6	16	68	19.0
Austria	46	120	27.7	19	39	32.8
Poland	222	369	37.6	66	71	48.2
Portugal	53	111	32.3	19	32	37.3
Romania	39	59	39.8	7	9	43.8
Slovenia	25	41	37.9	17	19	47.2
Slovakia	23	41	35.9	17	6	73.9
Finland	151	115	56.8	65	44	59.6
Sweden	208	212	49.5	99	89	52.7
United Kingdom	122	202	37.7	88	95	48.1

Note: for COP the meeting years are 2006 – 2010; for SB 2007 – 2011, as these were the most recent years available at the time when the report was prepared. "Total" is the total of the Member State + EU delegations. "EU-27" refers to the specific delegation of the European Union, not the total of the Member State delegations.

Figure 4.7 shows the five-year averages as percentages, by Member State and for the EU delegation.

Figure 4.7: Member State five-year average women participation in COP delegations



Source: http://unfccc.int (lists of participation of EU and Member States, collected in August 2011).

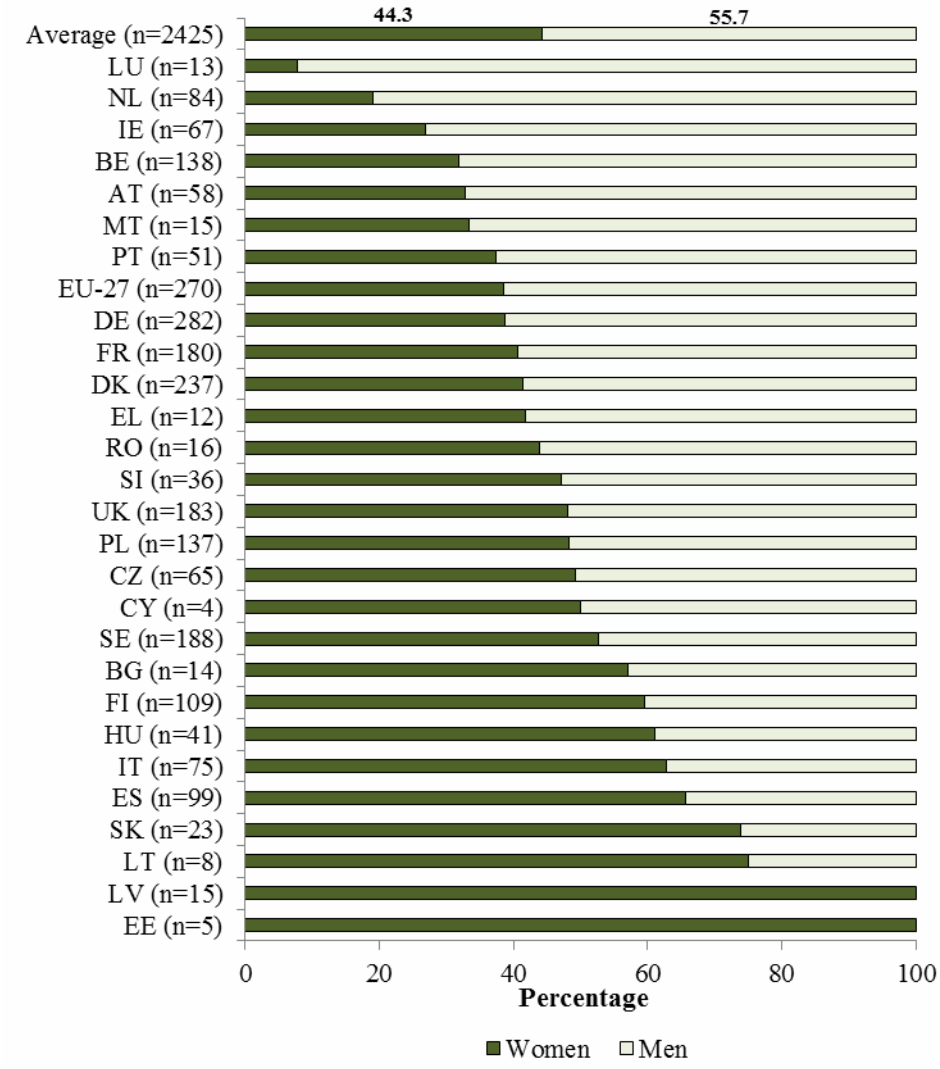
Note: "EU-27" refers to the specific delegation of the European Union, not the total of the Member State delegations. “Average” is the average of the Member State + EU delegations. “n” is the total number.

Countries where the participation of women in COP delegations as a five-year average has been relatively low are: Luxembourg (22.6%), Estonia (25.5%), Austria (27.7%), Cyprus (28.9%) and Ireland (29%). In larger countries by total population, such as France and Germany, the level of participation of women in national delegations was also relatively low (29.9% in FR and 36.2% in DE). Countries where female participation in COP delegations has been higher are Latvia (57.4%), Finland (56.8%), Sweden (49.5%), Bulgaria (47.4%) and Lithuania (45.6%). Overall, 37.6% of the members of all COP delegations from 2006-2010 were women.

It should be kept in mind that the size of delegations varies according to the Member State and is not directly connected with the size of the country's population. In 2010, the total size of delegations ranged from 4 or 7 for six Member States (CY, BG, LV, LT, MT, SK) to more than ten times bigger delegations for France and Germany and 104 for Belgium which sends delegations for the federal government and by region. This needs to be taken into account when reading the figures and is one factor explaining why a national delegation may have a comparatively higher percentage of women if the sample is smaller. Consequently, the total numbers of delegation members during the five years period have also been added to figures 4.7 and 4.8.

Figure 4.8 shows the five-year average for the Subsidiary Bodies, which provide technical, financial and administrative advice to the COP on implementing the Climate Change Convention and negotiating specific details. As the figure shows, women’s participation in this working-level body is higher across the Member States than for the more politically-oriented COP delegations.

Figure 4.8: Member State five-year average women's participation in SB delegations



Source: http://unfccc.int (lists of participation of EU and Member States, collected in August 2011).

Note: "EU-27" refers to the specific delegation of the European Union, not the total of the Member State delegations. “Average” is the average of the Member State + EU delegations.

Interestingly, very high proportions of women delegates to the SBs were recorded in the three Baltic States – Estonia, Latvia and Lithuania – each with 75% or over. Other countries with 50% or more women on the SB delegations over the past five years are Slovakia (73.9%), Spain (65.7%), Italy (62.7%), Hungary (61%), Finland (59.6%), Bulgaria (57.1%), Sweden (52.7%) and Cyprus (50%). At the lower end of the spectrum are Luxembourg (7.7%), the Netherlands (19%), Ireland (26.9%), Belgium (31.9%), Austria (32.8%) and Malta (33.3%). Overall, 44.3% of the members of all SB delegations from 2007-2010 were women.

Between 1996 and 2010, women's participation in national delegations to the UNFCCC has shown an upward trend. For example in COP 2 in 1996, the average female participation across all EU Member States and the EU delegation was 24.3%. This average increased to 32.4% in COP 6 (2000), and continued to increase steadily to 40.5% in COP 16 (2010).

As for the COP delegations, for SB delegations also an upward trend over time can be observed. In 1996, the average female participation in EU SB delegations was 24.6%. This average showed a steady increase until SB28 in 2008, where female participation reached 46.2%. Since SB28, the average decreased slightly to 42.7% for SB30 in 2009, and was recorded at 44% for SB34 in 2011.

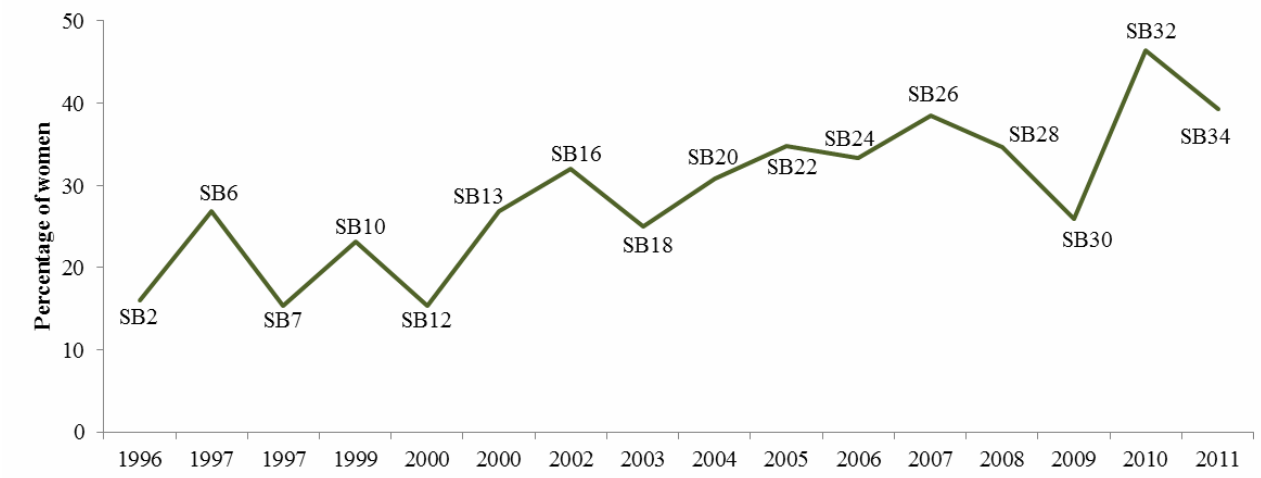
Figure 4.9: Share of women in COP and SB delegations from the EU and Member States, 1996-2011

Source: http://unfccc.int (lists of participation of EU and Member States, collected in August 2011).

Note: for COP the meeting years are 2006 – 2010; for SB 2007 – 2011, as these were the most recent years available at the time when the report was prepared.

Heads of SB Delegations (SB HoDs) were also considered, as these positions represent high-level decision-making power in a position not reserved for a head of state or minister, but rather a distinguished technical expert. Figure 4.10 shows a general upward trend in the proportion of women SB HoDs for each SB meeting that did not coincide with a COP since 1996.

Figure 4.10: Percentage of women heads of delegation to SBs, 1996-2011



Source: http://unfccc.int (lists of participation of EU and Member States, collected in August 2011).

Note: Summarises the data totals for the percentage of women. Data are for SB meetings that were held independently from COP meetings; consequently, the years are not sequential. No data available for SB8 1998.

In 1996, the average of women heads of delegation to SBs was 16% across the EU. This increased to 46.4% in 2010 for SB32, and was 39.3% for SB34 in 2011.

More specifically at country level, five countries have never had a women head of delegation (AT, BE, LU, SI, SE), three countries only once had a women head of delegation (EL, HU, MT) and two countries twice had a women head of delegation (CZ and CY).

As discussed in Chapter 2, it is important to have women in leading positions in the national delegations to COPs and SBs, as there is a proven link between women's participation in the negotiations and the prominence of gender issues within these negotiations. Once women started to enter the international climate arena, these issues gradually gained more attention in the context of climate change. There have been a growing number of gender references in the negotiation papers, including cases where gender issues are seen as an integral component in the development of actions to mitigate and adapt to climate change.

The results of analysing women's participation in decision-making positions in the international climate change negotiations show that the proportion of women in COP delegations has increased since 1996 and in 2010 was 40.5%. The proportion of women in the SB delegations is only slightly higher than for the COP delegations (44% in 2011).

4.5. GENDERED SEGMENTATION OF EDUCATION

The section reviews data on the extent to which women in the EU receive higher education degrees in the scientific and technological fields often required for careers in climate change and specifically in the energy and transport sectors. Unlike the data for women in specific decision-making positions, the data on education, specifically university graduate numbers, are much more widely dispersed. A pre-existing, EU-wide data source was therefore required to supply the figures. A number of possibilities were investigated:

- Eurostat: the European Commission services' official data source;

- The "*She Figures*" publications from DG Research;

- *Key Data on Education in Europe 2009* from the Eurydice network;

- *Education at a Glance 2010* from the OECD.

The investigation concluded that the data provided by Eurostat[26] are by far the most comprehensive statistics available on the gendered segmentation of education in the science and technology fields across the EU.[27] The two categories of greatest interest for this report are "Tertiary students by field of education and sex", which covers students enrolled in programmes; and "Graduates in ISCED 3 to 6 by field of education and sex". Graduates are those who obtained a qualification during the data collection reference period. Since graduates include those who have actually completed their studies and are able to enter the labour market, it was decided to use these data rather than the enrolment statistics. Details of the data collection methodology are provided in Annex I.

Detailed data on the numbers of tertiary graduates for each of the seven selected narrow fields are available from the Eurostat database Education Statistics. Data for the period 2005-2009 are included in Annex II.

The data for 2009 graduates across the EU 27, shown in Figure 4.11, reflect significant differences across the fields, with the share of women exceeding men in *Life sciences*, and roughly equal to men in *Environmental protection and Manufacturing and processing*. The overall share of female graduates in all fields in 2009 was 59.2%, and the seven selected fields constitute 18.3% of graduates overall.

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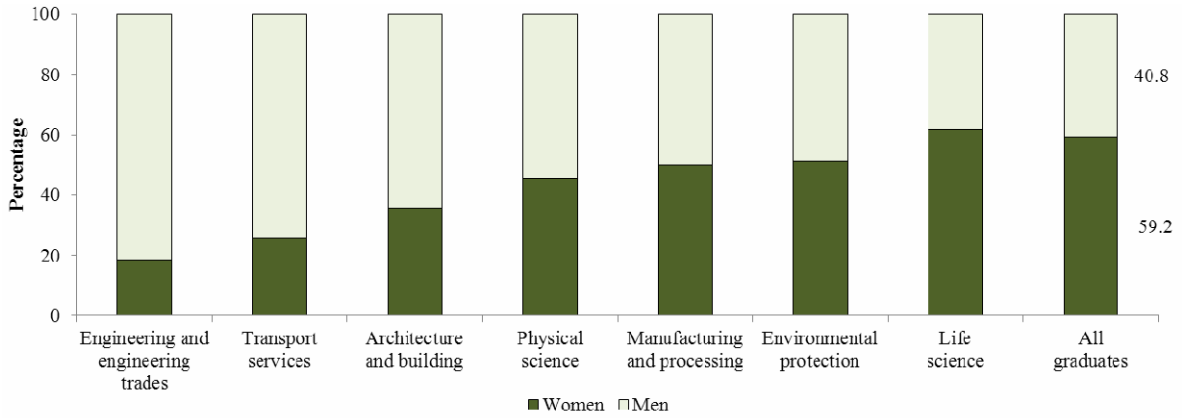
26 The Eurostat database can be accessed at http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database. Statistics used for this analysis can be found under the table "Graduates in ISCED 3 to 6 by field of education and sex" [educ_grad5]. Data were last updated on 01.10.11 and the last year of reference is 2009.

27 The other sources focus on the development of indicators to serve the education field (rather than gender), and the OECD data cover only the 19 EU Member States which are also OECD members. Eurostat tracks a number of education statistics by field and by sex at the tertiary levels.

Figure 4.11: Women and men tertiary graduates in selected fields, EU-27, 2009

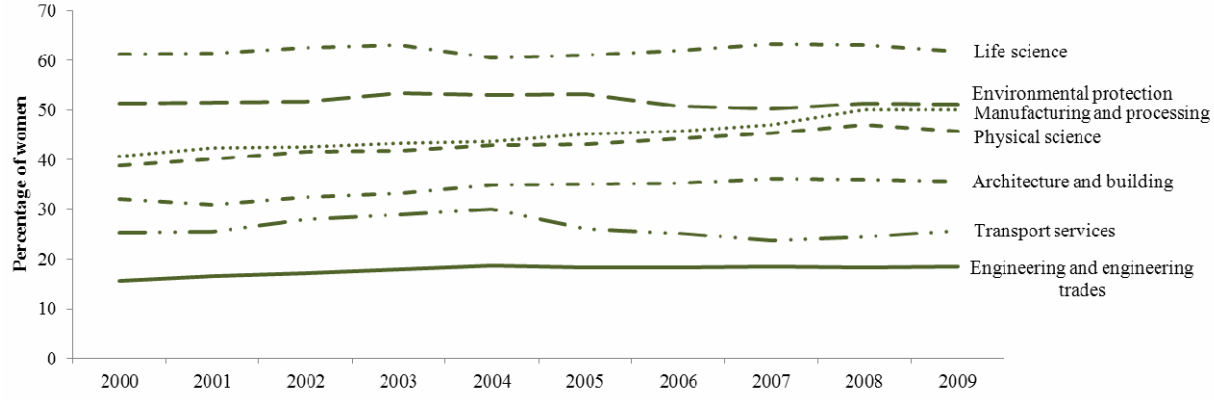


Source: Eurostat, Education Statistics (educ_grad5)

Note: The data show the percentage of women and men graduates from ISCED level 5 and 6 educational programmes across the EU-27 in 2009.

There has been limited change in the proportion of women graduates in the selected fields over the past five years, as shown in Figure 4.12. This figure also clearly shows the differences in concentration of women graduates across the different fields, with engineering and transport services ranking relatively low. This is consistent with the findings presented in Chapters 1 and 2 about the limited participation of women in careers related to the transport and energy sectors.

Figure 4.12: Women tertiary graduates in selected fields, EU-27, 2000 – 2009



Source: Eurostat, Education Statistics (educ_grad5)

Note: The data show the change in the percentage of female graduates from 2000-2009 for each of the seven fields most relevant to natural sciences and technologies.

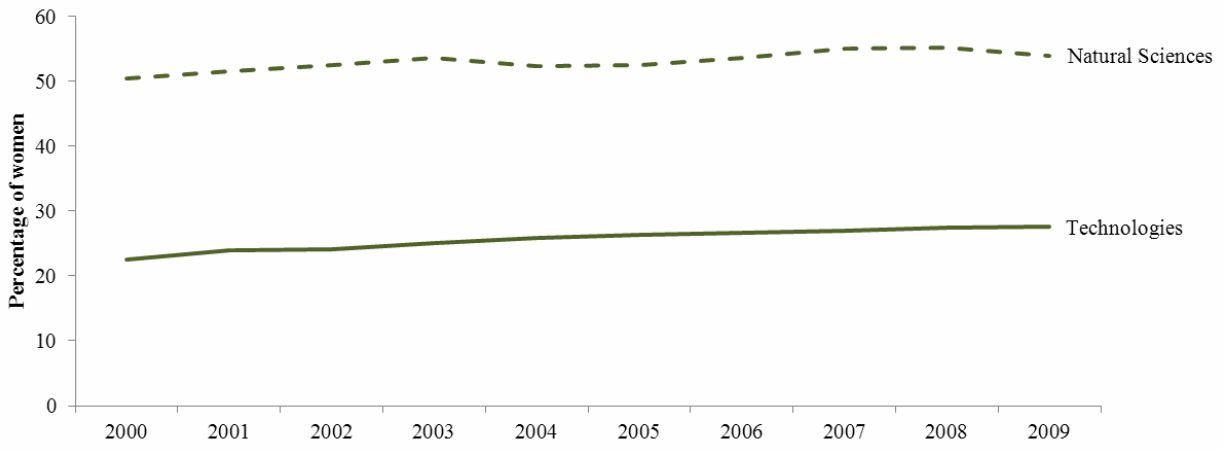
For analysis purposes as well as for use in the indicator proposed in Chapter 5, the data have been combined into two composite sets as follows:

- "Natural sciences": *Life sciences* and *Physical sciences;*

- "Technologies": *Engineering and engineering trades, Manufacturing and processing, Architecture and building, Transport services and Environmental protection.*

Figure 4.13 shows the change in the percentage of women tertiary graduates in these combined sets of fields over the past decade. Data for 2009 are 54% for natural sciences and 27.6% for technologies. While women actually make up the majority of graduates in the natural sciences (but, as the more detailed data show, this is mainly in the life sciences and less so for physical sciences), their numbers are much lower in technological fields. This corresponds to the decision-making data presented earlier in this chapter, which revealed that there are higher numbers of women in decision-making positions in environmental authorities than those related to more technological subjects, e.g. transport and energy.

Figure 4.13: Women tertiary graduates in fields related to natural sciences and technologies, EU-27, 2000-2009



Source: Eurostat, Education Statistics (educ_grad5)

Note: Graduates in fields related to natural sciences: Equals the total percentage of female graduates in the Eurostat fields Life sciences and Physical sciences. Graduates in fields related to technologies: Equals the total percentage of female graduates in the Eurostat fields Engineering and engineering trades, Manufacturing and processing, Architecture and building, Transport services and Environmental protection

The engineering field, with its relatively large numbers of tertiary graduates and low percentage of women, is a very important one for climate change, particularly the energy and transport sectors. Since a very broad range of engineering subjects are included in the sub-field *Engineering and engineering trades*, it is not possible to obtain very precise information on graduates in those specific subjects that would likely lead to high-level careers in the energy and transport sectors, particularly in the political decision-making areas. Nevertheless, a number of important subjects are covered within this data, including electrical engineering, energy programmes, nuclear, hydraulic and thermal energy, biochemical technologies and engineering, chemical engineering.[28]

While the percentage of women graduates in this field across the EU-27 has risen slightly during the past decade (from 15.6% in 2000 to 18.4% in 2009), the overall ratio is very low, relative to the nearly 60% share of female tertiary graduates in all fields during the same period. There are some interesting differences in women engineering graduates among the EU Member States, as shown in Figure 4.14.

[28] Andersson, Ronnie and Olsson, Anna-Karin *Fields of Education and Training: Manual,* Eurostat, 1999.

Figure 4.14 Women graduates in engineering and engineering trades by Member State, 2009

Source: Eurostat, Education Statistics (educ_grad5)

Note: The graph shows the shares of men and women in total tertiary (ISCED 5-6) graduates for each Member State in 2009. No data available for Greece or Luxembourg.

In ten Member States the proportion of female graduates in engineering and engineering trades is less than 15% (AT, BE, CY, CZ, DE, HU, IE, NL, SI and UK). The highest proportion (above 25%) of female graduates in engineering can be seen in Bulgaria, Denmark and Romania.

4.6. DATA ANALYSIS: SUMMARY AND CONCLUSIONS

The collection and analysis of data to support indicators on women's participation in environmental decision-making for climate change was a valuable exercise that contributed extensively to the development of the proposed indicators. Through data collection, it was possible to investigate how women's participation in climate change decision-making could be better understood and measured over time. Since climate change is a relatively new field, and there has been little research done on the subject, the investigation of data content, scope and availability presented in this chapter forms a basis for the proposed indicators.

The analysis of the data also presents some interesting conclusions about women's role in climate change decision-making. At the Member State national government level, data was collected on the number of women in high-level decision-making positions in the institutions responsible for the environment, transport and energy sectors. Overall, 25.9% of these positions were occupied by women. For the environment sectors, this figure is somewhat higher – 34.6% or more than one-third - than for the transport (20.3%) and energy (17.1%) sectors. In terms of decision-making power, women are slightly less likely to occupy positions at the highest levels of decision-making (18.2% of these positions across all sectors and Member States are occupied by women) than at lower, more operational and/or technical levels (26.5% and 28.2% of positions at operational and technical levels respectively were held by women).

Nordic Member States – Sweden and Finland – were the only Member States with gender-equal representation of women and men in high-level positions related to climate change, with 50% for both genders. Otherwise, few regional patterns or other similarities among the Member States with higher and/or lower numbers of women in these positions could be discerned. In four Member States – Italy, Hungary, Slovenia and Malta – the figure was less than 15%.

At the EU level, data were collected from the European Commission and the European Parliament. For the Commission, women held the largest percentage of high-level positions in DG Climate Action and DG Energy (40% in both cases). In DG Environment the figure was 25% and in DG Mobility and Transport it was 12.5%. However, the number of positions considered to have high-level decision-making power was low, ranging from 5 to 8. The small number of positions considered can result in a relatively high change in the ratio from year to year.

For the European Parliament, again the numbers of women were higher on the environment-related committee (51.6% women) than on those dealing with energy (36.4%) or transport (25%) issues.

The third level of decision-making considered in the analysis was the international level, specifically the delegations to the UNFCCC negotiations. Here data were collected on the numbers of women on the delegations to the Conference of the Parties (COP), the political negotiating body, and the Subsidiary Bodies (SB), which provide technical and administrative support to the negotiations. Data were analysed for the past five years. Delegations to the COP from the EU Member States and the EU itself were on average 37.6% women over the five-year period; for the SB delegations the figure is slightly higher at 44.3%. Overall the numbers of women in both delegations has been on the rise since the process began in the early 1990s.

The data analysis also looked at education, since the extent to which women receive higher level degrees in scientific and technological fields is an important determinant of the likelihood that they will pursue a career in climate change decision-making. Data on graduates from university-level (ISCED 5 and 6) programmes in seven fields across the EU were collected from Eurostat. The data reveal that relatively high numbers of women are awarded degrees in *life sciences* (61.8% in 2009), and *environmental protection* (51.1%), but relatively low numbers in more technical fields, including *architecture and building* (35.6%), *transport services* (25.7%) and *engineering and engineering trades* (18.4%).

Some connection can be seen between the lower numbers of women occupying high-level positions in national and EU institutions with competence for transport and energy, and the low proportion of women tertiary graduates in engineering and other technical fields. At the same time, higher numbers of women can be found in environmental authorities and also in the proportion of tertiary graduates in life sciences and environmental protection.

In the international arena, women's participation has grown considerably since the UNFCCC process began in the 1990s. The reasons for this may be linked to the greater focus on gender issues within the process itself, as discussed in Chapter 3. It is worth mentioning that there are higher numbers of women in the more technically-oriented Subsidiary Bodies than in the delegations to the political negotiations in the Conference of the Parties, which demonstrates that political decision-making in climate change is less gender-balanced than more technical work in the sector. The higher proportion of women in level-3 positions in national ministries also indicates that women are more likely to hold technical positions than political ones.

The following chapter presents the indicators that have been proposed for measuring progress in this area, based on the data collected and discussed in this chapter.

5. PROPOSALS FOR INDICATORS FOR OBJECTIVE K1 OF THE BPFA

5.1. INTRODUCTION AND RATIONALE FOR INDICATORS

This section contains four proposed indicators to measure the involvement of women in decision-making on climate change. These indicators are aimed at measuring sub-objective K1 of the BPfA, which is to *"Involve women actively in environmental decision-making at all levels",* with a focus on climate change. The outcomes of the literature review, the data collected and the analysis of collected data served the basis for the development of the indicators. A number of general principles for indicator development and issues specific to this area have been taken into account when proposing indicators, such as:

The indicators should be objectively verifiable using quantitative data that are readily available, reliable and comparable across the 27 EU Member States.

The indicators should be suitable for yearly review and updating.

The indicators should be conceptually designed so that they provide relevant information about the extent to which the objective (in this case Objective K1 of the BPfA) has been achieved. There should be a clear causal link between the situation measured by the indicator and the progress towards the objective.

Indicators should cover women's participation in climate change decision-making at the national, EU and international levels, as well as education in the fields related to environment, specifically climate change.

With these points in mind, four indicators have been developed and proposed. The first three indicators address decision-making directly, by analysing the numbers of women occupying high-level positions in relevant government institutions. The fourth indicator addresses education in the scientific and technological fields related to climate change.

Decision-making on climate change can include a very wide range of institutions and power structures, but in order to focus on available quantitative data it is proposed that political decision-making by official governmental institutions responsible for policy-making and enforcement on climate change be considered.

Climate change is by nature a multi-sectorial issue, and impacts the work of a wide range of sectorial institutions. In the EU, competence for policy-making that directly addresses climate change (e.g. GHG emissions targets, overall adaptation strategies, etc.) is usually located within environmental authorities. The transport and energy sectors are together responsible for the majority of GHG emissions and have important roles in determining responses to climate change. The proposed indicators therefore focus on these three sectors and, where possible, on specific departmental responsibilities that are related to climate change and sustainable transport and energy.

Objective K.1 refers to decision-making at "all levels". Given that decision-making is to be interpreted as political decision-making for the development, implementation and enforcement of climate change policies, governmental levels were considered for the indicator. While climate change decision-making undoubtedly occurs at the local and regional levels as well, the data points for this are very dispersed. As indicators need be measurable and based on comparable data, allowing the possibility of collecting data regularly, possible indicators at local and regional levels were not suggested at this stage. Moreover, as there is a great variety of types of local and regional authorities across the EU Member States, establishing a comparable basis for data collection would also be very difficult. The indicators therefore cover women's participation in the national (Member State), EU, and international (the UN-led global climate change process) levels.

Education is one of factors grounding a career path for decision-making positions. To hold high-level positions in climate change decision-making, one must first possess the relevant educational qualifications. In line with the decision to focus on the energy and transport sectors, which are critical to the policy responses to climate change, the fourth indicator considers the proportion of female graduates in natural sciences and technologies, focusing on tertiary education – the degrees that are necessary for high-level professional qualifications. Natural sciences cover subjects like biology, chemistry and physics, which are often the educational background for professions in the environment sector – but can also relate to the energy sector, particularly with regard to renewable energy technologies like biomass and biofuels. Technologies includes the study of all engineering disciplines, including electricity and different energy sources, transportation services and engineering, civil engineering and building, and environmental protection. Technical education in these fields prepares graduates to contribute to policy-making on the regulation and use of processes and technologies to address climate change, such as energy efficiency in buildings, renewable energy markets, automotive solutions, urban public transport, and many others.

The scope of the proposed indicators is limited to that covered by the data available, and described in detail in Annex I. To uncover data that would more comprehensively cover objective K.1 and define a fuller range of indicators, further research would be required.

5.2. PROPOSED INDICATORS

A standard set of information is provided to identify and describe each indicator, including the definition of the indicator, the concept behind it, the data source, and available baseline data against which the future progress can be measured. The baseline data stem from the data collection process and are also presented in Chapter 4. More information about methodology is available in Annex I.

INDICATOR 1

Proportion of women in climate change decision-making bodies at the national level in the EU Member States

Concept: This indicator provides information on the percentage of women and men in national authorities with the highest level of decision-making competences (typically ministries) in environment/climate change, transport and energy policy.
The following positions should be covered:

Level 1: the highest levels/positions (political level).

Level 2: the top level of managerial or administrative decision-making.

Level 3: the heads of sectorial departments or divisions.

The indicator therefore shows the extent to which women occupy positions relevant for climate change decision-making, which measures their overall role in decision-making. Data are broken down into three sectors: environment, transport and energy, and a total figure calculates the sum of all positions considered.

Data source: The calculation of the indicator is based on data collected during 2011. The data collection process can be repeated in subsequent years, based on the methodology provided in Annex I of this report.

Data overview: On average, 25.6% of high-level decision-making positions in the sectors of environment, transport and energy in the Member States are occupied by women. Women are slightly less likely to hold level-1 positions than levels 2 or 3: only 18.2% of positions (or 29 out of 159) on level 1 are held by women, while 27.0% of positions (or 41 out of 152) on level 2 and 27.6% of positions (or 132 out of 479) on level 3 are held by women.

In general, the indicator demonstrates that women's participation in decision-making is higher in the environment sector and shows lower rates of women participation in transport and energy sectors.

Table 5.1: Percentage of women in high-level positions dealing with climate change in national ministries competent for environment, transport and energy, by sector, EU 27

	Environment	Transport	Energy	Total
EU 27	33.9	20.2	17.3	25.6
Belgium	15.2	17.2	36.0	22.0
Bulgaria	57.1	33.3	25.0	42.9
Czech Republic	31.6	10.0	12.5	21.6
Denmark	50.0	11.1	33.3	29.2
Germany	33.3	0	8.3	12.5
Estonia	41.2	16.7	25.0	32.0
Ireland	25.0	35.3	27.3	30.0
Greece	44.4	25.0	16.7	37.5
Spain	54.5	18.2	0	26.7
France	57.1	20.0	25.0	26.3
Italy	12.5	0	20.0	8.0
Cyprus	33.3	0	66.7	27.3
Latvia	41.7	37.5	16.7	34.6
Lithuania	23.1	0	22.2	17.2
Luxembourg	25.0	14.3	0	15.8
Hungary	25.0	0	10.0	14.3
Malta	12.5	16.7	0	14.3
Netherlands	22.7	18.2	0	16.7
Austria	25.6	25.0	0	22.2
Poland	61.5	35.7	12.5	40.0
Portugal	33.3	11.1	0	21.4
Romania	41.7	45.5	0	40.0
Slovenia	28.6	12.5	0	14.3
Slovak Republic	20.0	12.5	12.5	15.4
Finland	57.9	60.0	16.7	50.0
Sweden	62.5	50.0	40.0	50.0
United Kingdom	28.6	25.0	12.5	21.7

Note: For the energy sector in Romania, level-2 data have not been confirmed and level-3 data were unavailable from the institution. According to the available data by sector, in ten Member States (BE, EE, EL, FR, HU, LU, MT, NL, PT and SE) some ministries or institutions work in several sectors. Relevant persons have therefore been included under all relevant sectors. For calculating the numbers by levels or total (all three sectors together), those persons have been taken into account only once. Therefore the summary numbers by sector and by level or total may be different.

Table 5.2: Percentage of women in high-level positions dealing with climate change in national ministries competent for environment, transport and energy, by levels, EU 27

	Level 1		Level 2		Level 3		Total	
	% of women	Total number of positions	% of women	Total number of positions	% of women	Total number of positions	% of women	Total number of positions
EU 27	18.2	159	27.0	152	27.6	479	25.6	790
Belgium	50.0	10	7.1	14	20.7	58	22.0	82
Bulgaria	42.9	7	33.3	3	44.4	18	42.9	28
Czech Republic	0	3	16.7	6	25.0	28	21.6	37
Denmark	66.7	3	33.3	3	22.2	18	29.2	24
Germany	18.2	11	0	6	13.3	15	12.5	32
Estonia	50.0	2	33.3	9	28.6	14	32.0	25
Ireland	0	7	50.0	4	34.5	29	30.0	40
Greece	0	5	57.1	7	50.0	4	37.5	16
Spain	25.0	8	33.3	9	23.1	13	26.7	30
France	50.0	2	0	5	33.3	12	26.3	19
Italy	10.0	10	0	2	7.7	13	8.0	25
Cyprus	33.3	3	66.7	3	0	5	27.3	11
Latvia	0	3	0	3	45.0	20	34.6	26
Lithuania	0	9	0	3	29.4	17	17.2	29
Luxembourg	0	3	66.7	3	7.7	13	15.8	19
Hungary	0	2	0	8	22.2	18	14.3	28
Malta	0	2	0	2	20.0	10	14.3	14
Netherlands	25.0	4	20.0	10	13.6	22	16.7	36
Austria	33.3	3	12.5	8	23.1	52	22.2	63
Poland	14.3	14	66.7	3	55.6	18	40.0	35
Portugal	14.3	7	36.4	11	10.0	10	21.4	28
Romania	12.5	8	16.7	6	72.7	11	40.0	25
Slovenia	0	6	25.0	4	18.2	11	14.3	21
Slovak Republic	0	7	25.0	4	20.0	15	15.4	26
Finland	33.3	3	37.5	8	57.9	19	50.0	30
Sweden	40.0	5	60.0	5	50.0	8	50.0	18
United Kingdom	16.7	12	100	3	0	8	21.7	23

Note: For the energy sector in Romania, level-2 data have not been confirmed and level-3 data were unavailable from the institution. According to the available data by sector, in ten Member States (BE, EE, EL, FR, HU, LU, MT, NL, PT and SE) some ministries or institutions work in several sectors. Relevant persons have therefore been included under all relevant sectors. For calculating the numbers by level or the total (all three sectors together), those persons have been taken into account only once. Therefore the summary numbers by sector and by level or the total may be different.

Published: The full set of data for 2011 is published in Annex II of this report.

Notes: The data covering all 27 EU Member States were collected between August and October 2011. In a few cases positions were vacant and were therefore not calculated in the final figures.

The baseline data are presented in more detail in Chapter 4 and Annex II. The indicator is objectively verifiable and can be updated using the methodology developed for obtaining the baseline data, as discussed in Annex I. This includes tracking the organisation charts of the relevant ministries in each Member State and follow-up phone calls to collect and verify the data.

INDICATOR 2

Proportion of women in climate change decision-making bodies at the EU level

Concept: This indicator measures women's and men's participation in decision-making on climate policies at EU level, showing women's participation within the European Commission and the European Parliament. Information on individuals holding high-level posts (European Commission) and members of the committees (European Parliament) is readily available on the respective websites of these institutions.

For the European Commission, four Directorates-General (DGs) have been considered:

- DG Climate Action;
- DG Environment;
- DG Mobility and Transport;
- DG Energy.

For each DG, the top three levels of decision-making are considered:

- Level 1: the Commissioner;
- Level 2: the top level of managerial or administrative decision-making;
- Level 3: the heads of sectorial departments.

The indicator also tracks women's participation in the three committees of the European Parliament Committees where decisions related to climate change are most likely to be taken. These include:

- the members of the Environment, Public Health and Food Safety Committee;

- the members of the Industry, Research and Energy Committee;

- the members of the Transport and Tourism Committee.

Data source: For the European Commission and the European Parliament, information on individuals holding high-level posts (European Commission) and members of the committees (European Parliament) is readily available on the respective websites of these institutions. The data were collected from the European Commission directory containing names of the staff in the relevant Directorates-General and from the European Parliament website, which contains a list of all the committees as well as the members of each committee.

Data overview: The indicator shows that among the European Parliament committees, the Environment, Public Health and Food Safety Committee has the highest women's participation rate (51.6%), compared to 36.4% of women's participation within the Industry, Research and Energy Committee and an even lower rate of 25% for the Transport and Tourism Committee.

In general, this indicator demonstrates that in the sector of environment women participation is the highest both within the top positions of DG Climate Action (lower figures recorded within DG Environment) and on the Environment, Public Health and Food Safety Committee overall. Low figures for women's participation were recorded in the transport sector (both within DG Mobility and Transport and the European Parliament Transport and Tourism Committee).

Table 5.3: Percentage of women in relevant high-level positions in the European Commission and in the European Parliament, 2011

	Total positions	Number of women	% women
DGs of European Commission	26	7	26.9
DG Environment	8	2	25.0
DG Mobility & Transport	8	1	12.5
DG Energy	5	2	40.0
DG Climate Action	5	2	40.0
Committees of European Parliament	163	64	39.3
Environment, Public Health and Food Safety Committee	64	33	51.6
Transport and Tourism Committee	44	11	25.0
Industry, Research and Energy Committee	55	20	36.4

Table 5.4: Percentage of women in relevant high-level positions in the European Commission by level, 2011

Level	Total Positions	Number of women	% women
Level 1	4	1	25.0
Level 2	5	0	0
Level 3	17	6	35.3
Total	26	7	26.9

Published: Data are available on:

- the European Commission website (http://ec.europa.eu/contact/members_en.htm).

- the European Parliament website (http://www.europarl.europa.eu/activities/committees/committeesList.do).

The data was collected in August 2011.

INDICATOR 3

Proportion of women in climate change decision-making bodies at the international level

Concept: This indicator provides information on women's participation in decision-making on international climate policies. It presents the percentage of women participating in United Nations Framework Convention on Climate Change (UNFCCC) as part of the national delegations and the EU delegation to the Conference of the Parties (COPs) and to the Subsidiary Bodies (SBs). The COP delegations to the UNFCCC represent the political negotiating and decision-making body on international climate change policies, and are supported by Subsidiary Bodies for scientific and technological advice.

Baseline monitoring data for this indicator show the percentage of women in Member States' delegations and in the EU delegation to the COP and SB for the last five years for which data are available (2006-2010 for the COP and 2007-2011 for the SB). The indicator will include:

- the average percentage of women in Member States' delegations and in the EU delegation to the COP over the last five years;

- the average percentage of women in Member States' delegations and the EU delegation to the SB over the last five years;

- the average percentage of women heads of delegations to the SBs over the last five years.

More information about methodology is available in Annex I.

Data source: The data on the names of the delegates are available from lists of participants, which can be found on the UNFCCC website. The data was collected in August 2011.

Data overview: The indicator shows that for the Member States' delegations and the EU delegation to the COP during the reference period of five years, the average women's participation is 37.6%. During the five-year reference period for the SB, the average women's participation is 44.3%. The indicator also shows the average women's participation for each Member State as well as the EU delegation, which allows for a comparative perspective.

Moreover, the indicator provides information on the percentage of women heads of delegations to the SBs over the last five years (2007-2011). Given that the heads of the SB delegations lead the work of their team on scientific issues, these positions were regarded as having the most impact on climate change issues (compared with heads of delegations for COPs which are often more political figures). The average percentage of women heads of delegation for SBs across the EU and the EU delegation is 37%, with considerable variations between the Member States.

Table 5.5: Women's participation in climate change decision-making at the international level

	Women in delegations of the Conference of the Parties (COP) over 5 years		Women in delegations of Supporting Bodies (SB) over 5 years		Women heads of delegations of Supporting Bodies (SB) over 5 years	
	Women (%)	Total positions	Women (%)	Total positions	Women (%)	Total positions
Total	37.6	6910	44.3	2425	37	135
EU 27	39.0	807	38.5	270	20	5
Belgium	31.1	315	31.9	138	0	5
Bulgaria	47.4	38	57.1	14	40	5
Czech Republic	33.1	130	49.2	65	20	5
Denmark	33.8	911	41.4	237	60	5
Germany	36.2	442	38.7	282	0	5
Estonia	25.5	47	100	5	100	5
Ireland	29.0	138	26.9	67	20	5
Greece	42.1	133	41.7	12	25	4
Spain	44.8	346	65.7	99	100	5
France	29.9	638	40.6	180	0	5
Italy	41.8	268	62.7	75	80	5
Cyprus	28.9	45	50.0	4	67	3
Latvia	57.4	54	100	15	100	5
Lithuania	45.6	57	75.0	8	100	3
Luxembourg	22.6	53	7.7	13	0	5
Hungary	37.0	81	61.0	41	20	5
Malta	31.3	32	33.3	15	20	5
Netherlands	35.6	216	19.0	84	20	5
Austria	27.7	166	32.8	58	0	5
Poland	37.6	591	48.2	137	40	5
Portugal	32.3	164	37.3	51	0	5
Romania	39.8	98	43.8	16	40	5
Slovenia	37.9	66	47.2	36	0	5
Slovakia	35.9	64	73.9	23	100	5
Finland	56.8	266	59.6	109	80	5
Sweden	49.5	420	52.7	188	0	5
United Kingdom	37.7	324	48.1	183	20	5

Note: European Union is the EU delegation, not the average of the Member States' figures.

Published: Data are available on the UNFCCC website: http://unfccc.int

Notes: The data are available on the UNFCCC website and the lists of participants for the COPs and SBs are updated after each meeting. This allows the indicator to be easily verified and updated.

It is noted that the size of national delegations to the UNFCCC varies between Member States, a factor which should therefore be taken into account when looking at averages of women's participation for small countries with a small delegation.

INDICATOR 4

Proportion of women tertiary graduates of total graduates (ISCED levels 5 and 6) in natural sciences and technologies at the EU and Member State level

Concept: The indicator measures the proportion of women tertiary graduates in natural sciences and technologies completing graduate/post-graduate (ISCED 5) as well as advanced research studies/PhDs (ISCED 6) both in public and private institutions.

The indicator[29] consists of two composite fields, consisting of related relevant Eurostat educational fields. The indicator will include:

- the percentage of women in natural sciences: in the fields *life sciences* (EF42[30]) and *physical sciences* (EF44);

[29] The levels and fields of education referred to in the indicator follow the International Standard Classification of Education (ISCED) and the Eurostat Manual of fields of education and training. ISCED 5 is defined as the first stage of tertiary education and comprises the two categories ISCED 5a and ISCED 5b. Most ISCED 5a programmes are largely theoretically based and intended to provide sufficient qualifications to gain entry into advanced research programmes or professions with high skills requirements. ISCED 5b programmes are practically oriented and the programme content is typically designed to prepare students for entering a specific occupation. The qualifications acquired in ISCED 5b programmes do not give direct access to advanced research programmes.
The classification of ISCED 6 refers to programmes in the second stage of tertiary education that entitles the award of an advanced research qualification, often at Doctorate or PhD level or beyond. The programmes are devoted to advanced study, original research and prepare graduates for an academic career in institutions of higher education.

[30] Refers to the codes used by Eurostat in its database.

- the percentage of women in technologies: in the fields *engineering and engineering trades* (EF52), *manufacturing and processing* (EF54), *architecture and building* (EF58), *transport services* (EF84) and *environmental protection* (EF85).

The strategic objective K1 of the BPFA is to: "involve women actively in environmental decision-making at all levels". One of the actions to be taken by governments under the first strategic objective is to: facilitate and increase women's access to information and education, including in the areas of science, technology and economics, thus enhancing their knowledge, skills and opportunities for participation in environmental decisions", and so indicator 4 measures the share of women graduates in natural sciences and technologies. It must be emphasised, however, that not all areas included in the calculation of the indicator are directly linked with climate change, nor have all areas directly linked with climate change been taken into account.

Data source: The calculation of the indicator is based on education statistics, coordinated by Eurostat.[31]

Data overview: While women make up the majority of graduates in natural sciences (54%), the number of women graduates is much lower in technological fields (27.6%). There has been little change in the proportion of women graduates in the selected fields over the past five years. The overall share of women graduates in all fields in 2009 was 59.2%, and in the seven selected fields women constitute 18.3% of all graduates.

[31] Education, Eurostat metadata http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/educ_esms.htm

Table 5.6: Proportion of women tertiary graduates of total graduates (ISCED levels 5 and 6) in natural sciences at the EU and Member State level, 2005-2009

	2005	2006	2007	2008	2009
EU 27	52.6	53.7	55.0	55.2	54.0
Belgium	51.7	50.3	49.7	46.5	48.8
Bulgaria	63.1	67.3	67.8	66.7	66.9
Czech Republic	54.0	58.0	61.0	57.5	58.9
Denmark	48.6	50.5	50.4	50.8	50.3
Germany	45.9	50.0	52.7	53.7	52.7
Estonia	65.8	68.3	63.1	69.8	63.1
Ireland	61.0	:	:	:	53.5
Greece	48.0	:	53.8	54.0	:
Spain	60.0	60.3	62.1	60.9	60.5
France	49.1	50.2	50.2	49.3	50.2
Italy	60.0	60.4	62.1	61.9	61.9
Cyprus	59.7	75.3	67.5	73.3	63.0
Latvia	61.7	66.8	65.2	61.5	64.7
Lithuania	58.0	58.1	57.6	59.0	53.4
Luxembourg	:	:	:	:	:
Hungary	51.8	51.2	53.6	49.6	53.7
Malta	38.5	42.6	62.4	45.9	45.0
Netherlands	45.2	44.7	40.8	41.3	40.2
Austria	53.8	52.8	54.6	53.4	52.1
Poland	70.2	68.6	69.2	70.7	69.0
Portugal	67.3	66.7	65.7	66.0	64.2
Romania	:	:	:	71.4	56.3
Slovenia	61.3	64.2	59.4	62.3	59.7
Slovakia	59.5	58.5	60.1	62.0	62.3
Finland	59.1	56.6	59.3	65.7	60.6
Sweden	58.3	58.5	58.4	57.0	59.9
United Kingdom	46.8	46.3	47.8	46.5	47.2

Note: ":" = data are not available

Table 5.7: Proportion of women tertiary graduates of total graduates (ISCED levels 5 and 6) in technologies at the EU and Member State level, 2005-2009

	2005	2006	2007	2008	2009
EU 27	26.4	26.6	27.0	27.5	27.6
Belgium	24.1	22.7	23.5	24.8	24.2
Bulgaria	37.8	36.5	35.0	34.0	34.2
Czech Republic	22.3	23.9	26.7	26.7	27.7
Denmark	32.0	32.2	34.1	34.4	34.9
Germany	17.3	17.9	18.4	18.7	18.7
Estonia	45.1	44.0	41.3	43.8	45.0
Ireland	23.5	:	:	:	18.2
Greece	38.0	:	:	35.3	:
Spain	26.9	27.7	27.9	28.4	29.0
France	23.0	23.6	24.1	24.5	24.7
Italy	30.7	31.1	31.7	33.2	32.4
Cyprus	7.6	8.0	18.7	21.5	24.1
Latvia	31.1	32.4	34.0	34.7	33.1
Lithuania	34.4	30.9	31.9	33.4	30.1
Luxembourg	:	:	:	:	:
Hungary	30.6	33.4	30.6	28.8	29.7
Malta	28.4	19.4	28.7	23.3	28.1
Netherlands	17.2	18.1	18.6	18.7	19.3
Austria	16.9	18.5	19.1	20.2	19.9
Poland	36.1	34.1	34.6	35.2	34.7
Portugal	37.6	37.9	32.7	32.3	31.6
Romania	:	:	31.9	:	:
Slovenia	22.3	24.3	22.2	24.9	26.5
Slovakia	33.4	33.3	34.1	35.3	33.9
Finland	22.7	22.3	22.7	23.7	23.7
Sweden	29.7	31.0	29.5	30.7	29.2
United Kingdom	18.9	20.4	20.7	21.2	21.7

Note: ":" = data are not available

Published: The data are available in the Eurostat online database (educ_grad5: "Graduates in ISCED 3 to 6 by field of education and sex"[32]).

Notes: In principle data cover the EU Member States and are usually available from 1998, although in certain countries there are some breaks in the availability of data for specific years or specific fields. The data are updated annually. Some changes in the data collection could influence comparisons over time, as could some breaks in the availability of data for specific years or specific fields for certain countries.

The education systems vary between countries and although the ISCED classification makes the comparison of levels of education between countries possible, the differences may nevertheless affect certain figures. Degree structures also vary between countries, affecting the indicators on tertiary graduates by fields of study.

Eurostat data currently use the ISCED 1997 system for classifying levels of education. From 2014 Eurostat will switch to the ISCED 2011 system, which will allow for a more detailed breakdown of tertiary-level programmes. If the sex-disaggregated data are sufficiently comprehensive to allow for meaningful comparisons of the proportion of female graduates for the relevant fields in the more detailed levels of tertiary programmes across the EU Member States, the indicator could consider a more detailed monitoring on such a scale. Adding post-secondary programmes (ISCED 3) that qualify for entrance to tertiary programmes in the relevant field could also be considered if the data become sufficiently comprehensive at Member State level to enable a reliable picture of the situation across the EU.

[32] The table educ_grad5: “Graduates in ISCED 3 to 6 by field of education and sex" http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=educ_grad5&lang=en

6. CONCLUSIONS AND RECOMMENDATIONS

The aim of the report was to investigate the gender dimensions of climate change in the EU with regard to the different impact of changing climate on women and men and their different efforts to mitigate climate change. As this is a relatively new field of study, the report marks the first effort to propose indicators that measure progress in the EU in the area of women and the environment. For this reason, it was important to investigate data sources and determine which data were most readily available to support future monitoring of progress. The results of the literature review as well as the collection and analysis of data not only shaped the proposed indicators, but also highlighted a number of conclusions and recommendations for further research in this area.

6.1. POLICY CONTEXT

Climate change, caused by the release of greenhouse gases from human activities, is already observable and is expected to lead to severe impacts affecting ecosystems and societies. Urgent action is required at all levels, in order to mitigate climate change and adapt to its impacts. Mitigation of climate change must target the energy and transport sectors, in particular as these are the main sources of greenhouse gas emissions.

The European Union has adopted an integrated approach to climate policies, involving a large number of regulations. Moreover, the EU has an important role to play in advancing the international climate negotiations. The EU has the potential to take the lead in strengthening global efforts to protect the climate[33], including more sustainable energy and transport policies, and demonstrate that the transition to a low-carbon society can be beneficial in social and economic terms.

[33] As stated 2007 in the Berlin Declaration: http://www.eu2007.de/de/News/download_docs/Maerz/0324-RAA/English.pdf

6.2. GENDER AND CLIMATE CHANGE

The gender analysis of climate change and climate policies undertaken in this review is based on the various dimensions underlying the gender differentials. These are:

- socio-psychological (e.g. gender identities and roles);
- socio-economic (e.g. gender division of labour and access to resources);
- socio-cultural (e.g. cultural patterns and norms);
- legal (e.g. land and inheritance rights);
- political (e.g. power and participation); and
- physical and biological dimensions.

Gender issues need to be addressed in climate policies in order to ensure that women and men are equally and meaningfully involved in planning and decision-making. This is a matter of equality and equity. If climate change policies are not targeted at all relevant beneficiaries and consumers, they are less likely to address the different needs of society, will not lead to efficient outcomes and will not bring benefits to men and women on an equal basis.

Various research data show that gender differentials with regard to the impacts of climate change mean more casualties among women during extreme weather events and an increased burden from care work. There is also evidence of gender-specific consumption patterns that affect contributions to GHG emissions, and thus to climate change. For instance, women spend more time at home due to care duties, and thus depend on domestic heating to a greater extent. For mobility, women depend on access to public transport to a larger degree due to lower levels of car ownership, but also because of their preferences for the use of environmentally-friendly solutions (public transport). Due to their lower average income, women are at greater risk of energy poverty than men, and have fewer options for investing in low-carbon options such as energy efficiency and renewable energies. Perceptions and attitudes towards climate change and climate policy options also vary substantially according to gender. Women are, on average, more concerned about climate change than men.

They feel a greater need for action in tackling climate change and are more likely to change their behaviour than men. Women are more in favour of policy measures to reduce car use than men. Men generally have more trust in technological solutions than women.

Such factors should become an integral part of climate change policy debates and decisions. Women's participation in climate change decision-making is an important factor for more gender-responsive and efficient climate change policies. The research shows that women's involvement in climate change decision-making at local, national and international level is still low. Higher numbers of women were found among the heads of sectorial departments (level 3 in the analysis) of national ministries than at higher political and administrative levels. The reasons are rooted in organisational structures and cultures, traditional gender division of care work, tensions related to reconciliation of work and private life as well as gender-based educational choices.

In international climate change decision-making the number of women in UNFCCC delegations from the EU Member States has been growing since the early 1990s. This has been encouraged by the international non-governmental networks on gender and climate change. At the national level women tend to participate in environmental policy-making to a higher degree when the issues are less technological in nature. In general, women's participation in decision-making in the energy and transport sectors, both public and private, is relatively low compared with their overall participation in the workforce.

Women's higher enrolment in science and technology-related educational fields leading to careers in the energy and transport sectors is one of the prerequisites for obtaining access to institutions and power structures that support and control climate change policy-making. Climate change is a relatively new policy area, therefore many people in senior decision-making positions, such as environmental authorities, obtained education in a variety of fields, including social sciences, economics or law (where there are much higher rates of women graduates). Scientific and technological degrees in fields like engineering, physical and life sciences or transport services might be important for gaining high-level positions in decision-making in the energy and transport sectors. However, further research is needed to substantiate the link between education and decision-making positions.

6.3. PROPOSED INDICATORS

Four indicators have been proposed for measuring objective K.1 of the Beijing Platform for Action *"Involve women actively in environmental decision-making at all levels"*. Three of the indicators analyse the actual numbers of women in high-level positions in relevant institutions at the national, EU and international level. The fourth indicator informs on the proportion of women among tertiary graduates of total graduates in natural sciences and technologies at EU and Member State level.

INDICATOR 1

Proportion of women in climate change decision-making bodies at the national level in the EU Member States

This indicator provides information on the percentage of women and men in national authorities with the highest level of decision-making competences (typically ministries) in environment/climate change, transport and energy policy. The following positions should be covered:

Level 1: the highest levels/positions (political level).

Level 2: the top level of managerial or administrative decision-making.

Level 3: the heads of sectorial departments or divisions.

At the national level, women in the EU Member States appear to play a greater role in high-level decision-making in the environment sector, as opposed to transport and energy. In 2011, women occupied around one third (33.9%) of high-level positions relevant to climate change in the environmental sector; the respective figure for the transport sector stands at 20.2%, and 17.3% for the energy sector. The average figure for all sectors is just above one quarter (25.6%).

INDICATOR 2

Proportion of women in climate change decision-making bodies at the EU level

The key institutions for policy-making at the EU level are the European Commission and the European Parliament. These are the institutions responsible for preparing, evaluating and approving EU policies and laws.

For the European Commission, four Directorates-General (DGs) are considered: DG Climate Action, DG Environment, DG Mobility and Transport, and DG Energy. Here, in contrast to the situation at the national level, women play a greater role in high-level decision-making (40% of positions in each are held by women). In DG Environment, women hold 25% of the high-level positions, and in DG Mobility and Transport, this figure goes down to 12.5% - similar to the lower levels of women found in national ministries in the transport sector.

For the European Parliament, participation in the three committees most closely related to the environment, transport and energy sectors was considered: Environment, Public Health and Food Safety; Transport and Tourism; Industry, Research and Energy. The average women/men ratio across these three committees is 64 women to 163 men. Women therefore represent on average 39.3% of the members of these Committees. This is slightly more than the average for the European Parliament as a whole which, with 256 women Members of the European Parliament (MEPs) out of 736, has an average women/men ratio of 35%.

INDICATOR 3

Proportion of women in climate change decision-making bodies at the international level

International climate change decision-making takes place within the United Nations Framework Convention on Climate Change (UNFCCC), including the annual meetings of the Conference of the Parties (COP) and its supporting bodies. The COP delegations carry out the political negotiating and decision-making on international climate change policy, including agreeing targets for the reduction of GHG emissions. The COP negotiations are supported by the work of two additional bodies, known as Subsidiary Bodies (SBs). There is one SB for Scientific and Technological Advice, which advises the COP on matters of climate, environment, technology and method. Another SB for Implementation (SBI) helps review how the Convention is being applied, and deals with financial and administrative matters. Typically, the COP meets annually and the SB meets twice per year; once simultaneously with the COP and at a second time during each year.

For the COP delegations, the average proportion of women in the Member States' delegations and the EU delegation over the past five years is 37.6%. For SB delegations, the figure is 44.3%.

INDICATOR 4

Proportion of women tertiary graduates of total graduates (ISCED levels 5 and 6) in natural sciences and technologies at the EU and Member State level

This indicator measures the proportion of women awarded degrees in the scientific and technological fields relevant to climate change. Analysis of women tertiary graduates in natural sciences and technologies in the EU Member States shows that women are less likely than men to choose scientific and technological fields. The proportion of women tertiary graduates is particularly low in engineering and transport services – two fields particularly related to the transport and energy sectors.

The analysis shows significant differences in the proportion of women graduates in the selected fields over the past decade. From among these fields, life sciences and environmental protection are the most popular choices of women where they account for more than half of the tertiary graduates for the majority of reference years. While women actually make up the majority of graduates in natural sciences (54%), their numbers are much lower in technological fields (27.6%).

6.4. MONITORING PROGRESS THROUGH INDICATORS AND DATA

The collection and analysis of data on women's participation in climate change-related decision-making and segmentation of education by gender provided a background for the development of new indicators in the area of women and the environment. Since climate change is a relatively new field supported by very limited research on gender aspects of the subject, it is important to reflect critically on the proposed indicators in terms of data content, scope and availability.

The data collection covered four areas: women's participation in climate change decision-making at the national, EU and international level, as well as the proportion of women graduates in natural sciences and technologies.

For the Member State level, sex-disaggregated data on high-level officials in ministries were collected directly from the institutions. Some degree of subjectivity was required in order to render the data comparable across 81 institutions in 27 Member States. For the EU and UNFCCC levels, the data are available from the websites of the respective institutions. It is assumed that these data sources will continue to be available in the future.

Education-related data were extracted from the Eurostat database, which contains sex-disaggregated data for graduates according to the International Standard Classification of Education (ISCED) 1997 version developed by UNESCO.[34] The data are available for ISCED levels 3 to 6, which cover upper secondary through second-stage tertiary academic programmes. The ISCED system was updated in 2011. The new classifications link tertiary education more closely to the Bologna Process[35] which recognises three cycles of higher education qualification based on Bachelor/Master/Doctorate degrees. ISCED 2011 recognises 4 levels of tertiary education (levels 5 – 8) to allow for more distinctions between types of programmes. In 2014 Eurostat is planning to change its system for data collection in compliance with ISCED 2011 (to be published in 2015) with reference to the school year 2012/2013. Having this in mind, the future monitoring of the proposed indicator on education will be based on the new Eurostat data and will be able to reflect differences between first-level university degrees (typically Bachelor level) and higher levels. This will also provide more detailed information about whether women pursue advanced research-oriented qualifications in the selected fields. However, ascertaining the ways in which this distinction is important for participation in climate change policy-making will require further research.

Moreover, the classification system of education and training used by Eurostat provides us with data in broader fields and sub-fields of education. As a result, it was not possible to extract data on specific fields linked to environment, transport and energy. Therefore, it must be emphasised that not all areas included in the calculation of the education-related indicator are directly linked with climate change, nor have all areas directly linked with climate change been taken into account. The collection of sex-disaggregated data in diverse fields of education on a more detailed level would improve the quality and reliability of the proposed indicator.

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34 *International Standard Classification of Education: ISCED 1997*, UNESCO, 1997 http://www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm

35 The Bologna Process is a system of academic degree standards agreed by education ministers from 20 European countries in 1999.

For the future, it is important that regular monitoring of progress is carried out, whether using the indicators as proposed in this report or an updated version. To do so, the data should be updated regularly. One possibility for ensuring the continued collection and monitoring of such data would be to link it to an existing data collection framework, such as the European Commission DG Justice database, which tracks the numbers of men and women in key decision-making positions.[36]

6.5. THE WAY FORWARD

The report reveals important links between gender and climate change and the requirement to take gender into account in policy-making so as to improve the overall responsiveness of climate change policies to the real needs of society. This will **require further research on how climate change impacts both women and men**, **and on the different ways that women and men contribute to climate change.**

The literature review carried out for this report revealed the shortage of studies and research on gender and climate change. To address this, **the gaps within the existing body of research must be identified and strategies for integrating gender research into policy-making processes developed**. For example, in order to maximise the value of the collected data, specific goals and quantitative targets for women's participation in decision-making could be introduced in gender equality and climate change-related policies.

Awareness about the relevance of gender issues for climate change must be raised to overcome the low priority given to justice and equality issues in the context of the urgent drive to mitigate climate change which often continues to be considered a 'gender neutral' policy field. In order to address the impacts of climate change and the need for fundamental changes to way of life, immense efforts and leadership from governments, the private sector and civil society will be required. Gender sensitivity and gender responsiveness are prerequisites for such efforts.

[36] http://ec.europa.eu/justice/gender-equality/gender-decision-making/database/index_en.htm.

Genuine progress towards more effective and gender-just climate policies will require more than just the integration of gender wording into policy documents. In fact **a more profound and systemic change involving not only gender-mainstreaming but also a transformation of gender relations and societal structures will be necessary** to underpin climate change policies. Reluctance to face up to far-reaching implications may be the reason for the lack of recognition of gender issues in the climate change field.

In the lead-up to the UNFCCC COP15 in Copenhagen in 2009, the Nordic Council of Ministers concluded: "Investments in gender equality are the driving force for innovation and sustainable development. We need the talents and resources of everyone. Men and women think in different ways and contribute differently to solutions. In order to ensure this diversity, men and women must have equal opportunities to influence and benefit from the investments that are made to address climate change (adaptation/mitigation). This process will make men and women equal and full-fledged collaborative partners and citizens" (Nordic Council of Ministers 2009).

Area K of the BPfA contains three objectives for women and the environment; this report covers only one of them. The second objective aims at increasing the integration of gender concerns and perspectives in sustainable development policies, and the third objective seeks to establish mechanisms to assess the impacts of environmental policies on women. The work in this area could benefit from further research on the links between women's participation in decision-making and the actual policy outcomes. The **research of qualitative aspects of policies from a gender perspective could certainly bring an additional value to the area.**

Climate change is a broad field and cuts across many sectors as well as institutions, some of which were not considered in this report for reasons of time, scope and data availability. These include **national legislative bodies, local and regional governments, the private commercial sector, civil society organisations or research and academic institutions,** which all are very important contributors to climate change policies and implementation of those policies. Further research would be needed to better understand the roles of these institutions in climate policies, the prevalence of women in decision-making and the extent to which it shapes policy outcomes. Moreover, future research should also investigate other climate change-related sectors, which contribute significantly to GHG emissions and play a relevant role in climate change policy-making, such as agriculture, industrial processes and waste.

Bibliography

Accenture, 2002. *Frauen und Energie. Perspektiven für weibliche Führungskräfte in der Energiewirtschaft*, Frankfurt, Deutschland: Accenture.

Aguilar Revelo, L., Castañeda Camey, I. & Chao Rebolledo, V., 2008. *Resource guide on gender and climate change* UNDP, ed., New York, NY, United States of America: United Nations Development Programme (UNDP).

Alber, G. & Hemmati, M., 2011. *Gender perspectives: debunking climate policy myths*, Vancouver, Canada: Commonwealth Ministers.

Alber, G. & Roehr, U., 2006. Climate protection - what's gender got to do with it? *Women + environments international magazine*, (70), p.17.

Alber, G., 2010. *Gender, cities and climate change*, Nairobi, Kenya: UN-HABITAT.

Alleanza per il Clima Italia, 2004. *Progetto climate for change gender equality and climate policy, Rapporto Nationale Italia*, Città di Castello, Italia: Alleanza per il Clima Italia.

ARS research AB, 2007. *Genusperspektiv på allmänhetens kunskaper och attityder till klimatförändringen (tidigare växthusaffekten) (Gender aspects of the knowledge and attitudes to climate change)*, Stockholm, Sweden: ARS research AB.

Arztmann, D. & John, S., 2008. *Promoting Young Women in SET: Lessons learned. A Cross-National Analysis of Past Research Projects*, Athens, Greece. Available at: http://www.zsi.at/attach/LessonslearnedD.2.3.pdf.

Bord, R.J. & O'Connor, R.E., 1997. The gender gap in environmental attitudes: the case of perceived vulnerability to risk. *Social science quarterly*, 78(4), p.830.

Brissette, S., 2006. Building support for nuclear power amongst women opinion leaders in Canada.

Brody, A., Demetriades, J. & Esplen, E., 2008. *Gender and climate change: mapping the linkages - a scoping study on knowledge and gaps*, Brighton: BRIDGE Institute of Development Studies.

Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit & Umweltbundesamt, 2010. *Umweltbewusstsein in Deutschland 2010. Ergebnisse einer repräsentativen Bevölkerungsumfrrage*, Berlin, Germany: Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (BMU).

Cacace, M., 2009. *Guidelines for Gender Equality Programmes in Science*, European Commission. Available at: http://www.reteparioppportunita.it/Rete_Pari_Opportunita/UserFiles/Progetti/prages/pragesguidelines.pdf.

Caprile, M., Sánchez, B., Vallès, N., Gómez, A., Potrony, J., Sixto, E., Herrera, D., Oleaga, M., Amate, M. & Isasa, I., 2008a. *Monitoring progress towards gender equality in the Sixth Framework Programme, Nanotechnologies and nanosciences, knowledge-based multifunctional materials, and new production processes anddevices (NMP), Aeronautics and space, Sustainable energy systems, Sustainable surface transport, Euratom*, Brussels, Belgium: European Commission.

Caprile, M., Sánchez, B., Vallès, N., Gómez, A., Potrony, J., Sixto, E., Herrera, D., Oleaga, M., Amate, M. & Isasa, I., 2008b. *Monitoring progress towards gender equality in the Sixth Framework Programme, Sustainable Energy Systems*, European Commission, European Research Area.

Carlsson-Kanyama, A. & Räty, R., 2008. *Kvinnor, män och energi; makt produktion och användning*, Stockholm, Sweden: FOI.

Carlsson-Kanyama, A., Ripa Juliá, I. & Roehr, U., 2010. Unequal representation of women and men in energy company boards and management groups: are there implications for mitigation? *Energy Policy*, 38(8), pp.4737-4740.

Carlsson-Kanyma, A. & Lindén, A.L., 2007. Energy efficiency in residences - challenges for women and men in the North. *Energy Policy*, 35, pp.2163-2172.

Clamor, T., 2010. *Determinanten für nachhaltigen Konsum. Eine empirische Analyse für Deutschland*, Mannheim, Deutschland.

Clancy, J. & Roehr, U., 2003. Gender and energy: is there a Northern perspective? *Energy for Sustainable Development*, 7(3), pp.44-49.

Clancy, J., Gregory, J. & Cornland, D., 2001. *Gender in research, gender impact assessment of the specific programme of the Fifth Framework Programme, Energy sub-programme*, Brussels, Belgium: European Commission.

Climate Alliance of European Cities, 2005. *Climate for Change. Data - Facts - Arguments*, Frankfurt am Main: Climate Alliance of European Cities.

Climate Alliance, 2004a. *Climate for Change: Geschlechtergerechtigkeit und Klimapolitik, Nationale Studie Deutschland*, Frankfurt am Main, Germany: Klima-Bündnis/Climate Alliance.

Climate Alliance, 2004b. *Women in climate policy related decision making – National Study for Sweden*, Frankfurt/Main, Germany: Klima-Bündnis/ Climate Alliance.

Cristaldi, F., 2005. Commuting and Gender in Italy: A Methodological Issue. *The Professional Geographer*, 57(2), pp.268-284.

Dankelman, I. ed., 2010. *Gender and Climate Change: An Introduction*, London, United Kingdom: Earthscan.

Drolet, J., 2010. Gender, climate change and natural disasters. *International Association for Feminist Economics (IAFFE) Newsletter*, 20(2), p.6.

Druckman, A. & Jackson, T., 2008. Household energy consumption in the UK: a highly geographically and socio-economically disaggregated model. *Energy Policy*, 36(8), pp.3177-3192.

Duncan, K., 2007. Global climate change and women's health. *Women + Environments International Magazine*, 74, p.10.

TNS Emnid, 2010. *Männer sind die wahren Warmduscher. E WIE EINFACH-Studie zu Geschlechterrollen beim Stromverbrauch*, Köln, Germany: TNS Emnid.

Enarson, E., 2006. Women and Girls Last? Averting the Second Post-Katrina Disaster. *Understanding Katrina, Perspectives from the Social Sciences*. Available at: http://understandingkatrina.ssrc.org/Enarson/ [Accessed August 3, 2011].

European Commission, 2005. *Short distance passenger mobility in Europe*, Luxembourg, Luxembourg: Eurostat.

European Commission, 2006. *Attitudes towards energy*, European Commission.

European Commission, 2006. *Creating Cultures of Success for Women Engineers*, Brussels, Belgium: European Commission.

European Commission, 2007a. *Attitudes on issues related to EU Energy Policy Analytical Report*, Brussels, Belgium: European Commission.

European Commission, 2007b. *Attitudes on issues related to EU Transport Policy. Analytical Report*, Brussels, Belgium: European Commission.

European Commission, 2007c. *Europeans and Nuclear Safety*, Brussels, Belgium: European Commission.

European Commission, 2008a. *Europeans' attitudes towards climate change*, Brussels, Belgium: European Parliament, European Commission.

European Commission, 2008b. *The life of women and men in Europe. A statistical portrait*, Luxembourg, Luxembourg: Eurostat.

European Commission, 2009. *Europeans' attitudes towards climate change*, Brussels, Belgium: European Parliament, European Commission. Available at: http://ec.europa.eu/public_opinion/archives/ebs/ebs_313_en.pdf [Accessed January 9, 2012].

European Commission, 2010. *Gender Differences in Educational Outcomes: Study on the Measures Taken and the Current Situation in Europe*, Education, Audiovisual and Culture Executive Agency.

European Commission, 2011. Fourth FP7 Monitoring Report. Available at: http://ec.europa.eu/research/evaluations/pdf/archive/fp7_monitoring_reports/fourth_fp7_monitoring_report.pdf#view=fit&pagemode=none.

European Commission, 2011a. *Future of transport*, Brussels, Belgium: European Commission.

European Environment Agency, 2006. *Vulnerability and adaptation to climate change in Europe*, Copenhagen, Denmark: European Environment Agency.

European Professional Women's Network, 2010. *European Professional Women's Network Board Women Monitor 2010: Learning-Connecting-Sharing.* 4th Edition. Available at: http://www.europeanpwn.net/index.php?article_id=8 [Accessed January 9, 2012].

Eurostat EU-SILC, 2009. *EU-SILC database: Variables "Energy for heating" and "Private car ownership,"* European Commission.

Feltus, A., 2010. *Women in energy: closing the gender gap*, London, United Kingdom: World Petroleum Council. Available at: http://www.world-petroleum.org/docs/docs/wpc_women.pdf [Accessed August 1, 2011].

Filleul, L., Larrieu, S. & Lefranc, A., 2011. Extreme temperatures and mortality. In *Encyclopedia of Environmental Health*. Burlington, MA, United States of America: Elsevier, pp. 693-699.

Finucane, M.L. et al., 2000. Gender, race, and perceived risk: the white male effect. *Healthy risk and society*, 2(2), pp.159-172.

Flechsig, M. et al., 2000. *Weather impacts on natural, social and economic systems. PIK Report No. 59*, Potsdam, Germany: Potsdam Institute for Climate Impact Research (PIK).

Funk, P. & Gathmann, C., 2008. *Gender Gaps in Policy Making: Evidence from Direct Democracy in Switzerland*, Barcelona, Spain: Department of Economics and Business, Universitat Pompeu Fabra.

GenderCC et al., 2011. Submission by a cross-constituency civil society coalition of the Friends of Gender to the Transitional Committee under work stream I. Available at: http://unfccc.int/files/cancun_agreements/green_climate_fund/application/pdf/wedo_wsi_080611.pdf [Accessed September 7, 2011].

GenderCC, 2009. *Gender into climate policy. Toolkit for climate experts and decision-makers*, Berlin, Germany: GenderCC - Women for Climate Justice.

GenderCC, 2010a. *Gender and climate change research: gaps and questions*, Berlin, Germany: GenderCC - Women for Climate Justice.

GenderCC, 2010b. GenderCC - women for climate justice: Cancún 2010. *Cancun Outcomes*. Available at: http://www.gendercc.net/fileadmin/inhalte/Dokumente/UNFCCC_conferences/COP16/references_Cancun.pdf [Accessed August 1, 2011].

GenderCC, GenderCC - women for climate justice: UNFCCC conferences. *Women @ UNFCCC conferences*. Available at: http://www.gendercc.net/policy/conferences.html [Accessed August 1, 2011].

Granberg, A., 2004. *Climate for change: gender equality & climate policy, National Survey for Finland*, Union of the Baltic Cities.

Gustafson, P.E., 1998. Gender differences in risk perception: theoretical and methodological perspectives. *Risk Analysis*, 18(6), pp.805-811.

Hamilton, K., Jenkins, L., Hodgson, F., & Turner, J., 2006. *Promoting gender equality in transport* (No. 6), London, UK: Women. Men. Different.Equal. Equal Opportunities Commission.

Hamilton, K., Spitzner, M. & Turner, J., 2006. *Women and transport*, Brussels: The University of East London, London, UK and Wuppertal Institute for Climate, Environment and Energy, Wuppertal, Germany.

Hansson, S.O., 2007. *Gender issues in climate adaptation*, Stockholm, Sweden: FOI, Swedisch Defence Research Agency.

Hartmann, B., 2006. *Gender, militarism and climate change*. Available at: http://www.zcommunications.org/gender-militarism-and-climate-change-by-betsy-hartmann [Accessed July 30, 2011].

Hashiguchi, N., Feng, Y. & Tochihara, Y., 2010. Gender differences in thermal comfort and mental performance at different vertical air temperatures. *European Journal of Applied Physiology*, 109(1), pp.41-48.

Healy, J.D., 2004. *Housing, fuel poverty and health: a pan-European analysis*, Burlington, VT, United States of America: Ashgate.

Heinzle, S. et al., 2010. *Moving beyond gender differences inresearch on sustainable consumption. Evidence from a discrete choice experiment*, St. Gallen, Switzerland: Institute for Economics and the Environment, Research Institute for Organizational Psychology University of St. Gallen.

Hemmati, M. & Roehr, U., 2007. A huge challenge and a narrow discourse - ain't no space for gender in climate change policy? *Women + environments international magazine*, (74), p.5.

Hemmati, M. & Roehr, U., 2007. Gender and Climate Change: Existing Research, Knowledge Gaps, and Priorities For the Future.

Henwood, K.L., Parkhill, K.A. & Pidgeon, N.F., 2008. Science, technology and risk perception: from gender differences to the effects made by gender. *Equal Opportunities International*, 27(8), pp.662-676.

Hertwich, E.G. & Peters, G.P., 2009. Carbon Footprint of Nations: A global, trade-linked analysis. *Environmental science & technology*, 43(16), p.6414.

Hjorthol, R.J., 2004. Kan utviklingen i mobilitet og reisevaner fortelle noe om likestilling? *Kvinder, Køn & Forskning*, 13(1), pp.18-30.

Houillon, V., 2004. Differences Between Men and Women in Commuting. The Case of the Nord - Pas-de-Calais Region. *Espace Populations Societes*, 1, pp.143-149.

House, C., Laitner, J. & Stolyarov, D., 2007. *Trends in the Labour Force Participation of Married Women*, Ann Arbor, MI, United States of America: University of Michigan, Retirement Research Center.

Indraganti, M. & Rao, K.D., 2010. Effect of age, gender, economic group and tenure on thermal comfort: a field study in residential buildings in hot and dry climate with seasonal variations. *Energy and Buildings*, 42(3), pp.273-281.

Intergovernmental Panel on Climate Change, 2007. *Fourth assessment report: Climate Change 2007. Synthesis report: summary for policymakers*, Valencia, Spain: Intergovernmental Panel on Climate Change.

Johnsson-Latham, G., 2007. *A study on gender equality as a prerequisite for sustainable development: what we know about the extent to which women globally live in a more sustainable way than men, leave a smaller Ecological Footprint and cause less climate change*, Stockholm, Sweden: The Environment Advisory Council, Ministry of the Environment.

Karjalainen, S., 2007. Gender differences in thermal comfort and use of thermostats in everyday thermal environments. *Building and environment*, 42(4), pp.1594-1603.

Kiljunen, P., 2008. *Finnish Energy Attitudes 2008*, Helsinki, Finland: Finnish Energy Industries.

Knoll, B. & Szalai, E., 2006. *Nachhaltige Geschlechterbilder. Studie zu Genderaspekten in ausgewählten medien im Bereich Umwelt und nachhaltige Entwicklung*, Wien,Österreich: Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft.

Krömker, D. & Dehmel, C., 2010. *Einflussgrößen auf das Stromsparen im Haushalt aus psychologischer Perspektive*, Kassel, Deutschland: Institut für Psychologie, Universität Kassel.

Kronsell, A., 2011. A gender perspective on climate governance.

Lambrou, Y. & Paina, G., 2006. *Gender: the missing component of the response to climate change*, Rome, Italy: Food and agriculture organization of the United Nations (FAO).

Laplante, D.P. et al., 2004. Cognitive and linguistic functioning in children of mothers exposed to high and low levels of objective stress during pregnancy as a result of a natural disaster. *Your Health and a Changing Climate*, 2.

LIFE e.V., forthcoming. *Determinanten der Wechselbereitschaft von Frauen: Analyse der Hemmnisse und Motivationsstrategien des Wechsels zu Ökostrom*, Berlin, Germany: LIFE e.V.

Lindqvist, K., 2011. Gender equal and sustainable public transport. *NIKK magasin, Nordic Gender Institute*, (2.2011), pp.12-14.

MacGregor, S., 2010. A stranger silence still: the need for feminist social research on climate change. *The Sociological Review*, 57(3), pp.124-140.

MacGregor, S., 2011. "Gender and climate change": From impacts to discourses. *J. Indian Ocean Reg. Journal of the Indian Ocean Region*, 6(2), pp.223-238.

Machado, C.S., 2003. *Female labor force participation and household expenditure patterns*, Barcelos, Portugal: Instituto Politécnico do Cávado e do Ave.

Martin-Luther-Universität Halle-Wittenberg, forthcoming. *Analyse der Konsumentenentscheidungen für Erneuerbare Energien und Ökostrom*, Halle, Deutschland: Martin-Luther-Universität Halle-Wittenberg.

Max-Rubner Institut & Bundesforschungsinstitut fürErnährung und Lebensmittel, 2008. *Nationale Verzehrs-Studie II Ergebnisbericht. Teil 2*, Karlsruhe, Germany: Max-Rubners Institut, Bundesforschungsinstitut für Ernährung und Lebensmittel.

McCright, A.M. & Dunlap, R.E., 2011. Cool dudes: The denial of climate change among conservative white males in the United States. *Global Environmental Change*, In Press, Corrected Proof.

Næss, P., 2008. Gender differences in the influences of urban structure on daily-life travel. In *Gendered Mobilities*. Aldershot, United Kingdom.

Naturvårdsverket, 2009. *Allmänheten och klimatförändringen 2009 - Allmänhetens kunskap om och attityd till klimatförändringen,med fokus på egna åtgärder, konsumtionsbeteenden och företagens ansvar*, Stockholm,Sweden: Naturvårdsverket.

Nguyen-Van, P., 2010. Energy consumption and income: a semiparametric panel data analysis. *Energy Economics*, 32(3), pp.557-563.

Nogueira, P.J. et al., 2005. Mortality in Portugal associated with the heat wave of August 2003: early estimation of effect, using a rapid method. *Euro surveillance : bulletin européen sur les maladies transmissibles*, 10(7), pp.150-153.

Nordell, K., 2003. *Kvinnors och Mäns energianvändning (Women's and men's energy consumption)*, Eskilstuna, Sweden: Energimyndigheten.

Nordic Council of Ministers, 2009. *Gender and climate changes*, Copenhagen, Denmark: norden.

OECD, 2006. *Evolution of Student Interest in Science and Technology Studies:Policy Report*, OECD.

OECD, 2008a. *Household behaviour and the environment, reviewing the evidence*, Paris, France: OECD.

OECD, 2008b. *Promoting sustainable consumption good practices in OECD countries*, Paris, France: OECD.

OECD, 2011. Society at a glance 2011 OECD social indicators. Available at: http://site.ebrary.com/id/10477781.

Offenberger, U. & Nentwich, J., 2009. Home heating and the co-construction of gender, technology and sustainability. In *Gendering Climate Change*. Women & Gender Research. Copenhagen, Denmark: Kristen Justesen.

Offenberger, U. & Nentwich, J., 2010. *Intertwined practices of gender and technology: the case of sustainable home heating*, St. Gallen, Switzerland: Universität St. Gallen.

Oldrup, H. & Romer Christensen, H., 2007. *TRANSGEN. Gender mainstreaming European transport research and policies building the knowledge base and mapping good practices*, Copenhagen, Denmark: Co-ordination for Gender Studies. University of Copenhagen.

Oswald Spring, Ú., 2008. *Gender and Disasters. Human, gender and environmental security: a HUGE challenge*, Bonn, Germany: United Nations University Institute for Environment and Human Security. Available at: http://www.ehs.unu.edu/article/read/467 [Accessed August 3, 2011].

Parsons, K.C., 2002. The effects of gender, acclimation state, the opportunity to adjust clothing and physical disability on requirements for thermal comfort. *Energy and Buildings*, 34(6), pp.593-599.

Pellerin, N. & Candas, V., 2003. Combined effects of temperature and noise on human discomfort. *Physiology & Behavior*, 78(1), pp.99-106.

Pirard, P. et al., 2005. Summary of the mortality impact assessment of the 2003 heat wave in France. *Euro surveillance. Bulletin Européen sur les maladies transmissibles*, 10(7), pp.153-6.

Polk, M., 2004. Gender Mainstreaming in Transport Policy in Sweden. *Kvinder, Køn & Forskning*, 1, pp.43-54.

Populus, 2011a. *British attitudes to new nuclear power stations*, London, United Kingdom: Populus.

Populus, 2011b. *Centrica energy polls*, London, United Kingdom: Populus.

Rasmussen, R.O., 2007. *Gender and generation perspective on Artic communities in transition*, Denmark/Sweden: NORS - North Atlantic and Arctic Research Programme, NORDREGIO - Nordic Centre for Spatial Research.

Räty, R. & Carlsson-Kanyama, A., 2009. *Comparing energy use by gender, age and income in some European countries*, Stockholm, Sweden: FOI.

Räty, R. & Carlsson-Kanyama, A., 2010. Energy consumption by gender in some European countries. *Energy Policy*, 38(1), pp.646-649.

Roehr, U. & Hemmati, M., 2008. Solidarity in the Greenhouse: Gender Equality and Climate Change. In *Global Warming and Climate Change. Ten Years After Kyoto and Still Counting*. Enfield, NH, United States of America: Science Publishers, pp. 779-804 and 1079-1083.

Roehr, U. & Hemmati, M., 2008a. A gender-sensitive climate regime? In *Global Warming and Climate Change. Ten Years After Kyoto and Still Counting*. Enfield, NH, United States of America: Science Publishers.

Roehr, U. & Hemmati, M., 2008b. Solidarity in the Greenhouse: Gender Equality and Climate Change. In *Global Warming and Climate Change. Ten Years After Kyoto and Still Counting*. Enfield, NH, United States of America: Science Publishers, pp. 779-804 and 1079-1083.

Roehr, U. & Ruggieri, D., 2008. *Erneuerbare Energien - ein Arbeitsmarkt für Frauen!*, Berlin, Germany: LIFE e.V.

Roehr, U. et al., 2004. *Klimapolitik und Gender. Eine Sondierung möglicher Gender Impacts des europäischen Emissionshandelssystems*, Frankfurt am Main, Deutschland: Institut für sozial-ökologische Forschung (ISOE).

Roehr, U. et al., 2008. *Gender justice as the basis for sustainable climate policies. A feminist background paper*, Bonn/Berlin, Germany: genanet/LIFE e.V., Forum Umwelt & Entwicklung.
Roehr, U., 2006. *Women against nuclear power. Data, facts, and arguments*, Berlin, Germany: genanet/LIFE e.V.

Roehr, U., 2009. A view from the side? Gendering the United Nations climate change negotiations. In *Gendering Climate Change*. Women Gender & Research. Copenhagen, Denmark: Kristen Justesen.

Roehr, U., 2009. Geschlechtergerechtigkeit in der Klimapolitik. Die Position von Frauennetzwerken in den internationalen Klimaverhandlungen. In *Das Argument*. Berlin, Germany.

Romer Christensen, H., 2011. Women and Men in Movement: Traffic and Gender. Available at: http://www.solutions2011.fi/index.php/keke:praxis_15
Root, A., Schintler, L. & Button, K., 2000. Women, travel and the idea of `sustainable transport'. *Transport Reviews*, 20(3), pp.369-383.

Schalatek, L., 2010. Geschlechtergleichheit – (k)ein Mandat für internationale Klimaverhandlungen? In *Feministische Perspektiven auf Nachhaltigkeitspolitik*. Femina Politica. Washington, DC, United States of America: Heinrich Böll Stiftung. Available at: http://www.budrich-journals.de/index.php/feminapolitica/article/view/3740 [Accessed August 1, 2011].

Schalatek, L., 2011. Zwischen Geschlechterblindheit und Gender Justice ‚Gender und Klimawandel' in der inter- und transnationalen Politik. In A. Brunnengräber, ed. *Zivilisierung des Klimaregimes - NGOs und soziale Bewegungen in der nationalen, europäischen und internationalen Klimapolitik*. Berlin, Germany: Heinrich Böll Stiftung.

Schreiner, C. & Sjøberg, S., 2004. *ROSE:The Relevance of Science Education*, University of Oslo. Available at: http://www.uv.uio.no/ils/english/research/projects/rose/.

Schultz, I. & Stiess, I., 2006. *Emissionshandel und gender. Ergebnisse einer transdisziplinären Genderanalyse*, Frankfurt am Main, Deutschland: Institut für sozial-ökologische Forschung (ISOE).

Schultz, I. & Stiess, I., 2009. *Gender aspects of sustainable consumption strategies and instruments*, Frankfurt/Main, Germany: Institute for Social-Ecological Research (ISOE). Avaible at: http://www.isoe.de/fileadmin/redaktion/Downloads/Gender/eupopp-gender-isoe-2009.pdf [Accessed January 9, 2012]

Schultz, I. et al., 2001. *Gender in research, environment and sustainable development sub-programme*, Brussels, Belgium: European Commission.

Skinner, E., 2011. *Gender and Climate Change. Overview Report*, Brighton, United Kingdom: BRIDGE, Institute of Development Studies.

Skutsch, M.M., 2009. Protocols, treaties, and action: the “climate change process” viewed through gender spectacles. *Gender & Development*, 10(2), pp.30 - 39.

Sonesson, Ui., Davis, J. & Ziegler, F., 2009. *Food Production and Emissions of Greenhouse Gases. An overview of the climate impact of different product groups* SIK – the Swedish Institute for Food and Biotechnology, ed., Gothenburg, Sweden: SIK – the Swedish Institute for Food and Biotechnology.

Spitzner, M. & Modlich, R., 2006. Women at the crossroads with transportation, the environment and the economy - experiences and challenges in Germany. *Women + environments international magazine*, (70), p.31.

Spitzner, M., 2004. *Gender-Problematiken und Energie-Effizienz. Problemlagen gesellschaftlicher Geschlechterverhältnisse in Bezug auf Nachhaltigkeit und daraus resultierende Orientierungen für Energie-Effizienz-Politiken*, Wuppertal, Deutschland: Gender-Problematiken und Energie-Effizienz. Problemlagen gesellschaftlicher Geschlechterverhältnisse in Bezug auf Nachhaltigkeit und daraus resultierende Orientierungen für Energie-Effizienz-Politiken.

Thielmann, G., Müller, F. & Roehr, U., 2005. *Frauen im Bereich der „Erneuerbare Energien-Wirtschaft" Ergebnisse einer Umfrage bei Initiativen, Verbänden und Unternehmen*, Frankfurt am Main, Germany: genanet Leitstelle Geschlechtergerechtigkeit und Nachhaltigkeit.

Umweltbundesamt, 2004. *Quantifizierung der Effekte der Ökologischen Steuerreform auf Umwelt, Beschäftigung und Innovation*, Berlin, Germany: Umweltbundesamt für Mensch und Natur.

UNEP, 2006. *Gender mainstreaming among environment ministries, government survey 2006*, UNEP. Available at: http://www.unep.org/civil_society/PDF_docs/UNEP-survey-reportJan-07.pdf.
Villagrasa, D., 2008. Kyoto Protocol negotiations: reflections on the role of women. *Gender & Development*, 10(2), pp.40-44.

WEDO, 2010. Cancun climate negotiations: taking great strides for women's rights and gender equality. *Outreach a multi-stakeholder magazine on climate change and sustainable development*. Available at: http://www.stakeholderforum.org/sf/outreach/index.php/wrap-up3 [Accessed August 1, 2011].

Weller, I., 2007. Ist der Klimawandel geschlechtsneutral? Available at: www.artec.uni-bremen.de/files/sonstiges/klima-gender-weller07.pdf.

Westlund, J., 2009. Shopping queen. *NIKK magazine, Nordic Gender Institute*, 2.2009, pp.16-20.

Westlund, J., 2011. Emissions exported. Consumption perspective redraws emissions maps. *NIKK magasin, Nordic Gender Institute*, 2.2011, pp.20-21.

Widén, Joakim, Wäckelgård, Ewa & Ellegård, Kajsa, 2007. *Modelling household electricity load from time-use data*, Uppsala/Linköping, Sweden.

Women Environmental Network & National Federation of Women's Institutes, 2007. *Getting in the picture - a survey of women's priorities for action and involvement in tackling climate change*, London, United Kingdom: Women Environmental Network (WEN), The National Federation of Women's Institutes (NFWI).

World Health Organization., 2006. *Fuel for life: household energy and health*, Geneva, Switzerland: World Health Organization.

World Health Organization, 2011. *Gender, Climate Change and Health*, Geneva, Switzerland: World Health Organization.

Young, B. & Schuberth, H., 2010. *The global financial meltdown and the impact of financial governance on gender*, Available at: http://www2.warwick.ac.uk/fac/soc/garnet/policybriefs/policybrief10.pdf.

Zamora, B., 2005. *The Causal Effect of Female Labour Participation on Household Consumption. Evidence from Spanish Data*, Alicante, Spain: Departamento de Fundamentos del Análisis Económico, University of Alicante.

ANNEX I

METHODOLOGY FOR THE COLLECTION OF DATA

This Annex to the report "Review of the Implementation in the EU of area K of the Beijing Platform for Action: Women and the Environment. Gender Equality and Climate Change" contains the methodology used to identify and collect data on women's participation in climate change decision-making at national, European Union and international level (Part A) and the gender segmentation of education in natural sciences and technologies (Part B).

PART A. Data collection on women's participation in climate change decision-making at national, European Union and international level

Participation at the national level

The institutions serving as the relevant competent authorities for climate change (including transport and energy) differ considerably across the Member States (e.g. ministries or other government institutions with varying overall portfolios, e.g. environment and local government, energy and economy, etc.). It was therefore decided to collect data for the three institutions in each Member State having competence for:

- Environment (and climate change where specified);

- Transport;

- Energy.

To ensure that the collection of data across the three sectors in 27 Member States (81 institutions) is as objective and consistent as possible, and corresponds as directly as possible to actual climate change-related decision-making responsibilities, a set of criteria has been established to define and govern the data collection process. The criteria cover the classification of governmental positions into three hierarchical levels of decision-making, and the selection of the relevant sectorial departments and other areas of responsibility related to climate change.

High-level decision-making positions relevant for climate change policy were thus considered. This does not mean that all the decisions taken by a person in one of the positions that was included are relevant to climate change, but that the person is competent for taking decisions in an area of policy-making that is relevant for tackling climate change.

For each institution, three levels of decision-making were defined:

Level 1 covers the highest levels/positions in the Ministry (political level). These will usually be the Minister, the Vice or Deputy Minister and the high-level State Secretary.

Level 2 covers the top level of managerial or administrative decision-making in the Ministry, usually the civil servant who is the head of the Ministry, e.g. Sub-Secretary, Secretary-General, Director-General etc. with responsibility for the sector concerned.

Level 3 will cover the heads of sectorial departments or divisions.

Level 1 is comparable to the political level - senior and junior government ministers – in the database Women and Men in Decision Making. Level 2 corresponds to public administration – level-1 administrators. Accordingly, level 3 is comparable to the level-2 administrators in the database on Women & Men in Decision Making.

The collected data cover high-level political and administrative positions to provide an overview of women's participation in high-level decision-making positions in key sectors for climate change, namely environment, transport and energy. The database on Women & Men in Decision Making provides data on positions of power and influence in politics, public administration, the judiciary, and various other key areas of the economy.[37] However this database could not be used in the current data collection exercise, due to the report's particular focus on the environment, transport and energy sectors, which are not separate in the database.

[37] Database on Women & Men in Decision Making, available at http://ec.europa.eu/justice/gender-equality/gender-decision-making/database/index_en.htm

A mapping of the positions considered for each level and Member State is presented in the Table 1 below.

Table 1: Decision-making levels considered in the data collection exercise by Member State

Country	Level 1	Level 2	Level 3
Belgium	Minister Federal Minister	Head of the Service Head of Directorate-General Secretary-General of Department Head of Institute Director of the Committee Director-General President of the Committee Administrator-General	Head of Unit Head of Department Head of Division Head of Directorate Head of Centre Director
Bulgaria	Minister Deputy Minister	Secretary-General	Director of Directorates
Czech Republic	Minister	Deputy Minister and Director-General Acting Deputy Minister and Director-General Deputy Minister Secretary of State Deputy Minister and Head of the Office of the Ministry Deputy Minister and Director	Director of Department Head of Section
Denmark	Minister	Permanent Secretary	Deputy Permanent Secretary Head of Division Head of Centre Head of Office Head of Department
Germany	Federal Minister Parliamentary State Secretary	State Secretary	Director

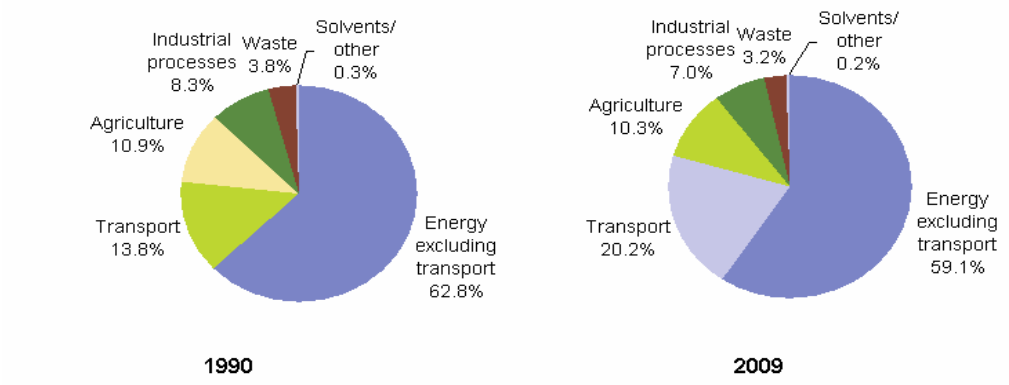
Estonia	Minister	Secretary-General Deputy Secretary-General	Head of Department Director of Department
Ireland	Minister Ministers of State	Secretary-General Deputy Secretary-General	Assistant Secretary Principal Officer Principal Advisor Head of Division Chief
Greece	Minister Alternate Minister Deputy Minister	Head of General Directorate	Head of Service
Spain	Minister Secretary of State Secretariat	Secretary-General Sub-Secretary	Director General
France	Minister State Secretaries	Head of Directorate-General	Head of Department Director
Italy	Minister Vice Minister Under-Secretaries	Secretary-General Head of Department	General Director
Cyprus	Minister	Permanent Secretary	Director of Service Head of Department
Latvia	Minister	State Secretary	Deputy State Secretary Director of Department
Lithuania	Minister Vice-Minister	Chancellor	Head of Department Director of Department Head of Division
Luxembourg	Minister Deputy Minister	General administrator General coordinator Director-General	Head of Department
Hungary	Minister	Minister of State Deputy Minister of State	Head of Department
Malta	Minister	Permanent Secretary	Director-General Programme Director Director Project Director

Netherlands	Minister State Secretary/Vice Minister State Secretary	Secretary-General Director-General Director of the Authority	Head of Department Head of Unit Head of Programme
Austria	Federal Minister	Head of division	Head of Department
Poland	Minister Secretaries of State Under-Secretaries of State	Director-General	Director of Department
Portugal	Minister State Secretary	General Secretary President Director-General	Director
Romania	Minister Secretaries of State	Secretary-General Deputy Secretary-General	Director of Directorate General Director Director
Slovenia	Minister State Secretaries	Secretary-General Director of Office	Director-General of Directorate Head of Department Head of Unit
Slovakia	Minister Secretary of State	Head of Office General Director	Heads of Department Head of Section
Finland	Minister	Permanent Secretary Director-General	Director of Unit Head of Unit
Sweden	Minister State Secretary	Director-General	Head of Division Director
United Kingdom	Secretaries of State Ministers of State Parliamentary Under Secretaries of State	Permanent Secretary	Director-General Strategy Director

To determine which competences to include at the sectorial or department level, those that are most relevant to climate change were considered.

Sectorial sources of GHG emissions were used as a guide for determining which sectorial departments to include in the analysis as most relevant to climate change decision-making. According to data from the European Environment Agency (EEA), the most important source of GHG emissions across the EU 27 is that of fuel combustion for energy transformation, transport, and a range of industrial activities. Important as well are agriculture (not considered in the analysis as it is a separate competence and the climate change-related aspects are not yet addressed by policies or legislation in all Member States or for the EU as a whole and therefore would not allow for comparability within the EU as a whole) and waste. It is noteworthy that the share of transport in overall GHG emissions increased from 13.8% in 1990 to 20.2% in 2009.

Figure 1: EEA/Eurostat data on GHG emissions by sector, 1990 and 2009



Source: European Environment Agency, also available at Eurostat (tsdcc210)

Based on the criteria discussed above, the following general guidance was developed for determining which sectorial departments to include in and exclude from the analysis.

Table 2: Sectorial departments included in and excluded from data collection on national-level institutions

Environment	
Include:	***Exclude:***
Sustainability	Purely administrative departments (e.g. Human resources, Budget, etc.)
Forestry	Executive departments (e.g. Inspection)
Waste	Enforcement departments
General environmental policy	Legal department
Water management (e.g. Floods)	Chemicals
Energy (within environment ministry)	Agriculture
Biodiversity / nature protection	Local / regional issues
Strategic environmental planning	Water pollution
Spatial planning	
Land use	
Ozone	

Transport	
Include:	***Exclude:***
Departments/units that deal with the energy consumption of transport, e.g. sustainable transport, public transport.	Purely administrative departments (e.g. Human resources, Budget, etc.)
Inland transport policy	Executive departments (e.g. Inspection)
Aviation policy	Enforcement departments
Maritime policy	Legal department
Public transport	Road safety

Energy	
Include:	***Exclude:***
Departments/units dealing with energy policy	Purely administrative departments (e.g. Human resources, Budget, etc.)
Energy efficiency policy	Executive departments (e.g. Inspection)
Renewable energies	Enforcement departments
Nuclear energy policy	Legal department
Any strategic energy issue	
Energy supply	

To determine which sectorial departments to include in the analysis as most relevant to climate change decision-making, the sources of GHG emissions on the mitigation side and identified aspects closely related to the adaptation challenges in the EU were used, e.g. water management. Administrative or enforcement departments were excluded. On this basis, the decision was taken to include 'waste' departments as waste is an important source of GHG emissions in the EU. Water pollution was excluded because it is not as directly related to climate change as other departments. Where an overarching water department covered both water management and water pollution, the "water" department was included as the person heading such a department will have the final overall responsibility for taking decisions in relation to water management policies in that Member State.

Ministries and departments considered in each EU Member State are summarised in the Table 3.

Table 3: National institutions and departments included in the data collection exercise

Belgium

Environment

Federal Public Service for Public Health, Safety for the Food Chain and Environment (FPS)

Unit International Affairs; Unit Product Policy

Flemish Department of Environment, Nature and Energy (FR)

Unit Air, Nuisance, Risk Management and Environmental Health; Unit Environment, Nature and Energy; Unit Integration and Subsidies; Unit Environmental Permits; Unit Land and Soil Protection

Unit International Environmental Policy; Unit Environmental damages and crisis management

Operational Directorate-General for Agriculture, Natural Resources and Environment (WR)

Department for EU and International Agreements; Department for Research; Department for Development; Department for Subsidies; Department for Nature and Forests; Department for Rural Development and Waterways; Department for Soil and Waste; Department for Permits and Authorisations; Department for Environment and Water

Brussels Institute for Environment (BR)

Division Sustainable Cities, Energy and Climate Change; Division for Permits and Partnerships; Division for Enforcement and Soil; Division for Nature, Water and Forestry; Division for Information, Investigation, Waste and Sustainable Development

Transport

Federal Public Service for Public Health, Safety for the Food Chain and Environment (FPS)

Department for Maritime Transport; Department for Mobility; Department for Inland Transport; Department for Air Transport; Directorate for Development and Support of Sustainable Transport and Railway Policies

Flemish Department of Environment, Nature and Energy (FR)

Unit for General Policy; Unit for Mobility and Traffic Safety; Unit for Water and Ports Policy; Unit for Aviation Policy; Unit for Maritime Access

Operational Directorate-General for Agriculture, Natural Resources and Environment (WR)

Department for Mobility Strategy; Department for Research and Management Assistance; Department for Transport Exploitation; Department for waterways of the Escaut; Department for waterways of Namur; Department for waterways of Liege

Brussels Institute for Environment (BR)

Department for Infrastructure for Public Transport; Department for Programme Management; Department for Strategy; Centre for Mobility

Energy

Federal Public Service for Public Health, Safety for the Food Chain and Environment (FPS)

Department for External Relations; Department for Nuclear Energy; Department for Energy Observatory; Department for Energy Supply; Department for Quality of Fuel Products; Department for Infrastructure and Controls; Department of Licences and New Technologies

Flemish Department of Environment, Nature and Energy (FR)

Unit for Strategy and Management; Unit for Social Energy Policy; Unit for Supportive Measures for Companies; Unit for Environmentally Friendly Energy Production; Unit for Energy Efficiency Regulation; Unit for Efficiency Certificates

Operational Directorate-General for Agriculture, Natural Resources and Environment (WR)

Department for Energy and Sustainable Building; Promotion of Sustainable Energy

Brussels Institute for Environment (BR)

Division for Sustainable Cities, Energy and Climate Change

Bulgaria

Environment

Ministry of Environment and Water Resources

Preventive Activities Directorate; Waste Management Directorate; Air Protection Directorate; National Nature Protection Service Directorate; Environmental Policies Directorate; Climate Change Policy Directorate; EU and International Projects Directorate; EU Affairs Coordination and International Cooperation Directorate; Cohesion Policy for Environment Directorate; Water Management Directorate

Transport

Ministry of Transport, Information Technology and Communications

European Coordination and International Cooperation Directorate; Programme and Project Coordination Directorate; National Transport Policy Directorate

Energy

Ministry of Economy, Energy and Tourism

Directorate for Energy Policies, Strategies and Projects; Directorate for Energy Efficiency and Environmental Protection; Security of Power Supply; Crisis Management; Natural Resources and Concessions

Czech Republic

Environment

Ministry of the Environment

Department for EU and Environmental Policies; Department for Economic Instruments; Department for EU Funds; Department for Environmental Policy Instruments; Department for Multilateral Relations; Department of Landscape Protection; Department of Specially Protected Areas; Department of International Protection of Biodiversity; Department of Protection of National Parks; Department of Conservation and Geological and Soil Environment; Department of EIA and Integrated Prevention; Department of Waste; Department of Territorial Relations; Department of Climate Change; Department of Air Protection

Transport

Ministry of Transport

Traffic Section (Road and Public Transport); Air and Rail Transport Section; International Relations; Department of Finance and Economy; Department of Roads and Land-use Planning; Department of EU Funds; Department of Strategy

Energy

Ministry of Industry and Trade

Department of Mining and Construction; Department of Electrical Power; Department of Gas and Liquid Fuels; Department of Raw Materials and Energy Security; Department of Ecology; Strategy and Trends Department

Denmark

Environment

Ministry of the Environment

Environmental Policy Division; International Division

Transport

Ministry of Transport

Centre for Public Transport; Centre for Roads and Bridges; International Office

Energy

Ministry of Climate and Energy

Climate Department; Department of Commerce, Growth and Development; Energy Department; Department of EU and International Energy; Global Climate Department

Germany

Environment

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

Climate Protection, Environment and Energy, Renewable Energies, International Cooperation; Strategic Aspects of Environmental Protection; Safety of Nuclear Installations, Radiological Protection, Nuclear Fuel Cycle; Water Management, Waste Management, Soil Conservation; Nature Conservation and Sustainable Use of Natural Resources

Transport

Federal Ministry of Transport, Building and Urban Development

Aeronautics and Space; Waterways and Navigation; Overland Transport; Environmental Policy and Infrastructure; Road Construction

Energy

Federal Ministry of Economics and Technology

Political Coordination; European Policy; Energy Policy; Industrial Policy; External Economic Policy

Estonia

Environment

Ministry of Environment

Ambient Air Department; Environmental Management Department; Forestry Management Department; EU and International Cooperation Department; Marine Environment Department; Nature Conservation Department; Climate and Radiation Department; Analysis and Planning Department; Waste and Waste Management Department; Water Department

Transport

Ministry of Economic Affairs and Communications

Aviation and Maritime Department; Transport Development and Investments Department; Road and Railways Department

Energy

Ministry of Economic Affairs and Communications

Energy Department

Ireland

Environment

Department of Environment, Community and Local Government

Environment; Local Government; Environment Policy and Awareness; Environment, International and Sustainable Development; Climate Change; Waste Policy; Environmental Radiation and Department Strategy; Water Quality

Transport

Department of Transport, Tourism and Sport

Public Transport, Finance and Transport Investment Divisions; Road Safety, Policy and Governance Coordination and Computer Services Divisions; Freight and Logistic Policy and Maritime Transport Divisions; Aviation Services and security, National Sustainable Travel Office and Airports Divisions; Public Transport Division; Transport Investment Division; Policy and Governance Coordination Division; Freight and Logistic Policy Division; Maritime Transport Division; Aviation Services and Security Division; National Sustainable Travel Office, Area A; National Sustainable Travel Office, Area B; Airports Division

Energy

Department of Communications, Energy and Natural Resources

Natural resources; Energy Planning and Electricity Corporate Division; Electricity and Gas Regulation Division; Oil Security and Energy Corporate Division; Renewable and Sustainable Energy Division; Energy Efficiency and Affordability Division; Technical Adviser on Energy

Greece

Environment

Ministry of Environment, Energy and Climate Change

General Directorate for the Environment; General Directorate for Development and Protection of Nature and Forests; General Directorate for Urban Planning; General Directorate for Planning and Projects; General Directorate for Spatial Planning; Special Service for the Coordination of Environmental Action

Transport

Ministry of Infrastructure, Transport and Networks

General Directorate for Transport; Directorate on Structural Programmes and Air Transport; Planning and Executive Support Service

Energy

Ministry of Environment, Energy and Climate Change

General Directorate for Energy; General Directorate for Natural Wealth; Special Service on Coordination and Implementation of Action regarding Energy, Natural Resources and Climate Change; Service assisting investors in renewable energy projects

Spain

Environment

Ministry of Environment and Rural and Sea Affairs

Climate Change; Rural Environment and Water; General Sea; Sustainable Development of the Rural Environment; Water; Natural Environment and Forestry; Sustainability of Marine and Coastal Areas; Spanish Climate Change Office

Transport

Ministry of Infrastructure and Transport

Transport; Infrastructure and Planning; Roads; Rail Infrastructure; Civil Aviation; Terrestrial Transportation; Merchant Navy

Energy

Ministry of Industry, Tourism and Trade

Energy; Energy Planning and Control; International Energy Relations; Energy Policy and Mining; Hydrocarbons; Electric Power; Nuclear Energy

France

Environment

Ministry of Ecology, Energy, Sustainable planning and Seas

DG for Development, Housing and Nature; DG for Risk Prevention; Department for Technological Risks; Department for Prevention of Environmental Pollution and Promoting Environmental Quality; Department for Natural Risks and Flood Risks; Department for Water and Biodiversity

Transport

Ministry of Ecology, Energy, Sustainable planning and Seas

DG for Infrastructure, Transport and Sea; DG for Civil Aviation; Transport Infrastructures; Transport Services; Maritime Policy; Department of Air Transport; Department of Air Navigation Services; Department of Civil Aviation Safety

Energy

Ministry of Ecology, Energy, Sustainable Planning and Seas

DG for Energy and Climate; Department for Energy; Department for Climate and Energy Efficiency

Italy

Environment

Ministry of Environment, Protection of the Territory and the Sea

DG Protection of Land and Water Resources; DG Protection of Nature and the Sea; DG Sustainable Development, Climate and Energy

Transport

Ministry of Infrastructure and Transport

Department of Transport, Navigation, Information Systems and Statistics; DG Road Transport and Intermodal Transport; DG Rail Transport; DG Local Public Transport; DG Maritime Transport and Internal Waterways; DG Ports; DG Airports and Air Transport

Energy

Ministry of Economic Development

Department of Energy; DG Supply Security and Energy Infrastructure; DG Mineral and Energy Resources; DG Nuclear Energy, Renewable Energy and Energy Efficiency

Cyprus

Environment

Ministry of Agriculture, Natural Resources and Environment

Environment Service

Transport

Ministry of Communications and Works

Department of Road Transport; Department of Civil Aviation; Merchant Shipping Department

Energy

Ministry of Commerce, Industry and Tourism

Energy Service

Latvia

Environment

Ministry of Environmental Protection and Regional Development

Climate Policy and Technology Department; State Development Planning Department; Department for Environmental Protection; Department for Spatial Planning; Department for Project Implementation; Department for Policy Coordination; Department of Nature Protection

Transport

Ministry of Transport

Land Transport Department; Air Transport Department; Maritime Transport

Energy

Ministry of Economics

Energy Department; Building and Housing Department; EU Funds Implementation Department

Lithuania

Environment

Ministry of the Environment

Waste Department; Department for Economics and International Relations; EU Assistance Management Department; Nature Protection Department; Forest Department; Protected Areas and Landscape Department; Construction and Housing Department; Territorial Planning, Urban Development and Architecture Department; Water Department

Transport

Ministry of Transport and Communications

Department for Road and Civil Aviation; Department for Water and Railway Transport; Department for Transport Policy

Energy

Ministry of Energy

Division of Energy Resources, Electricity and Heat; Division of Renewable Energy Sources and of Energy Efficiency; Division of Strategic Planning and Coordination of EU Affairs; Division of Strategic Projects; Ignalina Nuclear Power Plant Decommissioning

Luxembourg

Environment

Ministry of Environment

Department for International Relations, EU Law, Legal Affairs; Department for Climate Change, Energy Policy, Kyoto Funds, Funds for Environmental Protection; Department for Nature, Water, Landscapes, Transport and Forest Policy; Department for Environmental Education; Department for Air and Noise

Transport

Ministry of Environment

Department for Air and Waterway Transport; Department for Public Transport; Department for Road Transport; Department for Rail Transport

Energy

Ministry of Economy and Foreign Trade

DG for Economic Development, New Technologies and Energy; Department for Energy; Electricity; Natural Gas; Renewable Energy; Energy Efficiency and Energy Savings

Hungary

Environment

Ministry of Rural Development

Environmental Affairs; Environment and Nature Protection; Water; Department for Development and Conservation of Environment; Department for Waste Management; Department for Environmental Policy; Department for Nature Conservation; Department for Natural Parks and Landscape; Department for Water Damage Prevention; Department for Territorial Water Management; Department for Water Protection and River Basin Management

Transport

Ministry of National Development

Infrastructure; Department for Transport Infrastructure; Department for Transport Services; Department for Road and Rail Transport

Energy

Ministry of National Development

Climate and Energy Affairs; Green Economy and Climate; Energy; Department for Green Economy; Department for Climate Policy; Department for Atomic Energy; Department for Energy Management; Department for Energy Regulation; Department for Strategic Planning and International Affairs

Malta

Environment

Ministry for Resources and Rural Affairs

Project Design and Implementation; Rural Development and Aquaculture; Programme Implementation; EU Affairs; Projects Implementation; Environmental Protection Director MEPA

Transport

Ministry for Infrastructure, Transport and Communications

Operations; EU Affairs; Policy Development; Civil Aviation; Safety Regulation and Air Transport

Energy

Ministry for Resources and Rural Affairs

Project Design and Implementation; Programme Implementation; EU Affairs; Projects Implementation

Netherlands

Environment

Ministry of Infrastructure and the Environment

Environment; Spatial Planning; Water Affairs; the Netherlands Environmental Assessment Agency; the Dutch Emissions Authority; Sustainable Production Department; Climate and Air Quality Department; International Affairs Department; Biofuels Department; Contract Coordination and Strategy Unit; National Spatial Planning Department; Integrated Area Development Department; Living Environment Department; Implementation, Monitoring and Evaluation Programme; Areas Programme; Water Management and Coordination Programme; Water Quantity and Quality Programme

Ministry of Economic Affairs, Agriculture and Innovation

Directorate General for Nature and Regional Policy; Department for Nature & Biodiversity; Programme Department for Natura2000

Transport

Ministry of Infrastructure and the Environment

Aviation and Maritime Affairs; Mobility; Airports Department; Aviation Department; Maritime Affairs Department; Strategy and International Affairs Department; Rail Transport Department; Road Use Efficiency Programme

Energy

Ministry of Economic Affairs, Agriculture and Innovation

Energy, Telecom and Markets; Department for Energy and Sustainability; Department for Energy Market

Austria

Environment

Federal Ministry for Agriculture, Forestry, Environment and Water Management

Division for Sustainability and Rural Areas; Division for Forestry; Division for Environmental Engineering and Waste; Division for General Environmental Policy; Division for Water

Transport

Federal Ministry for Transport, Innovation and Technology

Transport Division; Infrastructure Division

Energy

Federal Ministry for Economy, Family and Youth

Division for Energy and Mining

Poland

Environment

Ministry of the Environment

Department of Climate Change and Atmospheric Pollution; Department of Strategic Planning; Department of International Cooperation; Department of the "Infrastructure and Environment Operational Programme"; Department of Nature Conservation; Department of Forestry; Department of Environmental Instruments; Department of Waste Management; Department of Geology and Geological Concessions; Department of Environmental Education

Transport

Ministry of Infrastructure

Maritime; Rail; Road; Department of Spatial Development; Department for Maritime Transport and Inland Navigation; Department of Roads and Motorways; Department of Aviation; Railway Department; Department for Railway Investment; Department of Transport Policy and International Affairs; Department of Road Transport

Energy

Ministry of Economy

Nuclear Energy; Energy, Oil and Gas, Mining; Department of Energy; Department of Nuclear Energy; Department of Oil and Gas

Portugal

Environment

Ministry for Agriculture, Sea, Environment and Regional Planning

Forests and Rural Development; Sea; Environment and Regional Planning; Portuguese Environment Agency; National Forestry Authority; Department for Prospective and Planning Studies and International Relations; DG of Regional Planning and Urban Development; Regulatory Entity of Water Services and Waste; Office of Planning and Policies; Water Institute; National Institute of Biological Resources; National Institute of Nature Conservation

Transport

Ministry of Economy and Employment

Public Works, Transport and Communication; Council on Public Works, Transport and Communications; Strategic Planning and International Relations Chamber; Mobility and Terrestrial Transport Institute; National Civil Aviation Institute; Road Transport Institute; Port and Maritime Transport Institute

Energy

Ministry of Economy and Employment

Regulatory Entity of Energy Services; DG of Energy and Geology

Romania

Environment

Ministry of Environment and Forests

Climate Change and Sustainable Development Directorate; Biodiversity Directorate; Floods and Water Management Authority; Waste and Hazardous Substances Management Directorate; Forests Directorate; Directorate for Pollution Control and Impact Assessment

Transport

Ministry of Transport and Infrastructure

Infrastructure, Multimodal Transport and Private Sector Participation; Transport Regulation; Civil Aviation; Management, Strategy and Environment; European Affairs and International Relations

Energy

Ministry of Economy, Trade and Business

Data unavailable

Slovenia

Environment

Ministry of Environment and Spatial Planning

Environment Directorate; Environment Directorate; Spatial Planning Directorate; Department for International Cooperation; Department of Climate Change Policy

Climate Change Office

Transport

Ministry of Transport

Transport Directorate; Roads Directorate; Railways and Cableways Directorate; Maritime Directorate; Civil Aviation Directorate

Energy

Ministry of Economy

Energy Directorate; Unit Renewable Energy and Energy Efficiency; Unit Energy Supply, Sources and Mining

Slovakia

Environment

Ministry of Environment

Department of Nature and Landscape Protection; Department of Environmental Assessment and Organisation; Department of the EU and Environmental Policies; Department of Environmental Programme and Projects; Department of Water Protection; Department of Geological Environment; Department of Climate Change and Economic Instruments

Transport

Ministry of Transport, Construction and Regional Development

Section for EU Affairs and International Relations; Section for Road Transport, Roads and Capital Projects; Section for Rail Transport; Section for Civil Aviation and Water Transport

Energy

Ministry of Economy

Energy Section; Department of Energy and Resource Policy; Department of International Relations in the Energy Sector; Department of Fuel and Energy; Department of Regulatory Analysis

Finland

Environment

Ministry of the Environment

Environmental Protection Department; Department of the Natural Environment; Department of the Built Environment

Transport

Ministry of Transport and Communications

Transport Policy Department; Transport System Unit; Transport Services Unit

Energy

Ministry of Employment and the Economy

Energy Department; Energy Efficiency Unit; Renewable Energy Unit; Emissions Trading Unit; Base Production of Energy Unit; Energy Markets Unit

Sweden

Environment

Ministry of Environment

Climate Division; Division for Natural Environment; Division for Environmental Analysis;

Transport

Ministry of Enterprise, Energy and Communications

Infrastructure; Transport; Staff

Energy

Ministry of Enterprise, Energy and Communications

Energy; Sustainable and Secure Energy System; International and Coordination; Market and Infrastructure

United Kingdom

Environment

Department for the Environment, Food and Rural Affairs

Environment, Food and Rural Affairs; Agriculture and Food; Natural Environment and Fisheries; Climate Change; Green Economy and Corporate Services; Environment and Rural

Transport

Department for Transport

Transport; International Strategy and Environment; Domestic; Major Projects & London

Energy

Department for Energy and Climate Change

Energy and Climate Change; Energy; Climate Change; Energy Markets & Infrastructure; International Climate Change and Energy Efficiency

Data was collected on the individuals occupying each of the level-1, 2 and 3 posts for the institutions with overall competence in the environment/climate change, transport and energy sectors for each EU Member State. The data was collected through internet research where possible, with e-mails and phone calls to the institutions to verify data and request additional information, using native speakers where required. To ensure overall consistency, the data collected for each Member State was reviewed before it was entered into the database.

According to the available data by sector, in ten Member States (BE, EE, EL, FR, HU, LU, MT, NL, PT and SE) some ministries or institutions work in several sectors. Relevant persons have therefore been included under all relevant sectors. For calculating the numbers by level or the total (all three sectors together), those persons have been taken into account only once. Therefore, the summary numbers by sector and by level or the total may differ. For example, total positions by sector are as follows: 357 positions under environment, 257 positions under transport and 202 positions under energy, but total positions by level are 790 altogether (difference is 26 positions, because 24 persons have been included twice and one person three times).

Table 4: Persons counted twice by Member State and by level of position and sector

Country	By level of position			By level of persons			
	Level	Number of persons	Number of women	Sex	Environment	Transport	Energy
Belgium	1	3	1	F	X		X
				M	X		X
				M	X	X	
	2	1	0	M	X		X
	3	1	0	M	X		X
Estonia	1	1	0	M		X	X
	2	1	1	F		X	X
	3	-	-				
Greece	1	3	0	M	X		X
				M	X		X
				M	X		X
	2	-	-				
	3	-	-				
France	1	1	1	F	X	X	X
	2	-	-				
	3	-	-				
Luxembourg	1	2	0	M	X	X	
				M	X	X	
	2	-	-				
	3	-	-				

Hungary	1	1	0	M		X	X
	2	-	-				
	3	-	-				
Malta	1	1	0	M	X		X
	2	1	0	M	X		X
	3	4	0	M	X		X
				M	X		X
				M	X		X
				M	X		X
Netherlands	1	2	1	F	X	X	
				M	X	X	
	2	1	0	M	X	X	
	3	-	-				
Portugal	1	1	0	M		X	X
	2	-	-				
	3	-	-				
Sweden	1	1	1	F		X	X
	2	-	-				
	3	-	-				
Total		25	5		20	12	19
Level 1		16	4		12	10	11
Level 2		4	1		3	2	3
Level 3		5	0		5	0	5

For seven countries (EL, FI, IT, MT, NL, PL, SI) some of the positions considered for the data collection were vacant when the report was prepared. These positions were not included in calculations or in total numbers.

Accessibility of data

For most Member States, data were easily accessible, either via the Ministry website or via a follow-up phone call to a person in the Ministry. Some difficulties were encountered due to the timing of the data collection (August) or due to procedural requirements on access to information.

For one Member State[38], it was impossible to obtain information on persons in decision-making positions in two Ministries for level 3. Therefore, the information on this Member State in the report is highlighted as incomplete. Overall, information on level 3 was complicated to collect in several Member States.

For 10 Member States, data on all levels was available on the Ministry websites. For five Member States, the information was available in English.

For 17 Member States, follow-up phone calls were needed to obtain additional information, in particular on level 3.

For 14 Member States, it would be preferable or necessary to involve a native speaker for future data collection exercises, either for access to the information on the website or for follow-up phone calls or emails.

None of the Member States had sex-disaggregated data on the persons in decision-making positions in that Ministry directly available on line.

For Belgium the regions were included. The decision was based on two aspects: data availability and the organisational structure of the Belgian state and the division of competences. For instance, environmental competence, not related to GHG emissions directly (e.g. water management issues) are a fully regional competence. In other words, these competencies are not dealt with at all by the federal government. Therefore, coverage only of the federal level for Belgium would have given a very incomplete picture.

38 Romania.

Participation at the EU level

To assess women's participation in climate change decision-making at the EU level, the team evaluated relevant institutions within the European Commission and the European Parliament, the institutions responsible for preparing, evaluating and approving EU policies and laws. Although the Council of the European Union (or Council of Ministers) also has a role in defining and deciding on EU laws and policies, the membership of the Council is comprised of national ministers (according to topic), and these individuals have already been tracked in the national-level data collection described above. The General Secretariat of the Council of the European Union has two Directorates-General (DGs) dealing with climate change, transport and energy issues. DG C – Competitiveness, Innovation, Research, Industry and Information Society, Internal Market, Competition and Customs, Transport, Energy deals with transport and energy questions besides other areas, while climate change and environment issues are assigned to DG I – Climate Change, Environment, Health, Consumers, Foodstuffs, Education, Youth, Culture, Audio-visual and Sport. These two DGs of the General Secretariat of the Council of the European Union were not included in the analysis owing to the mainly administrative role of the General Secretariat.

The database Women & Men in Making presents data about decision-making positions in Directorates-General and services of the European Commission, services of the European Parliament and General Secretariat of the Council of the European Union. However, data are not broken down by different Directorates-General relevant to climate change for the European Commission or by committees for the European Parliament.

For the European Commission, four Directorates-General (DGs) have been considered: DG Climate Action, DG Environment, DG Mobility and Transport, and DG Energy. A similar approach to the allocation of positions to a level was followed as for the national-level institutions. Consequently, the decision was taken to attribute the levels as follows:

- Level 1 covers the highest levels/positions in that sector within the EC: the Commissioner;

- Level 2 covers the top level of managerial or administrative decision-making in the DG: Director-General of the DG;

- Level 3 covers the heads of sectorial Directorates within the DG: Directors.

Level 1 covers Commissioners. Level 2 corresponds to the level-1 administrators in the database Women & Men in Decision Making, namely: Director-General, Deputy Director-General or equivalent. Accordingly level 3 corresponds to level 2 in the database: Director, Principal Advisor or equivalent.

The organigrammes and information concerning the organisation of each DG, including the names of those persons in high-level decision-making positions are readily available on the European Commission website: http://ec.europa.eu/contact/members_en.htm.

For the European Parliament, participation in three committees was considered:

- Environment, Public Health and Food Safety;

- Industry, Research and Energy;

- Transport and Tourism.

As there is no hierarchy within the Committees of the European Parliament, the total number of Members of the European Parliament (MEPs) was considered.

The members of each Committee of the European Parliament are listed on the EP website.[39] The total number of female Members of the European Parliament (MEPs) was taken from the database on Women & Men in Decision Making.[40]

[39] http://www.europarl.europa.eu/activities/committees/committeesList.do

[40] Data for 1st quarter 2011, Database on Women & Men in Decision Making, available at http://ec.europa.eu/justice/gender-equality/gender-decision-making/database/index_en.htm

Participation at the international level

A third set of data collected to support indicators in this area relates to women's involvement in international climate change decision-making, as the third decision-making level of relevance for EU and Member States' climate change policies. International climate policy and decision-making is mainly carried out through the United Nations Framework Convention on Climate Change (UNFCCC) process, including the annual meetings of the Conference of the Parties (COP) and its supporting bodies. The COP delegations represent the political negotiating and decision-making on international climate change policy, including on agreeing targets for reduction of GHG emissions. The COP negotiations are mainly supported by the work of two additional bodies, known as Subsidiary Bodies (SBs). There is one SB for Scientific and Technological Advice, which advises the COP on matters of climate, the environment, technology and method. Another SB for Implementation (SBI) helps to review how the Convention is being applied, and deals with financial and administrative matters. Typically, the COP meets annually and the SB meets twice per year; once simultaneously with the COP and at a second time during each year.

Data on the gender of meeting delegates is available from lists of participants, which can be found for each of the meetings on the UNFCCC website.[41] Where available, the final lists of participants published at the end of the sessions have been used, rather than provisional lists sent to the UNFCCC Secretariat. Varying levels of decision-making responsibility among participants (with the exception of Heads of Delegation) cannot be determined from the lists of participants and have therefore not been taken into account. Stakeholders, who often have an advisory function on the delegations, have not been taken into account in the data collection either; numbers have been restricted to official (government) delegation members.

[41] http://unfccc.int .Under the tab 'Meetings', an archive of all previous UNFCCC meetings can be accessed, including all relevant 'Conference documents' related to that meeting.

Lists of participants have been analysed as follows:

- Lists of annual COP and SB delegations from the EU Member States and the EU delegation for the past six years (e.g. COP 11 in 2005 through to COP 16 in 2010). For reference and comparison, data from COPs 2 and 6 in 1996 and 2000 were also collected.

- Heads of SB delegations during the SB sessions that are not held simultaneously with meetings of the COP, from 1996 through 2011. (During a COP, the list of participants will include delegation members for all meetings, while the separate SB sessions will include only the SBs, thus allowing for a broader data sample.)[42]

It was decided to collect information separately on the heads of the SB delegations, because these individuals are substantively leading the work of their team. In most cases, the COP delegation head is a minister or head of state, information that is already tracked in another part of the analysis or not very indicative of the situation regarding women's decision-making in climate change.

[42] For SB8 no list of participants was available on the website of UNFCCC.

PART B. Data collection on gender segmentation of education in natural sciences and technologies

Unlike data for women in specific decision-making positions, data on education, specifically university graduate numbers, are much more dispersed in nature. Therefore a pre-existing, EU-wide data source was required to supply the figures. A number of possibilities were investigated:

- Eurostat: the European Commission services' official data source

- The "*She Figures*" publications from DG Research

- *Key Data on Education in Europe 2009* from the Eurydice network

- *Education at a Glance 2010* from the OECD

The investigation concluded that the data provided by Eurostat[43] are by far the most comprehensive statistics available on the gender segmentation of education in the science and technology fields across the EU. The other sources focus on the development of indicators to serve the education field (rather than gender), and the OECD data cover only the 19 EU Member States which are also OECD members. Eurostat tracks a number of education statistics by field and by sex at the tertiary levels. The two categories of greatest interest for this work are "Tertiary students by field of education and sex", which covers students enrolled in programmes; and "Graduates in ISCED 3 to 6 by field of education and sex". Graduates are those who obtained a qualification during the data collection reference period. Since graduates include those who have actually completed their studies and are able to enter the labour market, it was decided to use these data rather than the enrolment statistics.

[43] The Eurostat database can be accessed at http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database, Education Statistics (educ_grad5). Data were last updated on 01.10.11 and the last year of reference is 2009.

Because these data are given in absolute figures for female, male and total graduates by field, the proportion of female graduates for each Member State and year has been calculated by dividing the number of females by the total.

The indicators on the area of women and education were adopted by the Council of European Union during Germany's Presidency in 2007. Two indicators are focused on investigation of gender segregation in education by field of study: indicators B1 and B3a. The purpose of indicator B1 is to show how many women compared with men graduate at ISCED level 5 and ISCED level 6 separately in science, mathematics, computing and engineering, manufacturing, construction (indicator B1: Proportion of female graduates and male graduates among all graduates in mathematics, the sciences and technical disciplines (tertiary education)). The purpose of indicator B3a is to show how many women compared with men graduate at ISCED level 5A and ISCED level 6 PhD separately by the following fields of study: teacher training and education science, humanities and arts, social sciences, business and law, science, mathematics and computing, engineering, manufacturing and construction, agriculture and veterinary, health and welfare and all fields in total (Indicator B3A: Proportion of female/male ISCED 5a-graduates of all ISCED 5a-graduates and proportion of female/male PhD graduates of all PhD graduates by broad field of study and total).

For the area of women and environment it is important to investigate gender segregation at the tertiary level of education (ISCED levels 5 and 6 together) in fields which are connected with environment: natural sciences (life and physical sciences) and technologies (engineering and engineering trades, manufacturing and processing, architecture and building, transport services and environmental protection).

The proposed education indicator for the area of women and environment is therefore more like a background indicator, where the focus is not on different levels of education (the less detailed levels of education have been used) but on fields connected more directly with environment. Accordingly more detailed levels of fields have been used.

ISCED levels of education

The Eurostat database contains data disaggregated by sex for graduates according to the International Standard Classification of Education (ISCED) 1997 version, which was developed by UNESCO.[44] These data are available for ISCED levels 3 to 6, which cover upper secondary through to second-stage tertiary academic programmes. The ISCED 1997 levels of education are given in the table below.

Table 2.1 ISCED Levels of Education 3 – 6

Code	Name of the Level
3	(Upper) secondary education
4	Post-secondary non-tertiary education
5	First stage of tertiary education (not leading directly to an advanced research qualification)
6	Second stage of tertiary education (leading to an advanced research qualification)

Source: *International Standard Classification of Education: ISCED 1997*, UNESCO, 1997

The levels most relevant for developing an indicator on the segmentation of education by sex in natural sciences and technologies are 5 and 6 – since it is these higher-level qualifications that frequently lead to careers with a decision-making authority. However, as explained in Chapter 3, recent research projects have identified that the relatively low number of women tertiary graduates in certain scientific and technological fields can be attributed to their failure to choose or perform well in these subjects at the upper secondary level, or ISCED 3-4. The data analysis section reviews some of the data that are available at these levels from Eurostat. Finally, the decision was taken to propose an indicator based on graduates from ISCED levels 5 and 6 only, for reasons of data availability and reliability.

[44] *International Standard Classification of Education: ISCED 1997*, UNESCO, 1997 http://www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm

Eurostat provides sex-disaggregated data on graduates by sub-field separately for ISCED levels 3, 4, 5 and 6; levels 5 and 6 are further disaggregated into two categories. Because these data – and the sex-disaggregated data in particular – are incomplete across the Member States, they do not provide a consistent and reliable picture of the actual situation across the EU 27. Although, as discussed above, it is proposed to consider only tertiary graduates at the combined levels 5 and 6 for the indicator on gender segmentation of education, data in the engineering field have been indicatively collected for ISCED levels 3, 4 and 6 separately.

As discussed in Chapter 3 of the main report, research suggests that the low proportion of female tertiary graduates in scientific fields has its roots in the choices made by girls at the secondary level, and is subject to a gender bias in the way scientific programmes are taught and presented by educational institutions and society overall. Data for female graduates in engineering from ISCED level-3 and 4 programmes at the upper secondary and post-secondary levels support this theory. Programmes classified ISCED 4 typically lead to a technical, occupational qualification. The percentage of females receiving these degrees is very low - below 10% for most years in the reference period 2005-2009 (see detailed data in Annex II). For ISCED 3 programmes, which typically lead to admission to tertiary studies in the field, the data are even more pronounced, with figures ranging from 4 to 6% for every year.

At the ISCED-6 level, Eurostat data are broken down into two sub-categories: ISCED 6 degrees that lead to an advanced research qualification and ISCED 6 PhD degrees. As with the ISCED 3 and 4 level data, the figures are sometimes missing for particular Member States and years, and should be taken indicatively. Nevertheless, the percentages of female graduates in engineering are considerable higher at these advanced levels, ranging from 17.5 – 22.8 % for ISCED 6 and 18.3 - 22.6% for ISCED 6 PhD. This implies that those women who do enter the engineering field are more likely than their male counterparts to seek advanced qualifications at the highest levels. Further research into the exact numbers and specific fields would be required to confirm this conclusion, however, and determine the extent to which it translates to female participation in careers related to policy-making and policy influence in sectors related to climate change.

It was therefore proposed to collect and use the Eurostat data aggregated for ISCED levels 5 and 6 for the analysis provided in the main report and to support the proposed indicators.

The ISCED system has been updated for 2011. The new classifications link tertiary education more closely to the Bologna Process[45] which recognises three cycles of higher education qualification based around the Bachelor/Master/Doctorate degrees. ISCED 2011 recognises 4 levels of tertiary education (levels 5 – 8) to allow for more distinctions between types of programmes. Eurostat is planning to change its system for data collection to ISCED 2011 in 2014 (to be published in 2015) with reference to the school year 2012/2013.

In the future, based on the new Eurostat data, the indicator on the segregation of education in natural sciences and technologies will be able to reflect differences between first-level university degrees (typically Bachelor level) and higher levels. This will provide more detailed information about whether women pursue advance research-oriented qualifications in the selected fields. However, the ways in which this distinction is important for climate change decision and policy-making will require further research to ascertain.

Fields of education

The Eurostat data are organised according to eight broad fields, each of which is broken down into more narrow sub-fields of education, which enable a good level of specification for this analysis. The seven sub-fields which best correspond to the theme "natural science and technologies" within the context of climate change are: life science and physical science (corresponding to "natural sciences"); and engineering and engineering trades, manufacturing and processing, architecture and building, transport services and environmental protection (corresponding to "technologies"). These fields are shown in bold in the table below and further description is provided.

[45] The Bologna Process is a system of academic degree standards agreed in 1999 by education ministers from 20 European countries.

Table 2.2: Fields of education used by Eurostat and description of those selected to measure "Natural science and technologies"

Code	Broad fields and sub-fields	Description in Eurostat Manual*
EF 14	Teacher training and education science	
EF 2	Humanities and arts	
EF3	Social science, business and law	
EF4	Science, mathematics and computing	
EF42	**Life science**	**Biology and biochemistry; Environmental science**
EF44	**Physical science**	**Physics; Chemistry; Earth science**
EF5	Engineering, manufacturing and construction	
EF52	**Engineering and engineering trades**	**Mechanics and metal work; Electricity and energy; Electronics and automation; Chemical and process; Motor vehicles, ships and aircraft**
EF54	**Manufacturing and processing**	**Food processing; Textiles, clothes, footwear, leather; Materials (wood, paper, plastic, glass); Mining and extraction**
EF58	**Architecture and building**	**Architecture and town planning; Building and civil engineering**
EF6	Agriculture and veterinary	
EF7	Health and welfare	
EF8	Services	
EF84	**Transport services**	**Transport services**
EF85	**Environmental protection**	**Environmental protection technology; Natural environments and wildlife; Community sanitation services**

*The Eurostat publication *Fields of Education and Training: Manual* establishes a common classification system for fields of education and training to be applied across countries, through rules to be observed and detailed lists of examples. Descriptions are given only for those fields selected for the analysis.

The data are generally available across all 27 Member States, along with EU 27 cumulative figures. There are occasional data gaps for some Member States, although data in the last two years 2008-2009 are mostly complete for all Member States. Also, there are no available data for some of the smaller Member States for some of the smaller fields, e.g. transport services, environmental protection.

As with the changes to ISCED levels, Eurostat is also planning to make changes to the fields of study it uses for data collection, with the result that some fields may be at a more detailed level than what is presently published. While it was not clear at the time of preparing the report whether those fields would be relevant to the indicator for gender and climate change, it should be considered for the future.

ANNEX II

DATA

PART A. Participation of women in climate change-related decision-making at the national level.

Table A.1: Share of women and men in climate change-related decision-making positions for the environment sector by level of position, 2011

	Level 1				Level 2				Level 3				Total 3 levels			
	% of women	Number of women	Number of men	Total positions	% of women	Number of women	Number of men	Total positions	% of women	Number of women	Number of men	Total positions	% of women	Number of women	Number of men	Total positions
EU 27	29.5	18	43	61	36.6	26	45	71	34.2	77	148	225	33.9	121	236	357
Belgium	50.0	2	2	4	0	0	5	5	12.5	3	21	24	15.2	5	28	33
Bulgaria	100	3	0	3	100	1	0	1	40.0	4	6	10	57.1	8	6	14
Czech Republic	0	0	1	1	33.3	1	2	3	33.3	5	10	15	31.6	6	13	19
Denmark	100	1	0	1	100	1	0	1	25.0	1	3	4	50.0	3	3	6
Germany	66.7	2	1	3	0	0	1	1	20.0	1	4	5	33.3	3	6	9
Estonia	100	1	0	1	33.3	2	4	6	40.0	4	6	10	41.2	7	10	17
Ireland	0	0	3	3	100	1	0	1	25.0	2	6	8	25.0	3	9	12
Greece	0	0	3	3	60.0	3	2	5	100	1	0	1	44.4	4	5	9
Spain	66.7	2	1	3	66.7	2	1	3	40.0	2	3	5	54.5	6	5	11
France	100	1	0	1	0	0	2	2	75.0	3	1	4	57.1	4	3	7
Italy	33.3	1	2	3	0	0	1	1	0	0	4	4	12.5	1	7	8
Cyprus	0	0	1	1	100	1	0	1	0	0	1	1	33.3	1	2	3
Latvia	0	0	1	1	0	0	1	1	50.0	5	5	10	41.7	5	7	12
Lithuania	0	0	3	3	0	0	1	1	33.3	3	6	9	23.1	3	10	13
Luxembourg	0	0	2	2	100	1	0	1	20.0	1	4	5	25.0	2	6	8
Hungary	0	0	1	1	0	0	3	3	37.5	3	5	8	25.0	3	9	12
Malta	0	0	1	1	0	0	1	1	16.7	1	5	6	12.5	1	7	8
Netherlands	50	1	1	2	16.7	1	5	6	21.4	3	11	14	22.7	5	17	22
Austria	0	0	1	1	0	0	5	5	29.7	11	26	37	25.6	11	32	43
Poland	20.0	1	4	5	100	1	0	1	85.7	6	1	7	61.5	8	5	13
Portugal	25.0	1	3	4	37.5	3	5	8	33.3	1	2	3	33.3	5	10	15
Romania	0	0	3	3	33.3	1	2	3	66.7	4	2	6	41.7	5	7	12
Slovenia	0	0	2	2	50.0	1	1	2	33.3	1	2	3	28.6	2	5	7
Slovakia	0	0	2	2	100	1	0	1	14.3	1	6	7	20.0	2	8	10
Finland	0	0	1	1	50.0	2	2	4	64.3	9	5	14	57.9	11	8	19
Sweden	50.0	1	1	2	66.7	2	1	3	66.7	2	1	3	62.5	5	3	8
United Kingdom	25.0	1	3	4	100	1	0	1	0	0	2	2	28.6	2	5	7

Source: data collected from Member States August - October 2011

Table A.2: Share of women and men in climate change-related decision-making positions for the transport sector by level of position, 2011

	Level 1				Level 2				Level 3				Total 3 levels			
	% of women	Number of women	Number of men	Total positions	% of women	Number of women	Number of men	Total positions	% of women	Number of women	Number of men	Total positions	% of women	Number of women	Number of men	Total positions
EU 27	16.1	10	52	62	20.9	9	34	43	21.7	33	119	152	20.2	52	205	257
Belgium	40.0	2	3	5	0	0	4	4	15.0	3	17	20	17.2	5	24	29
Bulgaria	0	0	2	2	0	0	1	1	66.7	2	1	3	33.3	2	4	6
Czech Republic	0	0	1	1	0	0	2	2	14.3	1	6	7	10.0	1	9	10
Denmark	0	0	1	1	0	0	1	1	14.3	1	6	7	11.1	1	8	9
Germany	0	0	4	4	0	0	2	2	0	0	5	5	0	0	11	11
Estonia	0	0	1	1	50.0	1	1	2	0	0	3	3	16.7	1	5	6
Ireland	0	0	2	2	0	0	1	1	42.9	6	8	14	35.3	6	11	17
Greece	0	0	2	2	0	0	1	1	100	1	0	1	25.0	1	3	4
Spain	0	0	3	3	33.3	1	2	3	20.0	1	4	5	18.2	2	9	11
France	50.0	1	1	2	0	0	2	2	16.7	1	5	6	20.0	2	8	10
Italy	0	0	5	5	0	0	1	1	0	0	6	6	0	0	12	12
Cyprus	0	0	1	1	0	0	1	1	0	0	3	3	0	0	5	5
Latvia	0	0	1	1	0	0	1	1	50.0	3	3	6	37.5	3	5	8
Lithuania	0	0	3	3	0	0	1	1	0	0	3	3	0	0	7	7
Luxembourg	0	0	2	2	100	1	0	1	0	0	4	4	14.3	1	6	7
Hungary	0	0	1	1	0	0	2	2	0	0	4	4	0	0	7	7
Malta	0	0	1	1	0	0	1	1	25.0	1	3	4	16.7	1	5	6
Netherlands	50.0	1	1	2	33.3	1	2	3	0	0	6	6	18.2	2	9	11
Austria	100	1	0	1	50.0	1	1	2	11.1	1	8	9	25.0	3	9	12
Poland	20.0	1	4	5	100	1	0	1	37.5	3	5	8	35.7	5	9	14
Portugal	0	0	2	2	100	1	0	1	0	0	6	6	11.1	1	8	9
Romania	33.3	1	2	3	0	0	3	3	80.0	4	1	5	45.5	5	6	11
Slovenia	0	0	2	2	0	0	1	1	20.0	1	4	5	12.5	1	7	8
Slovakia	0	0	3	3	0	0	1	1	25.0	1	3	4	12.5	1	7	8
Finland	100	1	0	1	50.0	1	1	2	50.0	1	1	2	60.0	3	2	5
Sweden	50.0	1	1	2	0	0	1	1	66.7	2	1	3	50.0	3	3	6
United Kingdom	25.0	1	3	4	100	1	0	1	0	0	3	3	25.0	2	6	8

Source: data collected from Member States August - October 2011

Table A.3: Share of women and men in climate change-related decision-making positions for the energy sector by level of position, 2011

	Level 1				Level 2				Level 3				Total 3 levels			
	% of women	Number of women	Number of men	Total positions	% of women	Number of women	Number of men	Total positions	% of women	Number of women	Number of men	Total positions	% of women	Number of women	Number of men	Total positions
EU 27	11.3	6	47	53	16.7	7	35	42	20.6	22	85	107	17.3	35	167	202
Belgium	50.0	2	2	4	16.7	1	5	6	40.0	6	9	15	36.0	9	16	25
Bulgaria	0	0	2	2	0	0	1	1	40.0	2	3	5	25.0	2	6	8
Czech Republic	0	0	1	1	0	0	1	1	16.7	1	5	6	12.5	1	7	8
Denmark	100	1	0	1	0	0	1	1	28.6	2	5	7	33.3	3	6	9
Germany	0	0	4	4	0	0	3	3	20.0	1	4	5	8.3	1	11	12
Estonia	0	0	1	1	50.0	1	1	2	0	0	1	1	25.0	1	3	4
Ireland	0	0	2	2	50.0	1	1	2	28.6	2	5	7	27.3	3	8	11
Greece	0	0	3	3	100	1	0	1	0	0	2	2	16.7	1	5	6
Spain	0	0	2	2	0	0	3	3	0	0	3	3	0	0	8	8
France	100	1	0	1	0	0	1	1	0	0	2	2	25.0	1	3	4
Italy	0	0	2	2	:	:	:	:	33.3	1	2	3	20.0	1	4	5
Cyprus	100	1	0	1	100	1	0	1	0	0	1	1	66.7	2	1	3
Latvia	0	0	1	1	0	0	1	1	25.0	1	3	4	16.7	1	5	6
Lithuania	0	0	3	3	0	0	1	1	40.0	2	3	5	22.2	2	7	9
Luxembourg	0	0	1	1	0	0	1	1	0	0	4	4	0	0	6	6
Hungary	0	0	1	1	0	0	3	3	16.7	1	5	6	10.0	1	9	10
Malta	0	0	1	1	0	0	1	1	0	0	4	4	0	0	6	6
Netherlands	0	0	2	2	0	0	2	2	0	0	2	2	0	0	6	6
Austria	0	0	1	1	0	0	1	1	0	0	6	6	0	0	8	8
Poland	0	0	4	4	0	0	1	1	33.3	1	2	3	12.5	1	7	8
Portugal	0	0	2	2	0	0	2	2	0	0	1	1	0	0	5	5
Romania	0	0	2	2	:	:	:	:	:	:	:	:	0	0	2	2
Slovenia	0	0	2	2	0	0	1	1	0	0	3	3	0	0	6	6
Slovakia	0	0	2	2	0	0	2	2	25.0	1	3	4	12.5	1	7	8
Finland	0	0	1	1	0	0	2	2	33.3	1	2	3	16.7	1	5	6
Sweden	50.0	1	1	2	100	1	0	1	0	0	2	2	40.0	2	3	5
United Kingdom	0	0	4	4	100	1	0	1	0	0	3	3	12.5	1	7	8

Source: data collected from Member States August - October 2011

Note: Data are not available: for Italy, the level-2 position in the energy authority was vacant when the report was prepared. For the energy sector in Romania, level-2 data have not been confirmed and level-3 data were unavailable from the institution.

Table A.4: Share of women and men in climate change-related decision-making positions for all three sectors by level of position, 2011

	Level 1				Level 2				Level 3				Total 3 levels			
	% of women	Number of women	Number of men	Total positions	% of women	Number of women	Number of men	Total positions	% of women	Number of women	Number of men	Total positions	% of women	Number of women	Number of men	Total positions
EU 27	18.2	29	130	159	27.0	41	111	152	27.6	132	347	479	25.6	202	588	790
Belgium	50.0	5	5	10	7.1	1	13	14	20.7	12	46	58	22.0	18	64	82
Bulgaria	42.9	3	4	7	33.3	1	2	3	44.4	8	10	18	42.9	12	16	28
Czech Republic	0	0	3	3	16.7	1	5	6	25.0	7	21	28	21.6	8	29	37
Denmark	66.7	2	1	3	33.3	1	2	3	22.2	4	14	18	29.2	7	17	24
Germany	18.2	2	9	11	0	0	6	6	13.3	2	13	15	12.5	4	28	32
Estonia	50.0	1	1	2	33.3	3	6	9	28.6	4	10	14	32.0	8	17	25
Ireland	0	0	7	7	50.0	2	2	4	34.5	10	19	29	30.0	12	28	40
Greece	0	0	5	5	57.1	4	3	7	50.0	2	2	4	37.5	6	10	16
Spain	25.0	2	6	8	33.3	3	6	9	23.1	3	10	13	26.7	8	22	30
France	50.0	1	1	2	0	0	5	5	33.3	4	8	12	26.3	5	14	19
Italy	10.0	1	9	10	0	0	2	2	7.7	1	12	13	8.0	2	23	25
Cyprus	33.3	1	2	3	66.7	2	1	3	0	0	5	5	27.3	3	8	11
Latvia	0	0	3	3	0	0	3	3	45.0	9	11	20	34.6	9	17	26
Lithuania	0	0	9	9	0	0	3	3	29.4	5	12	17	17.2	5	24	29
Luxembourg	0	0	3	3	66.7	2	1	3	7.7	1	12	13	15.8	3	16	19
Hungary	0	0	2	2	0	0	8	8	22.2	4	14	18	14.3	4	24	28
Malta	0	0	2	2	0	0	2	2	20.0	2	8	10	14.3	2	12	14
Netherlands	25.0	1	3	4	20.0	2	8	10	13.6	3	19	22	16.7	6	30	36
Austria	33.3	1	2	3	12.5	1	7	8	23.1	12	40	52	22.2	14	49	63
Poland	14.3	2	12	14	66.7	2	1	3	55.6	10	8	18	40.0	14	21	35
Portugal	14.3	1	6	7	36.4	4	7	11	10.0	1	9	10	21.4	6	22	28
Romania	12.5	1	7	8	16.7	1	5	6	72.7	8	3	11	40.0	10	15	25
Slovenia	0	0	6	6	25.0	1	3	4	18.2	2	9	11	14.3	3	18	21
Slovakia	0	0	7	7	25.0	1	3	4	20.0	3	12	15	15.4	4	22	26
Finland	33.3	1	2	3	37.5	3	5	8	57.9	11	8	19	50.0	15	15	30
Sweden	40.0	2	3	5	60.0	3	2	5	50.0	4	4	8	50.0	9	9	18
United Kingdom	16.7	2	10	12	100	3	0	3	0	0	8	8	21.7	5	18	23

Source: data collected from Member States August - October 2011

Note: For Italy, the level-2 position in the energy authority was vacant when the report was prepared. For the energy sector in Romania, level-2 data have not been confirmed and level-3 data were unavailable from the institution. According to the available data by sector, in ten Member States (BE, EE, EL, FR, HU, LU, MT, NL, PT and SE) some ministries or institutions work in several sectors. Relevant persons have therefore been included under all relevant sectors. For calculating the numbers by level or the total (all three sectors together), those persons have been taken into account only once. Therefore the summary numbers by sector and by level or the total may be different.

Table A.5: Share of women and men in climate change-related decision-making positions on all levels of positions by sector, 2011

	Environment				Transport				Energy				Total for 3 sectors			
	% of women	Number of women	Number of men	Total positions	% of women	Number of women	Number of men	Total positions	% of women	Number of women	Number of men	Total positions	% of women	Number of women	Number of men	Total positions
EU 27	33.9	121	236	357	20.2	52	205	257	17.3	35	167	202	25.6	202	588	790
Belgium	15.2	5	28	33	17.2	5	24	29	36.0	9	16	25	22.0	18	64	82
Bulgaria	57.1	8	6	14	33.3	2	4	6	25.0	2	6	8	42.9	12	16	28
Czech Republic	31.6	6	13	19	10.0	1	9	10	12.5	1	7	8	21.6	8	29	37
Denmark	50.0	3	3	6	11.1	1	8	9	33.3	3	6	9	29.2	7	17	24
Germany	33.3	3	6	9	0	0	11	11	8.3	1	11	12	12.5	4	28	32
Estonia	41.2	7	10	17	16.7	1	5	6	25.0	1	3	4	32.0	8	17	25
Ireland	25.0	3	9	12	35.3	6	11	17	27.3	3	8	11	30.0	12	28	40
Greece	44.4	4	5	9	25.0	1	3	4	16.7	1	5	6	37.5	6	10	16
Spain	54.5	6	5	11	18.2	2	9	11	0	0	8	8	26.7	8	22	30
France	57.1	4	3	7	20.0	2	8	10	25.0	1	3	4	26.3	5	14	19
Italy	12.5	1	7	8	0	0	12	12	20.0	1	4	5	8.0	2	23	25
Cyprus	33.3	1	2	3	0	0	5	5	66.7	2	1	3	27.3	3	8	11
Latvia	41.7	5	7	12	37.5	3	5	8	16.7	1	5	6	34.6	9	17	26
Lithuania	23.1	3	10	13	0	0	7	7	22.2	2	7	9	17.2	5	24	29
Luxembourg	25.0	2	6	8	14.3	1	6	7	0	0	6	6	15.8	3	16	19
Hungary	25.0	3	9	12	0	0	7	7	10.0	1	9	10	14.3	4	24	28
Malta	12.5	1	7	8	16.7	1	5	6	0	0	6	6	14.3	2	12	14
Netherlands	22.7	5	17	22	18.2	2	9	11	0	0	6	6	16.7	6	30	36
Austria	25.6	11	32	43	25.0	3	9	12	0	0	8	8	22.2	14	49	63
Poland	61.5	8	5	13	35.7	5	9	14	12.5	1	7	8	40.0	14	21	35
Portugal	33.3	5	10	15	11.1	1	8	9	0	0	5	5	21.4	6	22	28
Romania	41.7	5	7	12	45.5	5	6	11	0	0	2	2	40.0	10	15	25
Slovenia	28.6	2	5	7	12.5	1	7	8	0	0	6	6	14.3	3	18	21
Slovakia	20.0	2	8	10	12.5	1	7	8	12.5	1	7	8	15.4	4	22	26
Finland	57.9	11	8	19	60.0	3	2	5	16.7	1	5	6	50.0	15	15	30
Sweden	62.5	5	3	8	50.0	3	3	6	40.0	2	3	5	50.0	9	9	18
United Kingdom	28.6	2	5	7	25.0	2	6	8	12.5	1	7	8	21.7	5	18	23

Source: data collected from Member States August - October 2011

Note: For Italy, the level-2 position in the energy authority was vacant when the report was prepared. For the energy sector in Romania, level-2 data have not been confirmed and level-3 data were unavailable from the institution.

PART B. Participation of women in climate change-related decision-making at the EU level.

Table B.1: Share of women and men in climate change-related decision-making positions in the European Commission by DG, 2011

DG	Level	Title of position	Sex	Total positions	Number of women	% of women
DG Environment	Level 1	Commissioner	M	1	0	0
	Level 2	Director-General	M	1	0	0
	Level 3	Directors:		6	2	33.3
		Directorate A: Legal Affairs and Cohesion	M			
		Directorate B: Nature, Biodiversity and Land Use	F			
		Directorate C: Sustainable Resources Management, Industry and Air	F			
		Directorate D: Water, Marine Environment and Chemicals	M			
		Directorate E: International Affairs, LIFE and Eco-innovation	M			
		Directorate F: Strategy	M			
DG Mobility and Transport	Level 1	Commissioner	M	1	0	0
	Level 2	Director-General Deputy Director-General with responsibility for Directorates B, C and D	M M	2	0	0
	Level 3	Directors:		5	1	20.0
		Directorate A: Policy Coordination	F			
		Directorate B: European Mobility Network	M			
		Directorate C: Innovative and Sustainable Mobility	M			
		Directorate D: Logistics, Maritime and Land Transport	M			
		Directorate E: Aviation	M			
DG Energy	Level 1	Commissioner	M	1	0	0
	Level 2	Director-General	M	1	0	0
	Level 3	Directors:		3	2	66.7
		Directorate A: Policy Coordination	F			
		Directorate C: Innovative and Sustainable Mobility	F			
		Directorate D: Logistics, Maritime and Land Transport	M			

DG Climate Action	Level 1	Commissioner	F	1	1	1
	Level 2	Director-General	M	1	0	0
	Level 3	Directors:				
		Directorate A: International and Climate Strategy	M			
		Directorate B: European and International Carbon Market	F			
		Directorate C: Mainstreaming Adaptation and Low Carbon Technology	M	3	1	33.3

Source: data collected from the European Commission website:
http://ec.europa.eu/contact/members_en.htm

Table B.2: Share of women and men in climate change-related decision-making positions in the European Commission by level of position, 2011

	% women	Number of women	Number of men	Total positions
Level 1	25.0	1	3	4
Level 2	0	0	5	5
Level 3	35.3	6	11	17
All three levels	26.9	7	19	26

Source: data collected from European Commission website:
http://ec.europa.eu/contact/members_en.htm

Table B.3: Share of women and men in climate change-related decision-making positions in the European Commission and the European Parliament by level of sector, 2011

	% women	Number of women	Number of men	Total positions
DGs of European Commission	26.9	7	19	26
DG Environment	25.0	2	6	8
DG Mobility & Transport	12.5	1	7	8
DG Energy	40.0	2	3	5
DG Climate Action	40.0	2	3	5
Committees of European Parliament	39.3	64	99	163
Environment, Public Health and Food Safety Committee	51.6	33	31	64
Transport and Tourism Committee	25.0	11	33	44
Industry, Research and Energy Committee	36.4	20	35	55

Source: data collected from European Commission website: http://ec.europa.eu/contact/members_en.htm and from the European Parliament website: http://www.europarl.europa.eu/activities/committees/committeesList.do

PART C. Participation of women in climate change-related decision-making at the international level.

Table C.1: Percentage of women and total number of positions in COP delegations, 1996-2010

	COP2, 1996		COP6, 2000		COP11, 2005		COP12, 2006		COP13, 2007		COP14, 2008		COP15, 2009		COP16, 2010	
	% women	Total positions	% women	Total positions	% women	Total positions	% women	Total positions	% women	Total positions	% women	Total positions	% women	Total positions	% women	Total positions
Total	24.3	251	32.4	749	33.1	755	38.5	652	35.8	918	37.8	1689	36.8	2715	40.5	936
European Union	33.3	18	28.9	76	37.5	88	42.2	83	40.0	130	37.3	185	35.9	309	48.0	100
Belgium	14.3	7	25.0	40	27.3	44	24.3	37	31.4	35	28.3	46	31.2	93	34.6	104
Bulgaria	33.3	3	100	2	42.9	7	66.7	3	22.2	9	50.0	4	53.3	15	57.1	7
Czech Republic	0	6	50.0	12	44.4	9	33.3	12	23.1	13	27.0	37	32.1	53	60.0	15
Denmark	23.1	13	38.5	39	31.3	48	34.1	41	29.6	81	30.4	207	35.6	526	35.7	56
Germany	24.0	25	33.8	74	29.8	47	34.6	52	32.4	68	33.6	116	41.4	128	35.9	78
Estonia	0	2	0	3	28.6	7	33.3	6	16.7	6	20.0	5	27.3	22	25.0	8
Ireland	26.7	15	36.8	19	22.7	22	28.6	14	34.6	26	32.4	34	30.4	46	11.1	18
Greece	28.6	7	43.8	16	45.5	11	0	6	38.5	13	50.0	24	43.8	80	40.0	10
Spain	25.0	8	20.7	29	44.0	50	52.8	36	51.1	45	44.6	65	40.7	162	47.4	38
France	21.4	14	27.8	72	27.9	61	44.7	38	24.6	69	35.8	162	25.2	274	31.6	95
Italy	7.1	14	28.6	42	34.4	61	29.3	41	33.3	57	46.0	50	45.9	61	50.8	59
Cyprus	0	0	0	4	0	3	0	2	0	2	33.3	6	37.9	29	0	6
Latvia	50.0	2	28.6	7	37.5	8	37.5	8	83.3	6	57.1	7	55.2	29	75.0	4
Lithuania	0	3	0	3	40.0	5	33.3	3	40.0	5	60.0	10	42.4	33	50.0	6
Luxembourg	0	3	0	6	0	7	16.7	6	14.3	7	0	3	28.6	28	22.2	9
Hungary	25.0	4	0	12	30.0	10	28.6	7	28.6	7	27.3	11	28.1	32	58.3	24
Malta	33.3	3	0	5	33.3	3	0	1	66.7	3	50.0	6	22.2	18	25.0	4
Netherlands	20.0	15	34.6	52	27.3	33	33.3	21	39.4	33	30.6	49	35.5	76	40.5	37
Austria	7.7	13	25.9	27	29.4	34	30.0	20	25.8	31	32.4	34	28.3	53	21.4	28
Poland	27.3	11	31.3	32	17.6	17	30.8	39	35.3	34	37.9	390	39.5	81	38.3	47
Portugal	70.0	10	46.4	28	18.8	16	16.7	12	39.6	53	30.8	26	25.9	54	42.1	19
Romania	0	4	66.7	9	33.3	9	0	2	10.0	10	42.9	7	42.2	64	53.3	15
Slovenia	0	3	22.2	9	33.3	6	40.0	5	26.7	15	55.6	9	42.9	28	22.2	9
Slovakia	50.0	4	25.0	4	40.0	5	50.0	8	33.3	6	35.7	14	34.5	29	28.6	7
Finland	33.3	12	46.5	43	35.0	40	65.7	67	55.0	40	58.5	53	50.0	74	53.1	32
Sweden	35.7	14	48.9	45	44.7	38	57.1	28	48.1	52	53.8	78	47.3	207	49.1	55
United Kingdom	22.2	18	25.6	39	37.9	66	27.8	54	33.9	62	43.1	51	37.8	111	47.8	46

Source: http://unfccc.int (EU and Member State lists of participants, collected in August 2011).

Note: European Union refers to the specific delegation of the European Union, not the total of the Member State delegations. "Total" is the average and total number of positions for the Member State and EU delegations.

Table C.2: Number of women and total number of positions in COP delegations, 1996-2010

	COP2, 1996		COP6, 2000		COP11, 2005		COP12, 2006		COP13, 2007		COP14, 2008		COP15, 2009		COP16, 2010	
	Number of women	Total positions	Number of women	Total positions	Number of women	Total positions	Number of women	Total positions	Number of women	Total positions	Number of women	Total positions	Number of women	Total positions	Number of women	Total positions
Total	61	251	243	749	250	755	251	652	329	918	638	1689	999	2715	379	936
European Union	6	18	22	76	33	88	35	83	52	130	69	185	111	309	48	100
Belgium	1	7	10	40	12	44	9	37	11	35	13	46	29	93	36	104
Bulgaria	1	3	2	2	3	7	2	3	2	9	2	4	8	15	4	7
Czech Republic	0	6	6	12	4	9	4	12	3	13	10	37	17	53	9	15
Denmark	3	13	15	39	15	48	14	41	24	81	63	207	187	526	20	56
Germany	6	25	25	74	14	47	18	52	22	68	39	116	53	128	28	78
Estonia	0	2	0	3	2	7	2	6	1	6	1	5	6	22	2	8
Ireland	4	15	7	19	5	22	4	14	9	26	11	34	14	46	2	18
Greece	2	7	7	16	5	11	0	6	5	13	12	24	35	80	4	10
Spain	2	8	6	29	22	50	19	36	23	45	29	65	66	162	18	38
France	3	14	20	72	17	61	17	38	17	69	58	162	69	274	30	95
Italy	1	14	12	42	21	61	12	41	19	57	23	50	28	61	30	59
Cyprus	0	0	0	4	0	3	0	2	0	2	2	6	11	29	0	6
Latvia	1	2	2	7	3	8	3	8	5	6	4	7	16	29	3	4
Lithuania	0	3	0	3	2	5	1	3	2	5	6	10	14	33	3	6
Luxembourg	0	3	0	6	0	7	1	6	1	7	0	3	8	28	2	9
Hungary	1	4	0	12	3	10	2	7	2	7	3	11	9	32	14	24
Malta	1	3	0	5	1	3	0	1	2	3	3	6	4	18	1	4
Netherlands	3	15	18	52	9	33	7	21	13	33	15	49	27	76	15	37
Austria	1	13	7	27	10	34	6	20	8	31	11	34	15	53	6	28
Poland	3	11	10	32	3	17	12	39	12	34	148	390	32	81	18	47
Portugal	7	10	13	28	3	16	2	12	21	53	8	26	14	54	8	19
Romania	0	4	6	9	3	9	0	2	1	10	3	7	27	64	8	15
Slovenia	0	3	2	9	2	6	2	5	4	15	5	9	12	28	2	9
Slovakia	2	4	1	4	2	5	4	8	2	6	5	14	10	29	2	7
Finland	4	12	20	43	14	40	44	67	22	40	31	53	37	74	17	32
Sweden	5	14	22	45	17	38	16	28	25	52	42	78	98	207	27	55
United Kingdom	4	18	10	39	25	66	15	54	21	62	22	51	42	111	22	46

Source: http://unfccc.int (EU and Member State lists of participants, collected in August 2011).

Note: European Union refers to the specific delegation of the European Union, not the total of the Member State delegations. "Total" is the average and total number of positions for the Member State and EU delegations.

Table C.3: Percentage of women and total number of positions in SB delegations, 1996-2011

	SB2, 1996		SB12, 2000		SB24, 2006		SB26, 2007		SB28, 2008		SB30, 2009		SB32, 2010		SB34, 2011	
	% women	Total positions	% women	Total positions	% women	Total positions	% women	Total positions	% women	Total positions	% women	Total positions	% women	Total positions	% women	Total positions
Total	24.6	122	32.6	307	38.2	353	43.5	418	46.2	502	42.7	604	45.4	474	44.0	427
European Union	25.0	8	37.0	27	34.0	50	46.0	50	43.1	65	30.0	70	34.9	43	40.5	42
Belgium	:	:	25.0	8	18.2	11	15.4	13	33.3	12	29.6	27	38.0	50	30.6	36
Bulgaria	0	1	0	1	100	1	50.0	2	33.3	3	50.0	4	100	2	66.7	3
Czech Republic	0	2	20.0	5	33.3	3	83.3	6	42.1	19	50.0	22	41.7	12	50.0	6
Denmark	25.0	8	25.0	20	33.3	18	40.9	22	50.9	53	37.4	99	35.7	28	42.9	35
Germany	28.6	14	20.0	45	35.6	45	38.7	62	33.3	57	41.4	70	42.9	49	36.4	44
Estonia	0	1	0	1	100	1	100	1	100	1	100	1	100	1	100	1
Ireland	33.3	3	66.7	3	22.2	9	18.2	22	41.7	12	23.1	13	33.3	9	27.3	11
Greece	25.0	4	60.0	5	42.9	7	:	:	40.0	5	33.3	3	66.7	3	0	1
Spain	25.0	4	0	3	64.3	14	64.3	14	57.9	19	73.3	15	61.8	34	76.5	17
France	11.1	9	28.6	28	29.4	17	33.3	24	35.7	42	41.9	43	50.0	38	39.4	33
Italy	7.7	13	29.4	17	41.7	12	41.7	12	61.5	13	65.0	20	72.2	18	66.7	12
Cyprus	:	:	:	:	:	:	:	:	:	:	100	1	50.0	2	0	1
Latvia	100	1	100	1	75.0	4	100	3	100	2	100	2	100	4	100	4
Lithuania	:	:	0	1	0	1	100	1	:	:	:	:	66.7	3	75.0	4
Luxembourg	0	1	0	1	0	3	0	4	0	3	0	3	50.0	2	0	1
Hungary	0	2	0	1	33.3	3	50.0	4	75.0	4	50.0	4	50.0	6	65.2	23
Malta	33.3	3	:	:	0	1	33.3	3	66.7	3	20.0	5	0	2	50.0	2
Netherlands	7.7	13	33.3	30	21.1	19	25.0	12	20.0	15	17.4	23	15.0	20	21.4	14
Austria	33.3	3	27.3	11	54.2	24	36.4	11	60.0	10	46.2	13	15.4	13	9.1	11
Poland	20.0	5	36.4	11	40.0	5	84.6	13	53.7	41	52.6	19	34.5	29	37.1	35
Portugal	66.7	3	48.0	25	12.5	8	40.0	25	33.3	6	33.3	9	28.6	7	50.0	4
Romania	100	1	50.0	2	0	1	0	1	50.0	4	0	2	60.0	5	50.0	4
Slovenia	0	1	0	1	50.0	4	33.3	12	50.0	14	50.0	2	50.0	4	75.0	4
Slovakia	0	2	0	1	100	2	66.7	6	100	3	60.0	5	83.3	6	66.7	3
Finland	50.0	6	35.7	14	50.0	30	52.4	21	68.4	19	60.0	25	61.9	21	56.5	23
Sweden	57.1	7	51.9	27	58.8	17	51.6	31	48.6	37	53.2	62	53.3	30	57.1	28
United Kingdom	28.6	7	27.8	18	32.6	43	48.8	43	50.0	40	52.4	42	51.5	33	32.0	25

Source: http://unfccc.int (EU and Member State lists of participants, collected in August 2011).

Note: European Union refers to the specific delegation of the European Union, not the total of the Member State delegations. "Total" is the average and total number of positions for the Member State and EU delegations.

":" = delegation did not participate in the meeting

Table C.4: Number of women and total number of positions in SB delegations, 1996-2011

	SB2, 1996		SB12, 2000		SB24, 2006		SB26, 2007		SB28, 2008		SB30, 2009		SB32, 2010		SB34, 2011	
	Number of women	Total positions	Number of women	Total positions	Number of women	Total positions	Number of women	Total positions	Number of women	Total positions	Number of women	Total positions	Number of women	Total positions	Number of women	Total positions
Total	30	122	100	307	135	353	182	418	232	502	258	604	215	474	188	427
European Union	2	8	10	27	17	50	23	50	28	65	21	70	15	43	17	42
Belgium	:	:	2	8	2	11	2	13	4	12	8	27	19	50	11	36
Bulgaria	0	1	0	1	1	1	1	2	1	3	2	4	2	2	2	3
Czech Republic	0	2	1	5	1	3	5	6	8	19	11	22	5	12	3	6
Denmark	2	8	5	20	6	18	9	22	27	53	37	99	10	28	15	35
Germany	4	14	9	45	16	45	24	62	19	57	29	70	21	49	16	44
Estonia	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1
Ireland	1	3	2	3	2	9	4	22	5	12	3	13	3	9	3	11
Greece	1	4	3	5	3	7	:	:	2	5	1	3	2	3	0	1
Spain	1	4	0	3	9	14	9	14	11	19	11	15	21	34	13	17
France	1	9	8	28	5	17	8	24	15	42	18	43	19	38	13	33
Italy	1	13	5	17	5	12	5	12	8	13	13	20	13	18	8	12
Cyprus	:	:	:	:	:	:	:	:	:	:	1	1	1	2	0	1
Latvia	1	1	1	1	3	4	3	3	2	2	2	2	4	4	4	4
Lithuania	:	:	0	1	0	1	1	1	:	:	:	:	2	3	3	4
Luxembourg	0	1	0	1	0	3	0	4	0	3	0	3	1	2	0	1
Hungary	0	2	0	1	1	3	2	4	3	4	2	4	3	6	15	23
Malta	1	3	:	:	0	1	1	3	2	3	1	5	0	2	1	2
Netherlands	1	13	10	30	4	19	3	12	3	15	4	23	3	20	3	14
Austria	1	3	3	11	13	24	4	11	6	10	6	13	2	13	1	11
Poland	1	5	4	11	2	5	11	13	22	41	10	19	10	29	13	35
Portugal	2	3	12	25	1	8	10	25	2	6	3	9	2	7	2	4
Romania	1	1	1	2	0	1	0	1	2	4	0	2	3	5	2	4
Slovenia	0	1	0	1	2	4	4	12	7	14	1	2	2	4	3	4
Slovakia	0	2	0	1	2	2	4	6	3	3	3	5	5	6	2	3
Finland	3	6	5	14	15	30	11	21	13	19	15	25	13	21	13	23
Sweden	4	7	14	27	10	17	16	31	18	37	33	62	16	30	16	28
United Kingdom	2	7	5	18	14	43	21	43	20	40	22	42	17	33	8	25

Source: http://unfccc.int (EU and Member State lists of participants, collected in August 2011).

Note: Since the data are for SB meetings that were held independently from COP meetings, the years are not sequential. European Union refers to the specific delegation of the European Union, not the total of the Member State delegations. "Total" is the average and total number of positions for the Member State and EU delegations.

":" = delegation did not participate in the meeting

Table C.5: Number of women heads in SB delegations, 1996-2011

	SB2 1996	SB6 1997	SB7 1997	SB10 1999	SB12 2000	SB13 2000	SB16 2002	SB18 2003	SB20 2004	SB22 2005	SB24 2006	SB26 2007	SB28 2008	SB30 2009	SB32 2010	SB34 2011
	Number of women	Number of women	Number of women	Number of women	Number of women	Number of women	Number of women	Number of women	Number of women	Number of women	Number of women	Number of women	Number of women	Number of women	Number of women	Number of women
Average	16.0	26.9	15.4	23.1	15.4	26.9	32.0	25.0	30.8	34.8	33.3	38.5	34.6	25.9	46.4	39.3
Total	4	7	4	6	4	7	8	6	8	8	9	10	9	7	13	11
European Union	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
Belgium	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bulgaria	0	1	0	0	0	1	1	1	0	1	1	0	1	0	1	0
Czech Republic	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
Denmark	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Germany	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Estonia	0	0	0	0	0	0	0	0	1	:	1	1	1	1	1	1
Ireland	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0
Greece	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Spain	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
France	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0
Italy	0	0	0	0	0	0	1	0	1	1	1	1	1	0	1	1
Cyprus	:	:	:	:	:	:	:	:	:	:	:	:	:	1	1	0
Latvia	1	1	1	1	1	0	1	1	1	:	0	1	1	1	1	1
Lithuania	:	:	0	0	0	0	0	0	0	1	0	1	:	:	1	1
Luxembourg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hungary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Malta	0	0	0	0	:	:	:	:	:	:	0	0	0	0	0	1
Netherlands	0	0	0	0	0	0	1	1	1	0	1	1	0	0	0	0
Austria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Poland	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	0
Portugal	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0
Romania	1	1	:	:	1	1	:	:	0	0	0	0	0	0	1	1
Slovenia	0	0	0	0	0	0	0	0	0	:	0	0	0	0	0	0
Slovakia	0	1	0	1	0	0	0	0	0	1	1	1	1	1	1	1
Finland	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Sweden	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United Kingdom	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	1

Source: http://unfccc.int (EU and Member State lists of participants, collected in August 2011).

Note: Since the data are for SB meetings that were held independently from COP meetings, the years are not sequential. There are no data available for SB8 1998. European Union refers to the specific delegation of the European Union, not the total of the Member State delegations. "Average" is an average and "Total" is the total number for the female heads of Member State and EU delegations.

":"= delegation did not participate in the meeting

PART D. The segmentation of education by sex in natural sciences and technological fields relevant to climate change in tertiary education

Table D.1: Percentage of women graduates in the life sciences of total graduates on third level of education (ISCED 5-6), 2005-2009

	2005	2006	2007	2008	2009
EU 27	61.0	61.9	63.3	63.2	61.8
Belgium	59.4	58.8	56.1	52.1	56.9
Bulgaria	75.2	73.6	76.1	77.3	72.5
Czech Republic	66.4	72.3	71.3	69.8	70.5
Denmark	57.9	60.6	61.3	61.7	62.5
Germany	59.1	63.3	65.6	66.6	66.6
Estonia	76.8	78.8	75.0	79.3	74.8
Ireland	69.0	:	:	:	58.1
Greece	50.7	:	70.4	68.6	:
Spain	67.0	66.0	67.2	67.4	67.3
France	60.3	61.9	62.7	61.9	63.2
Italy	68.2	69.0	70.1	70.7	71.1
Cyprus	66.7	83.3	50.0	71.4	61.5
Latvia	73.1	79.0	75.4	82.4	77.2
Lithuania	68.3	73.2	64.2	73.2	65.0
Luxembourg	:	:	:	:	:
Hungary	66.4	63.7	66.0	65.3	66.2
Malta	0	40.0	55.0	39.0	23.4
Netherlands	59.1	59.5	58.7	59.0	58.0
Austria	68.1	64.0	70.2	67.3	68.5
Poland	84.2	71.7	71.0	74.0	72.4
Portugal	71.4	72.4	71.1	71.9	70.4
Romania	65.0	63.3	73.5	76.6	45.7
Slovenia	73.6	76.8	70.4	73.6	71.2
Slovakia	69.0	67.8	69.0	69.1	68.4
Finland	75.3	74.8	73.2	79.1	76.4
Sweden	67.0	66.8	65.8	63.9	66.1
United Kingdom	50.8	50.3	52.0	50.0	50.8

Source: Eurostat, Education Statistics (educ_grad5)

Note: ":" = data are not available

Table D.2: Percentage of women graduates in the physical sciences of total graduates in that field on third level of education (ISCED 5-6), 2005-2009

	2005	2006	2007	2008	2009
EU 27	43.2	44.3	45.3	47.0	45.7
Belgium	39.5	37.6	37.2	37.1	33.4
Bulgaria	56.3	64.0	63.0	59.2	63.9
Czech Republic	42.3	46.7	51.5	46.2	49.1
Denmark	37.4	38.1	37.4	37.8	38.2
Germany	35.7	40.4	42.7	43.7	42.7
Estonia	52.0	56.3	51.0	54.9	49.8
Ireland	49.8	:	:	:	42.4
Greece	45.7	:	46.7	48.0	:
Spain	53.9	55.2	57.1	54.6	53.4
France	37.1	38.7	39.1	38.2	38.6
Italy	41.6	41.0	41.5	39.6	40.3
Cyprus	59.4	74.7	67.9	73.4	63.2
Latvia	55.4	57.5	58.3	49.6	57.2
Lithuania	50.9	48.5	52.8	49.6	45.1
Luxembourg	:	:	:	:	:
Hungary	36.3	42.6	42.8	38.0	44.8
Malta	38.5	45.5	65.6	52.3	75.6
Netherlands	29.6	30.3	24.7	25.9	25.3
Austria	31.5	32.6	32.4	34.6	32.1
Poland	63.0	63.7	66.4	65.8	64.3
Portugal	64.1	62.4	59.6	58.7	52.7
Romania	:	:	:	69.5	67.6
Slovenia	41.8	47.9	44.3	45.5	44.4
Slovakia	47.0	48.5	48.3	51.1	50.7
Finland	48.8	45.4	50.1	56.6	48.4
Sweden	45.2	45.6	46.7	43.8	49.1
United Kingdom	42.6	42.0	43.1	42.5	43.0

Source: Eurostat, Education Statistics (educ_grad5)

Note: ":" = data are not available

Table D.3: Percentage of women graduates in the engineering and engineering trades of total graduates in that field on third level of education (ISCED 5-6), 2005-2009

	2005	2006	2007	2008	2009
EU 27	18.3	18.3	18.4	18.2	18.4
Belgium	15.2	14.3	15.5	13.0	13.1
Bulgaria	32.9	32.2	30.3	28.9	28.9
Czech Republic	12.4	11.8	14.5	12.4	10.8
Denmark	22.9	23.1	26.2	27.7	27.5
Germany	8.6	9.3	9.6	10.4	10.1
Estonia	24.5	25.7	18.8	19.7	17.5
Ireland	18.3	:	:	:	13.2
Greece	27.3	22.7	34.5	27.1	:
Spain	19.9	20.4	20.3	20.9	20.9
France	16.5	15.9	14.9	15.2	15.7
Italy	19.6	20.0	20.4	20.6	18.9
Cyprus	4.0	1.7	6.3	8.4	14.1
Latvia	20.9	19.6	20.7	20.2	20.8
Lithuania	18.8	15.4	16.6	19.1	16.0
Luxembourg	:	:	:	:	:
Hungary	12.9	12.4	11.0	10.2	10.8
Malta	25.3	19.4	19.4	18.2	16.7
Netherlands	7.4	9.2	9.8	9.7	11.4
Austria	10.5	12.7	13.0	12.7	12.9
Poland	22.9	22.0	23.0	23.3	23.8
Portugal	24.4	24.5	22.1	20.0	20.5
Romania	32.9	32.9	32.1	30.2	28.9
Slovenia	3.1	3.9	3.7	4.2	5.6
Slovakia	28.0	26.2	26.1	24.6	23.5
Finland	20.0	19.1	19.3	18.7	20.0
Sweden	25.3	27.1	25.0	25.7	24.5
United Kingdom	12.8	13.5	13.1	13.1	12.9

Source: Eurostat, Education Statistics (educ_grad5)

Note: ":" = data are not available

Table D.4: Percentage of women graduates in the manufacturing and processing field of total graduates in that field on third level of education (ISCED 5-6), 2005-2009

	2005	2006	2007	2008	2009
EU 27	45.2	45.8	47.0	50.1	50.0
Belgium	39.7	37.9	36.6	39.1	42.6
Bulgaria	58.7	54.4	57.9	55.0	59.3
Czech Republic	57.8	61.0	59.2	64.7	65.6
Denmark	86.4	86.7	86.5	87.4	88.4
Germany	29.2	29.1	33.7	33.5	33.2
Estonia	70.0	63.9	64.6	59.7	51.7
Ireland	31.5	:	:	:	30.1
Greece	55.9	54.6	:	62.6	:
Spain	53.7	54.8	58.2	56.6	54.1
France	44.9	45.5	46.7	46.1	48.6
Italy	46.8	46.8	49.0	52.9	56.2
Cyprus	0	0	0	0	0
Latvia	57.7	56.4	56.7	66.8	66.5
Lithuania	79.2	79.9	76.2	74.5	73.4
Luxembourg	:	:	:	:	:
Hungary	53.1	56.9	58.4	50.1	57.6
Malta	0	0	0	0	0
Netherlands	69.7	69.5	73.1	67.3	69.5
Austria	31.1	30.9	34.1	32.4	32.7
Poland	54.7	52.1	51.0	51.2	49.5
Portugal	67.9	70.7	65.8	67.9	67.5
Romania	32.8	29.8	29.9	56.9	57.6
Slovenia	55.6	58.8	54.3	60.6	54.7
Slovakia	49.3	55.1	60.2	60.8	58.2
Finland	48.0	45.5	48.4	52.2	51.8
Sweden	49.4	51.5	50.7	51.0	49.1
United Kingdom	27.1	30.4	29.9	34.7	32.8

Source: Eurostat, Education Statistics (educ_grad5)

Note: ":" = data are not available

Table D.5: Percentage of women graduates in the architecture and building field of total graduates in that field on third level of education (ISCED 5-6), 2005-2009

	2005	2006	2007	2008	2009
EU 27	35.0	35.3	36.2	36.1	35.6
Belgium	40.0	37.5	45.1	44.0	42.5
Bulgaria	49.7	45.2	48.8	44.8	47.7
Czech Republic	30.2	30.1	34.3	34.4	38.4
Denmark	37.6	36.0	36.9	34.3	34.6
Germany	32.4	34.3	35.8	36.4	37.7
Estonia	44.1	40.8	42.3	42.7	46.6
Ireland	26.3	:	:	:	19.7
Greece	55.3	49.6	53.9	50.4	:
Spain	35.4	36.4	36.4	36.8	39.2
France	31.3	32.4	36.2	36.9	35.2
Italy	47.7	45.9	44.7	45.8	44.4
Cyprus	21.4	25.6	44.4	52.5	36.0
Latvia	33.6	36.1	34.4	33.5	30.8
Lithuania	38.4	35.7	37.5	38.5	35.2
Luxembourg	:	:	:	:	:
Hungary	36.7	41.8	44.0	40.0	40.9
Malta	50.0	19.4	37.5	34.1	62.5
Netherlands	20.7	20.2	20.1	20.5	19.4
Austria	25.5	28.3	29.5	31.4	29.8
Poland	39.5	40.1	40.5	42.5	39.2
Portugal	39.0	38.9	35.7	37.1	37.0
Romania	48.6	52.0	50.1	29.2	30.6
Slovenia	35.3	33.7	34.9	38.7	34.6
Slovakia	36.5	35.2	34.0	39.8	36.6
Finland	25.5	26.6	26.7	24.3	26.0
Sweden	45.6	42.9	40.8	40.7	35.8
United Kingdom	24.6	26.1	27.6	26.3	28.4

Source: Eurostat, Education Statistics (educ_grad5)

Note: ":" = data are not available

Table D.6: Percentage of women graduates in the transport services of total graduates in that field on third level of education (ISCED 5-6), 2005-2009

	2005	2006	2007	2008	2009
EU 27	26.1	25.1	23.7	24.5	25.7
Belgium	100	17.3	17.4	21.1	23.6
Bulgaria	25.7	18.3	14.8	17.7	15.9
Czech Republic	20.6	18.5	19.9	23.8	25.5
Denmark	5.9	8.0	4.8	3.7	7.1
Germany	18.8	20.8	18.9	19.6	17.0
Estonia	41.3	38.1	35.6	40.4	42.5
Ireland	24.2	:	:	:	14.3
Greece	1.9	:	0	16.1	:
Spain	22.4	26.8	19.3	26.0	24.5
France	34.1	33.0	31.1	28.6	27.7
Italy	57.7	48.2	49.8	41.9	38.8
Cyprus	0	0	0	0	0
Latvia	24.7	33.9	42.7	42.9	50.7
Lithuania	29.4	34.2	28.9	29.1	24.7
Luxembourg	:	:	:	:	:
Hungary	0	100	0	0	0
Malta	0	0	0	0	0
Netherlands	15.5	15.2	16.0	16.4	18.7
Austria	0	16.7	0	0	0
Poland	19.2	18.0	17.6	17.6	18.2
Portugal	29.4	26.1	14.5	10.3	27.1
Romania	14.2	11.6	11.4	:	:
Slovenia	27.3	31.6	26.0	31.2	40.3
Slovakia	34.5	39.8	40.7	46.9	50.8
Finland	6.2	6.0	19.6	13.9	19.6
Sweden	30.7	28.7	34.3	43.2	49.4
United Kingdom	0	0	0	0	0

Source: Eurostat, Education Statistics (educ_grad5)

Note: ":"= data are not available

Table D.7: Percentage of women graduates in the environment protection field of total graduates in that field on third level of education (ISCED 5-6), 2005-2009

	2005	2006	2007	2008	2009
EU 27	53.3	50.8	50.2	51.3	51.1
Belgium	50.6	50.9	47.1	45.6	32.9
Bulgaria	69.8	65.4	68.3	72.2	67.0
Czech Republic	51.4	56.7	55.6	61.9	65.2
Denmark	75.0	88.2	80.0	58.3	71.4
Germany	33.0	31.0	33.8	31.8	32.2
Estonia	71.0	76.8	74.2	74.9	76.2
Ireland	62.7	:	:	:	37.8
Greece	58.7	:	79.4	47.6	:
Spain	50.7	51.1	50.3	50.2	48.7
France	44.7	42.5	41.3	42.5	43.3
Italy	54.0	55.8	55.4	58.0	51.6
Cyprus	0	0	0	0	0
Latvia	56.9	59.7	59.4	63.7	62.9
Lithuania	62.7	60.0	60.6	62.4	59.2
Luxembourg	:	:	:	:	:
Hungary	57.7	53.8	54.1	53.1	53.1
Malta	100	0	0	0	0
Netherlands	43.3	41.7	42.3	41.4	38.6
Austria	34.0	55.3	53.2	50.4	47.0
Poland	57.3	52.9	50.4	50.7	50.2
Portugal	68.5	67.5	67.4	65.7	65.7
Romania	:	:	74.8	64.0	61.2
Slovenia	22.4	30.5	24.2	30.2	35.1
Slovakia	54.9	51.3	49.2	54.9	56.5
Finland	61.3	68.9	68.9	74.7	77.0
Sweden	58.5	62.6	62.9	57.9	62.0
United Kingdom	47.0	53.2	49.9	45.4	52.5

Source: Eurostat, Education Statistics (educ_grad5)

Note: ":"= data are not available

Table D.8: Percentage of total women graduates of total graduates on third level of education (ISCED 5-6), 2005-2009

	2005	2006	2007	2008	2009
EU 27	58.5	58.9	58.9	59.3	59.2
Belgium	58.4	58.8	58.1	58.7	58.7
Bulgaria	58.9	60.1	59.9	61.4	60.6
Czech Republic	56.5	56.9	57.1	58.1	60.1
Denmark	58.9	58.0	57.4	57.8	58.7
Germany	53.0	56.6	56.6	56.8	58.4
Estonia	70.2	71.4	68.9	69.3	70.4
Ireland	55.6	56.1	56.6	56.3	56.9
Greece	61.5	:	59.5	59.3	:
Spain	58.0	58.3	58.4	58.4	58.2
France	55.9	55.5	55.1	55.2	54.9
Italy	58.8	59.2	59.9	59.5	58.3
Cyprus	61.0	61.5	58.9	61.6	59.6
Latvia	70.5	70.6	71.9	71.5	71.4
Lithuania	66.4	66.1	66.7	66.7	66.0
Luxembourg	:	:	:	:	:
Hungary	64.5	65.3	66.5	66.8	65.8
Malta	60.6	58.0	57.3	59.4	59.6
Netherlands	56.5	55.9	56.5	56.7	56.5
Austria	51.6	51.7	52.5	51.6	52.7
Poland	65.9	65.6	65.2	65.8	65.2
Portugal	65.2	65.4	61.4	59.6	59.3
Romania	57.1	59.2	59.7	63.7	59.9
Slovenia	61.8	61.9	61.8	62.8	61.8
Slovakia	57.1	59.5	61.7	64.2	64.2
Finland	62.2	62.6	63.2	64.0	62.6
Sweden	63.3	63.7	63.7	63.5	63.4
United Kingdom	56.2	56.3	56.5	56.3	57.3

Source: Eurostat, Education Statistics (educ_grad5)

Note: ":"= data are not available