Who Shapes Climate Policy? Education and Gender in Nordic Climate Institutions

Wilma Henning, Viena Lahtinen, Gunnhildur Lily Magnusdottir and Sari Pikkala **10/2025**

Summary

- This brief explores the educational background of civil servants in Swedish, Danish, Norwegian, and Finnish climate policy institutions. The brief is a part of the research project; *Gendered norms and practices in Nordic and Baltic Climate Policy Institutions: Implications for the Climate Transition* (see further information below).
- Most of the employees in the studied climate institutions have a background in STEM[1]. Norwegian institutions have the lowest percentage of employees with a background in STEM.
- Employees with a background in economics are the smallest group in Sweden, Norway, and Denmark, where Denmark stands out with an especially low percentage.
- The results show surprisingly little gendered segregation of educational fields, except in the case of Finland.
- The results are interesting since previous research indicates that policy-making in Nordic climate institutions has primarily been based on techno-economic knowledge and practices with limited scope for including expertise and approaches from other disciplines.
- To deepen our understanding of how employees' educational field might influence climate policy-making processes, we will conduct interviews with civil servants in 2025-2026.

[1] Umbrella term for Science, Technology, Engineering, and Mathematics.

Does Educational Background Impact the Work of Civil Servants?

Our previous research brief in this project revealed that Nordic climate institutions are mostly gender-balanced or even over-represented by women. This is interesting as climate institutions, particularly in the fields of transport and energy, have globally been male-dominated and, in many cases, gender-blind in their policy-making. This brief dives deeper by exploring how the educational backgrounds of civil servants are distributed by gender.

The brief focuses on Swedish, Danish, Norwegian and Finnish national climate authorities and ministries, especially those responsible for the energy and transport sectors. A list of the institutions included can be found at the end of the brief (Appendix 1). We have collected data on employees' gender and educational fields either via inquiring the institutions in question or via a governmental data centre.

The educational fields have been divided into the following categories: 1) Social sciences, humanities and law, 2) STEM, and 3) Economics, (although the data from Finnish institutions included economics in category 1). Studying economics separately is relevant due to previous studies suggesting that *techno-economic knowledge* seems to be privileged within Scandinavian climate institutions (Magnusdottir and Kronsell 2015; 2021; 2024, Kronsell et al. 2025). The tables include only the employees who have an educational background in these fields, not considering employees in other educational fields, such as health and social care.

As the Nordic region has been distinguished as a pioneer of gender equality and climate action, it is an interesting subject to study. Climate institutions are relevant due to their responsibility and authority in organising climate actions, whereas civil servants' expertise broadly impacts policy-making and implementation.

A certain institutional rigidity enables continuity in policy-making. It might also lead to a *path dependence* in policy-making where an established techno-economic knowledge is reproduced, leaving less room for other approaches (see below). As civil servants can hold assigned posts even for decades, they provide the aforementioned continuity and contribute to institutional memory beyond electoral cycles. Previous studies have also suggested that the educational background could be among the most significant factors in understanding civil servants' practices in policy-making (e.g. Egeberg and Stigen 2021).

Path Dependence

Path dependence is a concept from institutionalist scholarship (e.g. March and Olsen 1989), which refers to the idea that *rules, norms, and behaviours* are reproduced through everyday acts, making them deeply embedded in institutional practices. This creates a situation where the integration and adaptation of new innovations, perspectives, ideas, and knowledge are constrained by previous choices, making institutional decisions "sticky". The stickiness makes institutions resilient to change and to adapting new operational ways.

Climate policy has traditionally been approached from a technical and natural-scientific perspective. This implies that there is limited room for competing perspectives. Accordingly, the path dependence of established technical and sometimes gender-blind norms and practices adds challenges to including other crucial perspectives, such as gender equality, into climate policy-making.

Nordic Climate Institutions Rely on Techno-Economic Knowledge

The educational background of civil servants can potentially influence the institutional practices, norms, and knowledge production of climate policy-making. Gender becomes relevant as educational fields are noticeably segregated; STEM fields are male-dominated, whereas social sciences and humanities are more female-dominated.

Energy and transport sectors heavily contribute to carbon emissions and are globally male-dominated. It has been argued that due to their "masculinist culture", they are not welcoming to women or other genders. This results in limiting women's career opportunities as well as preventing the inclusion of (gendered) knowledge that could enhance development in these sectors (EIGE 2023).

Attempts to address gender inequality are often superficial, or an additional layer on top of existing structures, where gender primarily refers to increasing descriptive representation of women without addressing gender blind practices and norms (Clarke et al. 2021).

These fields tend to reward or even expect masculine-related traits of employees, becoming apparent in the processes of 'recruiting, retaining and promoting women' (Baruah and Biskupski-Mujanovic 2021). They can take the form of, e.g. valuing ideals associated with the male gender role, such as risk-taking or toughness, or the working environment not offering flexibility for largely gendered care-taking responsibilities (ibid.; Cheryan and Markus 2020).

Recognizing these *masculine defaults* and thus tackling the problem becomes especially relevant in the face of green transition. Even if the green energy field includes slightly more women than the conventional energy sector, inclusion of women in the transition cannot be achieved automatically: it requires resources, efforts, and commitments (IRENA 2019).

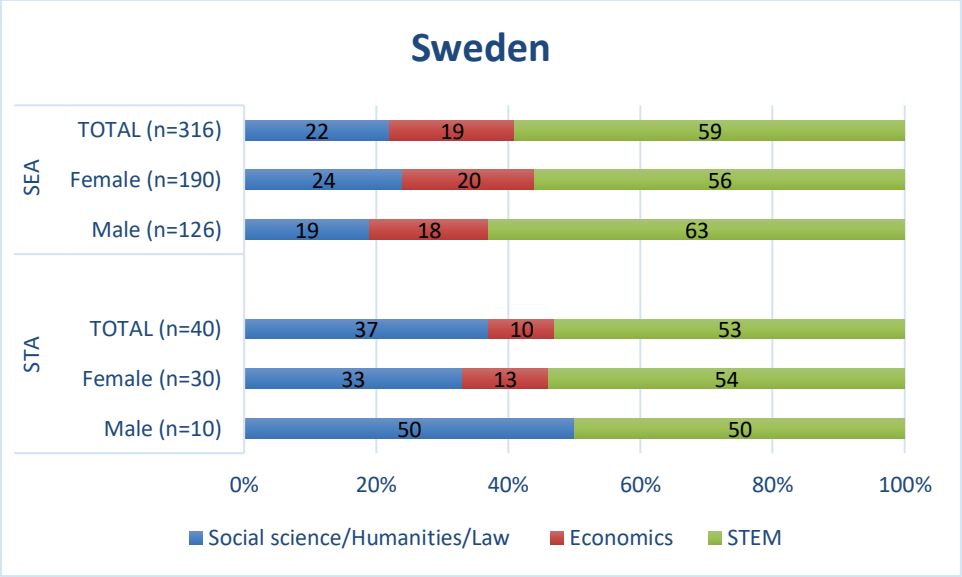

Figure 1. Educational background of civil servants in two Swedish climate policy institutions, showing the total number of employees and the gender distinction.

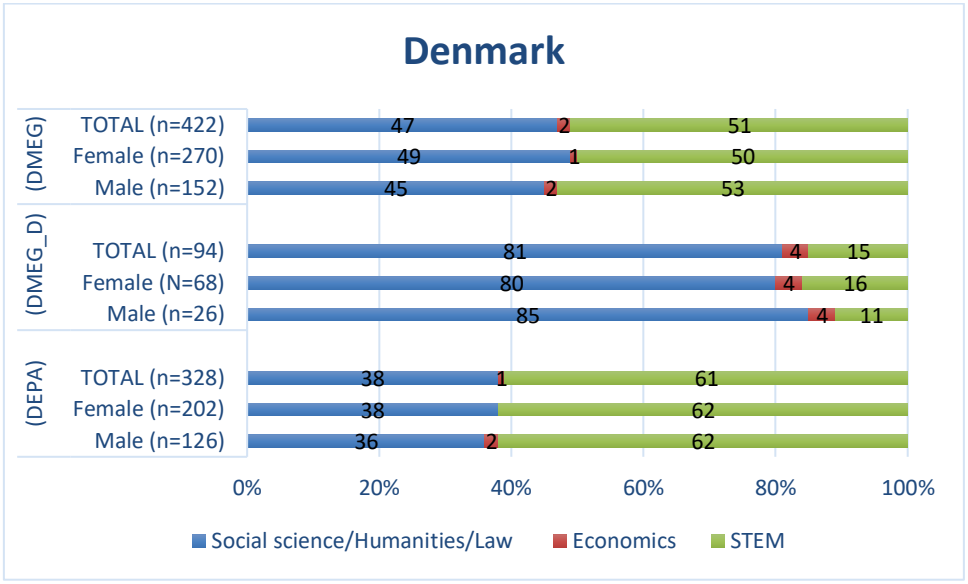

Figure 2. Educational background of civil servants in three Danish climate policy institutions, showing the total number of employees and the gender distinction.

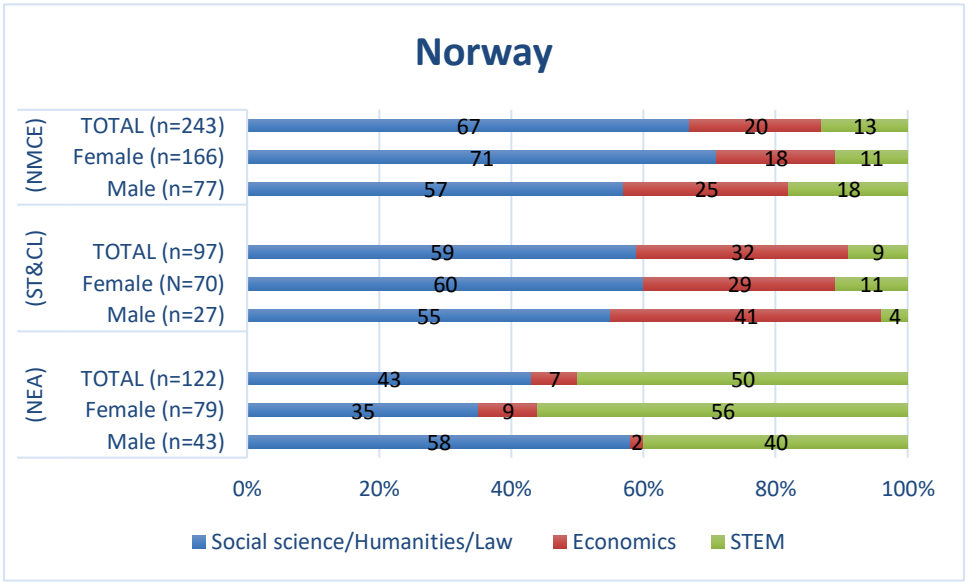

Figure 3. Educational background of civil servants in three Norwegian climate policy institutions, showing the total number of employees and the gender distinction.

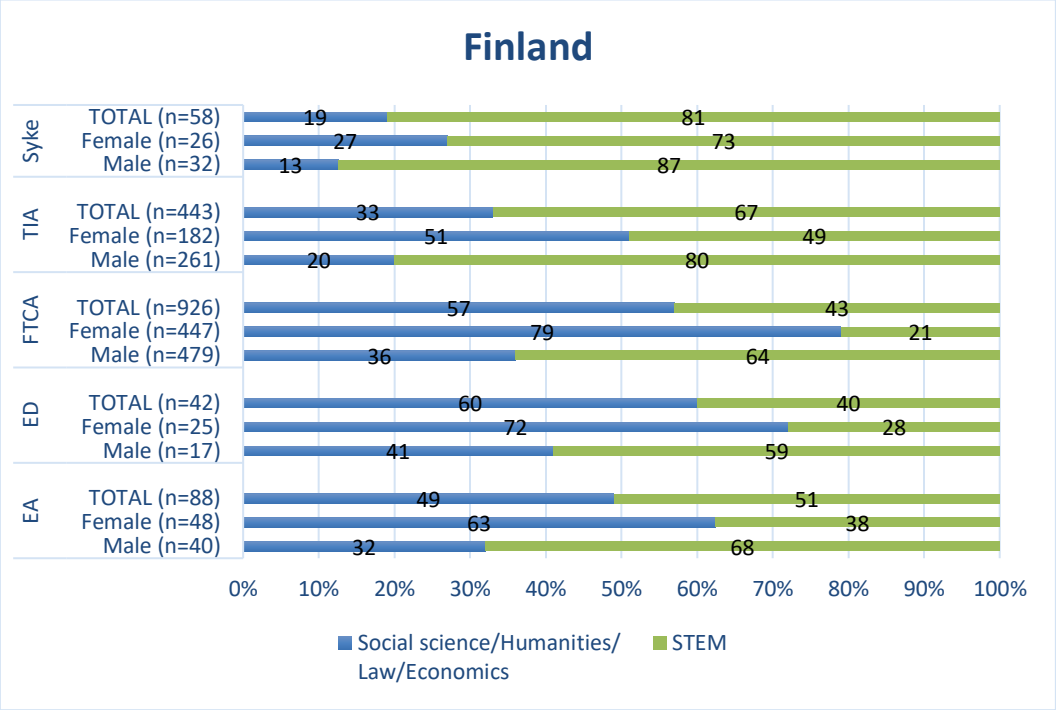

Figure 4. Educational background of civil servants in five Finnish climate policy institutions, showing the total number of employees and the gender distinction.

STEM and Social Sciences Prevail – The Educational Backgrounds in Nordic Climate Institutions

As the figures (1, 2, 3 and 4) above show, most of the employees in the Swedish, Danish, Norwegian and Finnish climate institutions have an educational background in STEM. The Norwegian climate institutions have the lowest percentage of employees in STEM compared to the other countries, except in NEA.

The next most common educational background in Sweden and Denmark is social sciences, humanities and law. The same applies to Finland, where the economic background was not separated from this category. However, the social science field is the most prominent one in two Norwegian (NMCE, ST & CL) and two Finnish (FTCA & ED) institutions.

Employees with a background in economics are the smallest group in Sweden, Norway and Denmark. The Danish percentages are extremely low compared to the other countries, whereas in Norway, the number is higher than in the other countries.

Climate policy was originally framed as a natural science problem, and this framing has been reproduced at various levels of climate governance. However, social scientific approaches have come to the fore more recently, seen e.g. in greater emphasis on social justice, in the European Green Deal and IPCC 6th assessment report (IPCC 2022).

Against this historical framing of climate change as a natural science problem and our previous research (e.g. Magnusdottir and Kronsell 2015, 2016, 2021, 2024), it could be argued that Nordic climate institutions are shaped by historical techno-economic path-

dependent knowledge and institutional practices. The results presented here, however, show that despite possible path-dependent techno-economic practices, some climate institutions currently have a surprisingly small number of employees with educational background in STEM or economics, such as Norway and Sweden respectively. The larger number of employees with a background in social sciences, humanities, and law can be partly explained with the institutions' responsibilities not being limited to climate issues.

Gender and Educational Background – Finland Stands Out

When exploring the gender division of the educational backgrounds, there is a rather equal gender distribution in Sweden and Denmark. The differences between genders are rather small, except in one Swedish institution, where the number of women with an economic background clearly surpasses the number of men (STA). The same applies to STEM in one Danish institution (DMEG_D).

Studying Norway brings more exceptions, as in two institutions, the economic background is more male-dominated (NMCE and ST & CL). These institutions also have more men with a background in STEM, whereas in the remaining institution, the number of women is larger (NEA).

Finland stands out compared to the other Nordics as the fields are more persistently gendered. In each institution, the social sciences, humanities, law and economics fields are significantly more female-dominated, whereas STEM is largely male-dominated. This follows the segregated nature of education in Finland, where social sciences have been female-dominated whereas STEM fields have been strongly male-dominated for long, reflecting also a global trend in general.

Data from Eurostat (2020) shows that even though Finnish women graduate from STEM-fields in large masses, the gender gap is bigger than in Sweden, Denmark and Norway. It is also relevant to note that despite more women attending male-dominated educational fields, the trend does not go in the "other" way – men have not been found to enter female-dominated fields in same proportions (e.g. Froehlich et al. 2020).

Greater Variations in Educational Backgrounds - Yet STEM prevails

Previous research of the Nordics has identified strong techno-economic norms and practices in climate policy bodies, prioritising techno-economic knowledge that supports solutions based on ecological modernisation over those focused on social sustainability (Magnusdottir and Kronsell 2015; 2021; 2024, Kronsell et al. 2021, Rask et al. 2025). This has indicated that climate policy does not contain the full scale of issues, understandings, and perspectives necessary to be inclusive.

In the case of Sweden, Denmark, and Finland, most civil servants in the explored climate institutions have a background in STEM, and in Norway, a high percentage have a

background in economics. However, it is interesting that in both Sweden and especially Denmark, there is a low percentage of employees with a background in economics. This is noteworthy given that previous studies have demonstrated a strong techno-*economic* path dependence within Nordic climate institutions, which is not reflected in the educational background of the Swedish and Danish climate institutions. Furthermore, the results of this brief do not indicate a significant gender segregation in the educational fields of civil servants in climate institutions, except in the case of Finland.

The Nordics have a strong gender pioneer profile, and they are known for their ambitious approach to achieving gender equality, which has also included reducing the gender segregation in education and employment. This research brief has only begun to shed light on a topic that will be deepened with interviews. The next steps will thus be to interview civil servants at the climate institutions in question, which will provide more in-depth information on how employees' educational field might influence institutional practices.[2]

[2] The data used here could not be found in every institution included in the study. For example, only two Swedish institutions out of five could be included, which naturally limits drawing definitive or broad conclusions.

Appendix 1.

Below is a table presenting the number of institutions that were mapped in the study. The institutions are divided by inclusion in this brief, data source and the educational fields that were provided in the data.

Mapped institutions	Acronym	Included in this brief	Data source	Data on Social sciences	Data on Economics	Data on STEM
Sweden						
Energimyndigheten -The Swedish Energy Agency	SEA	x	SEA via email	x	x	x
Transportstyrelsen -The Swedish Transport Agency	STA	x	STA via email	x	x	x
Vinnova - The Swedish Innovation Agency	VIN					
Naturvårdsverket - The Swedish Environmental Protection Agency	SEPA					
Trafikverket - The Swedish Transport Administration	STAD					
Denmark						
Miljø- og Ligestillingsministeriet -The Danish Ministry of Environment and Gender Equality	DMEG	x	DMEG via email	x	x	x
Departementet - The Department (a section of DMEG)	DMEG_D	x	DMEG via email	x	x	x
Miljøstyrelsen - The Environmental Protection Agency	DEPA	x	DEPA via email	x	x	x
Energistyrelsen - The Danish Energy Agency	DEA					
Transportministeriet - The Danish Ministry of Transport	DMT					
Norway						
Klima- og miljødepartementet-The Norwegian Ministry of Climate and Environment	NMCE	x	NMCE via email	x	x	x
Bærekraft- og omstillingsavdelingen og Klimaavdelingen - The Sustainability and Transition Department and The climate department (departments under NMCE)	ST & CL	x	NMCE via email	x	x	x
Miljødirektoratet - Norwegian Environment Agency	NEA	x	NEA via email	x	x	x
Energidepartementet - The Norwegian Ministry of Energy	NME					
Samferdselsdepartementet - The Norwegian Ministry of Transport	NMT					
Finland						
Ilmastoyksikkö (Suomen ympäristökeskus) - Climate Solutions Unit (Finnish Environment Institute)[3]	SYKE	x	Palkeet	x		x
Väylävirasto (Liikenne- ja viestintäministeriö) - Finnish Transport Infrastructure Agency (Finnish Ministry of Transport and Communications)	FTIA	x	Palkeet	x		x
Traficom (Liikenne- ja viestintäministeriö) - Finnish Transport and Communications Agency (Finnish Ministry of Transport and Communications)	FTCA	x	Palkeet	x		x
Energiaosasto (Työ- ja Elinkeinoministeriö) - Finnish Energy Department (Finnish Ministry of Economic Affairs and Employment)	FED	x	Palkeet	x		x
Energiavirasto – Finnish Energy Authority (Finnish Ministry of Economic Affairs and Employment)	FEA	x	Palkeet	x		x
Ilmasto- ja ympäristönsuojeluosasto (Ympäristöministeriö) - Finnish Climate and Environmental Protection Department (Finnish Ministry of the Environment)	FCEPD					
Verkko- ja palveluosasto (Liikenne- ja viestintäministeriö) - Finnish Networks and Services Department (Finnish Ministry of Transport and Communications)	FNSD					

[3] Finnish Environment Institute is a research institute guided by the Ministry of the Environment and the Ministry of Agriculture and Forestry of Finland. They create independent and reliable information and solutions to support the sustainable transition

References

Baruah, B., & Biskupski-Mujanovic, S. (2021). Navigating sticky floors and glass ceilings: Barriers and opportunities for women's employment in natural resources industries in Canada. *Natural resources forum*, 45(2), 183-205. https://doi.org/10.1111/1477-8947.12216

Buckingham, S., Hultman, M., Magnusdottir, G.L., & Morrow, K. (2025). *Feminist Climate Policy in Industrialised States: A Gender-Just Climate Emergency Response*. Routledge. https://doi.org/10.4324/9781003461005

Cheryan, S., & Markus, H. R. (2020). Masculine Defaults: Identifying and Mitigating Hidden Cultural Biases. Psychological review, 127(6), 1022-1052. https://doi.org/10.1037/rev0000209

Clarke, L. and Sahin-Dikmen, M. et al. (2021). Why radical transformation is necessary for gender equality and a zero carbon European construction sector in Magnusdottir, G. L., & Kronsell, A. (2021). Gender, intersectionality and climate institutions in industrialized states Routledge. .https://doi.org/10.4324/9781003052821

Egeberg, M., & Stigen, I. M. (2021). Explaining government bureaucrats' behaviour: On the relative importance of organizational position, demographic background, and political attitudes. *Public policy and administration*, 36(1), 3-18. https://doi.org/10.1177/0952076718814901

EIGE (2023). *Gender Equality Index 2023 – Towards a green transition in transport and energy*. Publications Office of the European Union.

Eurostat (2020). Graduates in tertiary education, in science, math., computing, engineering, manufacturing, construction, by sex - per 1000 of population aged 20-29. https://ec.europa.eu/eurostat/databrowser/view/EDUC_UOE_GRAD04__custom_5209004/bookmark/bar?lang=en&bookmarkId=2170f50b-a54a-4a19-be7e-849f628e035b&c=1678101854566

Froehlich, L., Olsson, M. I. T., Dorrough, A. R., & Martiny, S. E. (2020). Gender at Work Across Nations: Men and Women Working in Male-Dominated and Female-Dominated Occupations are Differentially Associated with Agency and Communion. Journal of Social Issues, 76(3), 484–511. https://doi.org/10.1111/josi.12390

IPCC, 2022: Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. Cambridge University Press, Cambridge, UK and New York, NY, USA, 3056 pp., doi:10.1017/9781009325844.

IRENA. (2019). *Renewable Energy: A Gender Perspective*. IRENA publications. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Jan/IRENA_Gender_perspective_2019.pdf

Kronsell, A., Magnusdottir, L. G,. Rask, N., & Singleton, B. E. (2021). An Intersectional exploration of climate institutions. In J. Sowers, et al. (eds.) *The Oxford Handbook of Comparative Environmental Politics* (p. 223-239).

Kronsell, A., Magnusdottir, L. G., Rask, N, Singleton, B. E., and Lundgren, A. (2025) *Intersectionality and Climate Policy-making: Ways forward to a socially inclusive and sustainable welfare state* – Final Report.

Magnusdottir, G. L., & Kronsell, A. (2015). The (In)Visibility of Gender in Scandinavian Climate Policy-Making. *International feminist journal of politics*, 17(2), 308-326. https://doi.org/10.1080/14616742.2014.896661

Magnusdottir, G. L., & Kronsell, A. (2016). The Double Democratic Deficit in Climate Policy-making by the EU Commission. Femina politica, 25(2), 64-77. https://doi.org/10.3224/feminapolitica.v25i2.25353

Magnusdottir, G. L., & Kronsell, A. (2021). *Gender, intersectionality and climate institutions in industrialized states*. Routledge: https://doi.org/10.4324/9781003052821

Magnusdottir, G. L., & Kronsell, A. (2024). Climate institutions matter: The challenges of making gender-sensitive and inclusive climate policies. *Cooperation and conflict, 59*(3), 361-378. https://doi.org/10.1177/00108367241230011

March, J. G., & Olsen, J. P. (1989). *Rediscovering institutions: The organizational basis of politics*. Free Press.

Rask, N, Lundgren, A, Kronsell, A (2025):" Applying Intersectionality in Climate Policy and Planning: Experiences from Gothenburg and Malmö" in Buckingham, Hultman, Magnusdottir and Morrow *Feminist Climate Policy in Industrialised States: A Gender Just Climate Emergency Response*. Routledge.

Collaborators

Project Information

This research brief is written as part of the research project *Gendered norms and practices in Nordic and Baltic Climate Policy Institutions: Implications for the Climate Transition* (180198).

The research aims to explore how gender equality is understood and implemented in Nordic and Baltic climate policy institutions. The project aims to increase knowledge on how to develop gender-sensitive climate policies in line with national and international commitments.

The project was supported by NordForsk, Nordic Energy Research, Formas, the Swedish Energy Agency, the Research Council of Finland, the Research Council of Lithuania and The Icelandic Centre for Research Rannís.

Contact Information

Gunnhildur Lily Magnusdottir, Project Leader (2025), gunnhildur.lily.magnusdottir@mau.se

Annica Kronsell, Project Leader (2026–2027), annica.kronsell@gu.se

Cover photo © Åbo Akademis bildbank, Anders Lönnfeldt.